JOINT FLEET MAINTENANCE MANUAL (JFMM)

COMUSFLTFORCOMINST 4790.3

VOLUME VI
MAINTENANCE PROGRAMS

JOINT FLEET MAINTENANCE MANUAL
VOLUME VI
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LIST OF EFFECTIVE CHAPTERS

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FOREWORD

INTRODUCTION

REFERENCES.

   (a)   OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy
   (b)   OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
   (c)   COMLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
   (d)   COMPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
   (e)   NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual
   (f)   SSPINST 4720.1 - Policies and Procedures for Alteration of Strategic Weapon System Equipment

1.1 PURPOSE. To provide guidance in the execution and management for maintenance programs applicable to units of the Navy.

   a.   The Foreword of this manual contains a master listing of all references used throughout the Joint Fleet Maintenance Manual. These references are arranged in alphanumeric order to facilitate their procurement for use with this manual. References used in specific chapters of this volume are listed at the beginning of each chapter in the order in which they appear in the chapter text.

   b.   Acronyms are identified when they are initially used in each chapter of this volume. Appendix C of the Foreword contains a master listing of acronyms used throughout this manual.

   c.   References (a) through (e) must be used in conjunction with this manual, however, the requirements of this manual must **not** take precedence over these higher authority directives, or technical directives from applicable Systems Commands (SYSCOM). Where conflicts exist with previously issued Fleet Commander, Commander, Naval Reserve Force (COMNAVRESFOR), Type Commander (TYCOM) letters, transmittals and instructions, other than references (c) and (d), this manual must take precedence. Conflicts must be reported to the cognizant TYCOM for resolution.

1.2 SCOPE. This volume applies to all ships and shore activities under the cognizance of Commander, Atlantic Fleet (COMLANTFLT), Commander, Pacific Fleet (COMPACFLT) and COMNAVRESFOR. This volume is not intended to be all encompassing, since the guidance for many elements of the maintenance programs and their execution are promulgated by higher or technical authority (e.g., Naval Ships' Technical Manuals (NSTM), Office of the Chief of Naval Operations Instruction (OPNAVINST)).

   a.   This volume contains general programs applicable to all ships and units under the cognizance of COMLANTFLT or COMPACFLT. In those cases where chapters, sections or paragraphs of chapters are not applicable to certain Forces, an applicability statement has been used for clarification.

b.   Equipment under the cognizance of Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) is maintained per NAVSEA 08 directives.

c.   Nuclear-Powered Ballistic Missile Submarine (SSBN) Strategic Weapon System (SWS) and Nuclear-Powered Guided Missile Submarine (SSGN) Attack Weapons Systems (AWS) equipment under the cognizance of Strategic Systems Programs (SSP) is operated, maintained, modified or modernized per approved SSP directives and instructions.

(1)   Reference (f) defines policies, controls, processes and procedures for the accomplishment of all SSP Alterations (SPALT) issued by the Director, Strategic Systems Programs for all SSP cognizant equipment on both SSBNs and SSGNs. Reference (f) further defines the methodology and processes to plan, document, coordinate, install, and test SWS, AWS hardware, software and modernization SPALTs.

(2)   Adherence to reference (f) ensures that all related or affected Equipment, Fleet Documentation, Training, Logistic and Maintenance functions under the cognizance of SSP are fully integrated as part of the SPALT. Only SSP authorized SWS and AWS SPALTs are installed on SSBNs and SSGNs.

(3)   Applicable and required local support services such as Crane, Riggers, Power Isolation, Tag-Out, Hazardous Material, Quality Assurance, Critical Skill requirements, etc., for the conduct of a SPALT must be identified within the Director, Strategic Systems Programs SPALT document, related Ordnance Document, or SPALT installation pre-brief. This information must be communicated or provided to all involved and affected local activities per the SPALT process no later than forty-five (45) days prior to the conduct of a SPALT, as outlined and defined within reference (f).

(4)   An SSP Contractor or Government Team must provide the required operational and engineering support for all SPALT, Maintenance and Repair Activities to SWS and AWS equipment under the cognizance of SSP. The respective responsibilities of SSP Contractor, Government Teams, the Fleet Maintenance Activity and other local Commands for the execution of the SSP SPALT program must be documented in an overarching Memorandum of Agreement in order to define areas of responsibility for all activities involved in the accomplishment of authorized alterations in a timely, efficient, and coordinated manner.

1.3 <u>CHANGES AND CORRECTIONS</u>. Changes and corrections will be issued as required. Comments and suggestions for improving or changing this volume are invited. Address comments, recommendations, and requested changes to Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity utilizing the change request form located in the front of this manual. If changes are submitted in electronic format, facsimile or E-mail, each change request must contain the information required on the change request form.

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CHAPTER 1

WATERBORNE UNDERWATER HULL CLEANING

REFERENCES.

    (a)   NAVSEA S9086-CQ-STM-010 - NSTM Chapter 081 R4 (Waterborne Underwater Hull Cleaning of Navy Ships)
    (b)   NAVSEA 389-0288 - Radiological Controls
    (c)   NAVSEA S0600-AA-PRO-010 - Underwater Ship Husbandry Manual

1.1 PURPOSE. To implement the program requirements delineated in references (a), (b) and (c), and to provide guidance for waterborne hull cleaning of naval ships. This process applies to all surface force ships, submarines and aircraft carriers.

1.2 SCOPE. As stated in reference (a), commercial and Naval experience has demonstrated that appreciable savings in energy are obtainable by maintaining smooth underwater hull and propeller surfaces through periodic waterborne hull cleaning. Additionally, a hull-cleaning program provides a means in which hull damage can be detected in early stages and corrective action can be taken. The hull cleaning and propeller polishing requirements of this instruction apply to all ships. It is intended to conserve fuel, restore effectiveness of sonar systems, and reduce ship self-noise, which increases anti-submarine warfare effectiveness. Reference (a) provides necessary criteria, methodology, and guidelines for waterborne underwater ship inspection and cleaning. Reference (a) provides a rating scale for inspecting and reporting fouling, fouling thresholds to initiate cleaning, approved cleaning equipment for various underwater ship systems (i.e., hull sections, appendages, dome, masker or prairie air), cleaning requirements, safety precautions and procedures for cleaning, guidelines for establishing cleaning intervals and documentation and reporting requirements. To meet the objectives of reference (a), special attention will be given to ensure that appropriate action will be taken to clean ships within 30 days of deployment.

1.3 POLICY.

    a.   Scheduling of periodic cleaning will be the responsibility of the Type Commander (TYCOM) and accomplished per reference (a). Full, partial and interim cleaning must be accomplished by diving activities (military and civilian) certified by Naval Sea Systems Command (NAVSEA) code 00C.

    b.   Full hull cleaning will only be accomplished by NAVSEA divers contracted for worldwide waterborne underwater hull cleaning services. Interim or partial hull cleaning will be done by a certified navy activity or NAVSEA contracted service.

    c.   The execution of waterborne underwater hull cleaning operations must follow best management practices delineated in reference (c) to maximize hull-cleaning effectiveness and to minimize the release of hull cleaning by-products into surrounding waters.

1.4 RESPONSIBILITIES. An effective hull-cleaning program that ensures the delivery of reliable, environmentally sound, and quality services to the Fleet requires the well-coordinated effort of several organizations. Together, these groups must manage the planning, execution,

quality assurance, inspection and condition-reporting functions necessary to ensure the work is performed efficiently and following technical specifications. Reference (c), Chapter 28, Appendix A, Section II specifies the responsibilities for each organization (NAVSEA code 00C, Commander United States Fleet Forces Command, TYCOMs, On-Scene Navy Representative, and the Ship's Chief Engineer) involved in the hull cleaning program.

1.5 <u>REPORTS</u>. All waterborne underwater hull cleaning and inspection must be documented and submitted to the respective TYCOM and NAVSEA 00C for review. Documentation for cleaning submarines must also be transmitted to SUBMEPP Code 1844. Documentation for cleaning and inspection of aircraft carrier hulls must also be transmitted to PMS 312C Carrier Planning Activity, Code 22. Inspection results must be recorded on the standard Diver Hull Inspection Data form (NAVSEA 4730/3 available on-line at https://forms.documentservices.dla.mil/order/). The inspection documentation may be mailed or electronically stored and transmitted to the appropriate organizations.

Mailing addresses are:

COMNAVSEASYSCOM
Attn: NAVSEA 00C5
1333 Isaac Hull Avenue S.E. Stop 1075
Washington Navy Yard, DC 20376-1075

Commanding Officer
SUBMEPP Activity
PO Box 2500
Portsmouth Naval Shipyard
Portsmouth, NH 03804-2500

Commanding Officer
PEO Carriers PMS 312C
Bldg. 33
Portsmouth, VA 23709-5091

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CHAPTER 2

FLEET TECHNICAL ASSISTANCE

REFERENCES.

(a) COMUSFLTFORCOM/COMPACFLTINST 3501.3 - Fleet Training Continuum
(b) OPNAVINST 3000.15 - Fleet Response Plan (FRP)

LISTING OF APPENDICES.

A   Area Regional Maintenance Center Fleet Technical Assistance Contact Information
B   Sample Technical Assistance Visit Report (TAVR) Message
C   Sample E-MAIL Technical Assistance Visit Report (E-TAVR)
D   Submarine Fleet Technical Support Providers Roles and Responsibilities.

2.1 PURPOSE. This chapter provides policy, procedures and guidance regarding utilization of Fleet Technical Assistance (FTA) program resources in support of all surface ships, aircraft carriers, submarines and craft. Commander, U. S. Fleet Forces Command and Commander, U.S. Pacific Fleet (COMPACFLT) Fleet Maintenance Officers (N43) will ensure that appropriate Fleet resources are available to provide technical assistance to the Naval operating forces under their cognizance.

2.2 FLEET TECHNICAL ASSISTANCE DEFINITION. FTA is the help that surface ships, aircraft carriers, submarines and craft request when they are unable to resolve equipment or software deficiencies using their own ships resources or other means available within their Strike Group. Paragraph 2.3 of this chapter lists FTA program exclusion items. Use of Regional Maintenance Center (RMC) or RMC-obtained resources for other purposes, such as non-Ship's Force repairs, assessments, Board of Inspection and Survey inspections, etc., is not considered a FTA but is addressed elsewhere in this manual or other policy guidance. All FTA requests will be responded to by the RMCs as defined in paragraph 2.4.1 of this chapter.

2.3 FLEET TECHNICAL ASSISTANCE EXCLUSION AREAS. RMCs are not responsible for technical assistance in the following areas:

a.   Naval Sea Systems Command (NAVSEA) 08 cognizant equipment.

b.   TRIDENT missile weapons systems.

c.   Aircraft.

d.   Catapults and arresting gear - Aircraft Launch and Recovery Equipment.

e.   Ordnance and munitions.

f.   Submarine Safety systems and components.

g.   Nuclear weapons.

h.   Special clearance carry-on equipment.

i.   Undersea and land-based surveillance equipment.

j.   Flight deck certification related systems and equipment.

k.   Diver life support systems.

l.   Non-Program of Record (pre-prototype) programs.

m.   Naval Supply Systems Command (NAVSUP) (e.g., Navy Cash)

n.   Navy Personnel Command (NAVPERS) (e.g., RAPIDS, MIAP, NSIPS)

2.4 <u>FLEET TECHNICAL ASSISTANCE POLICY</u>.

**NOTE: WHEN CONTACTING AN AREA RMC, UTILIZE SECURE
COMMUNICATIONS AS APPROPRIATE TO MAINTAIN SECURITY OF
CLASSIFIED EQUIPMENT AND OPERATIONAL PARAMETERS.**

2.4.1 <u>Requesting Assistance</u>. It is important that ships develop and exercise self-sufficiency for
shipboard system maintenance to the fullest extent possible. If unable to resolve a technical
problem internally, or by other means available within their Strike Group, and there are no RMC
representatives or Other Source of Support Subject Matter Experts (SME) already onboard, the
ship will contact the Area RMC as outlined in paragraph 2.7.2 of this chapter using the contact
information found in Appendix A of this chapter. When requesting assistance the ship will
provide the pertinent information listed in paragraph 2.4.2 of this chapter. In the case where the
applicable RMC representatives or Other Source of Support SMEs are onboard and available,
ships will coordinate with the Area RMC when requesting to utilize onboard SMEs for
immediate support.

2.4.2 <u>Required Fleet Technical Assistance Request Information</u>. A Casualty Report (CASREP)
solely to establish an FTA is not required. When requesting Technical Assistance, the following
information is **necessary** to assist in a timely and accurate response, regardless if the RMC
representative or Other Source of Support SME is onboard for immediate response:

a.   Job Control Number (JCN) (required) and Casualty Report (if applicable) numbers.

b.   Equipment identification: (Noun name, nomenclature, model, MK or MOD, etc.).

c.   Equipment failure mode: Detailed description of the nature of failure or casualty,
including symptoms and operational condition at time of casualty, current symptoms
and indications and any other relevant information available to assist in diagnosing the
problem.

d.   Repair actions taken to date: [Include any extra-unit assistance (e.g., Ship Repair
Facility, Tender, etc.)].

e.   Parts status: (Indicate spare parts required, estimated delivery date, document numbers,
document status, etc., if known).

f.   Technical manual: (NAVSEA, NAVSHIPS, NAVORD Technical manual number or
Commercial Off-The-Shelf manufacturer's publication identification, if available).

g.   Dates: (Include earliest through latest possible dates assist is required. Provide
alternate dates if possible).

h.   Location: (Country, port, Naval Base, pier, berth, etc.).

i. Contact information: (Ship or staff Point of Contact name(s) and rate and rank, DSN, INMARSAT, commercial phone numbers, FAX number, SIPRNET or NIPRNET E-mail addresses).

j. Manufacturer of equipment for which assistance is required (if known).

k. Equipment Allowance Parts List or Record Identification Number.

l. Commanding Officer assessment as to effect on ship's mission in the event Distance Support is unsuccessful.

2.4.3 Chief of Naval Operations Availability Fleet Technical Assistance Procedures. Fleet units may request technical assistance while in a Chief of Naval Operations scheduled maintenance availability. The request must be submitted to the cognizant Area RMC, which will coordinate with the appropriate Naval Supervising Authority (NSA) (if not the same as the cognizant Area RMC) for technical assistance related to systems or equipment that are under the NSA's cognizance or are part of an availability work package. When the cognizant Area RMC is the NSA, the RMC will provide technical support. If not the NSA, the cognizant Area RMC may also do so, as necessary and coordinated with the NSA.

2.4.4 Initial Response. The initial response to all FTA requests will be via Distance Support. If the Operational Commander or Type Commander (TYCOM) determines on-site support is necessary, it is incumbent on them to inform the cognizant area RMC that on-site support is required.

2.4.5 On-Site Support. In a port without a RMC or while underway, if Distance Support is determined unsuccessful by the RMC, the Operational Commander or TYCOM will determine whether the cognizant RMC will transition or provide on-site assistance. In a port with a RMC, the RMC may determine transition to on-site support, as prioritized by guidance in paragraph 2.7.4.a. of this chapter.

2.5 COMPLETION.

NOTE: **THERE WILL BE OCCASIONS WHEN AN UNDERWAY SHIP MAY NOT REQUIRE ALL SYSTEMS TO BE FULLY OPERATIONAL. SUCH SYSTEM DEFICIENCIES MAY BE THE SUBJECT OF A CASREP OR THEY MAY ONLY BE DOCUMENTED IN THE SHIP'S CURRENT SHIP'S MAINTENANCE PROJECT.**

2.5.1 Fleet Technical Assistance Completion. To complete the FTA the ship must concur that the cognizant RMC or Other Source of Support has completed one of the following:

a. The fault is resolved.

b. Parts are identified to resolve the fault.

c. Original fault troubleshooting is complete and the deficiency is identified (i.e., Ship understands what needs to be repaired).

2.5.2 Transition to Repair. A completed FTA may require a subsequent deferral (TA-1, TA-2) for repair activity action or Ship's Force corrective maintenance (TA-4).

2.6 RESPONSIBILITIES.

2.6.1 Ship's Commanding Officer. Ship's Commanding Officer will:

a. Ensure all FTA requests are accurate, complete and timely.

b. Ensure all FTA requests reference a JCN and contain a detailed problem description per paragraph 2.4.2 of this chapter to enable technical assistance personnel to adequately research the problem and provide timely and accurate technical assistance. Ensure the 2-kilo is up-lined within 24 hours.

c. For FTA requests associated with systems that are not required to meet current/projected mission tasking, ensure associated CASREP, 2-Kilo, or both, address whether or not on-site assistance will be required if Distance Support is unable to resolve the issue.

d. Ensure that TYCOM, Immediate Superior In Command (ISIC) and Operational Commander are kept informed of technical issues and technical assistance requests following existing guidance.

e. While a ship is underway or in another port without a RMC, ensure Distance Support alternatives are exhausted before on-site technical assistance is requested. This policy is in place to ensure satisfactory crew and technical assistance personnel Distance Support procedure training and proficiency so they are able to efficiently use Distance Support when the ship is deployed.

f. Ensure Ship's Force technicians who are qualified on the systems and equipment in question are available to support technical assistance personnel.

g. Immediately upon completion of an on-site FTA visit per paragraph 2.5.1 of this chapter, the Fleet unit will release the FTA personnel. When redirection of the same personnel to other problems is desired, the Fleet unit will coordinate with the cognizant RMC and Operational Commander for transfer of FTA personnel.

h. Ships will establish a central, secure E-mail account that will be available to all appropriately cleared technical assistance personnel who visit the ship. The account will be used by visiting technical representatives to communicate with their home office or detachment for technical support or information. The account will be RMCTECHASSIST@Ship.navy.mil where "Ship" is the name of the vessel.

i. Ship will issue arrival and departure message keeping all apprised of technical representative movement.

2.6.2 Regional Maintenance Center Commanders. RMC Commanders will ensure:

a. Sufficient capability exists to provide timely response to all requests for technical assistance, either with RMC personnel or other sources of support. The RMC is responsible for coordinating the response from other sources of support as detailed in paragraph 2.6.3 of this chapter. The cognizant RMC responsibility is defined in paragraph 2.7.2 of this chapter.

b. RMC mission funds are used to fund FTA efforts per paragraph 2.7.4 of this chapter.

c. Technical support is provided to Fleet units per this directive. In the event there is a work priority conflict, the Area RMC will coordinate resolution with the appropriate TYCOM, Operational Commander or Fleet Maintenance Officer Staff, as necessary.

d.   The initial response to FTA requests is via Distance Support whether in port or at-sea. The use of Distance Support while the ship is in a port with a RMC is encouraged, although not required. It is a tool that can be utilized by the RMC in order to prioritize work assignments and service a wider customer base. On-site support while a ship is in a port with a RMC can allow for quicker identification of the problem and training of Ship's Force technicians. When Distance Support fails to meet the requirements of paragraph 2.5.1 of this chapter, the distance support provider will notify the cognizant RMC at the earliest opportunity. The cognizant RMC will determine what level of additional support is required and if on-site assistance is appropriate, based on guidance in paragraph 2.7.4.c of this chapter. If appropriate, the Area RMC will provide on-site FTA from RMC resources or coordinate provision of on-site support from other government or contractor organizations as discussed in paragraph 2.6.3 of this chapter.

e.   Personnel responding to a request for technical assistance are thorough in their review of the specific technical problem, including system trouble shooting, fault isolation, root cause analysis, failed parts identification, logistic support and system restoration assistance while imparting the maximum amount of onboard maintenance training to Ship's Force personnel. Troubleshooting must be conducted per volume V, part I, chapter 2, paragraph 2.4 of this manual.

f.   Acknowledgment and response to all FTA requests within 24 hours, via phone conversation, e-mail or Naval Message.

g.   Personnel providing on-site technical assistance keep the cognizant ship's department head or designated representative informed of the scope of the problem and the recommended corrective action.

h.   A message Technical Assistance Visit Report (TAVR) (Naval), in the format provided in Appendix B, is required at the completion of an on-site FTA anytime one or more of the following criteria are met:

  (1)   Personnel or Equipment safety issue.

  (2)   Submarine FTA.

i.   An E-mail TAVR (E-TAVR), in the format provided in Appendix C, is required at the completion of an FTA on Surface Force Ships and Carriers anytime one or more of the following criteria are met:

  (1)   C3 or C4 CASREP.

  (2)   Repetitive system or equipment failure or long-term improvement recommendations.

  (3)   FTA passed to other Source of Support.

  (4)   Loss of mission capabilities (e.g., AAW, MOB, ASW).

  (5)   Significant follow-on repair recommendations.

  (6)   High visibility.

j.   Task other Source of Support provider who responds to an on-site FTA, coordinated by their RMC, to provide daily updates and status of on-site FTA to the cognizant RMC per paragraph 2.6.2.a of this chapter. The cognizant RMC is responsible to provide updates and status of on-site FTA, to include Source of Support assistance, to appropriate TYCOM or ISIC. Upon completion of Source of Support FTA, Source of Support provider shall submit a TAVR as required by paragraph 2.6.3.e of this chapter or the cognizant RMC will task them to provide the technical information necessary for the cognizant RMC to generate a TAVR.

k.   Submission of a message report if an on-site assist visit is terminated. Technicians who are not adequately supported by Ship's Force personnel must immediately notify the ISIC or TYCOM. If the lack of support by Ship's Force personnel cannot be resolved, then the technicians are authorized to depart the ship and terminate the visit. Termination of the ship visit under these circumstances will be detailed in a follow-up message to the appropriate TYCOM or ISIC with information to the appropriate Fleet Commander (N43).

l.   Track all requests for FTA using approved FTA software. Currently, this is the Fleet Technical Support (FTS) for Surface Force ships and submarines.

m.   Ensure Submarine Warfare Federated Tactical System or Non-Propulsion Electronic System technicians providing FTA to submarines with systems, subsystems or equipment postured at the Sensitive Compartmented Information level are eligible for access to Sensitive Compartmented Information based on a current Single Scope Background Investigation.

n.   (Submarines Only) Accomplish assigned Fleet Technical Support as outlined in Appendix D.

2.6.3 Other Source of Support Providers. Examples of other source of support providers include: Naval Warfare Center, Original Equipment Manufacturer, commercial repair firms, Systems Command, non-RMC Naval Shipyard, other Area RMC, Propulsion Plant Engineering Activity, etc. Other source of support providers will:

a.   Acknowledge receipt of FTA assignment to the tasking RMC and the requesting unit.

b.   First, use Distance Support to resolve the problem. Provide the tasking Area RMC with timely Distance Support status and results.

c.   Coordinate with the tasking Area RMC and execute an on-site technical assist if Distance Support is unable to resolve the problem. Ensure personnel providing on-site technical assistance are thorough in their review of the specific technical problem, including system trouble shooting, fault isolation, root cause analysis, failed parts identification, logistic support and system restoration assistance, while imparting the maximum amount of onboard maintenance training to Ship's Force personnel.

d.   Ensure that personnel providing on-site technical assistance keep the cognizant ship's department head or designated representative and tasking RMC informed of the scope of the problem and the recommended corrective action daily via email, reports, or other means of communication to provide a status to ensure appropriate TYCOM or ISIC stands informed.

e.   At the completion of on-site technical assistance, comply with administrative requirements addressed in paragraph 2.8 of this chapter within 5 working days of the visit completion to the tasking RMC.

f.   In the cases where Other Source of Support SMEs are onboard and directly tasked by the ship to perform FTA beyond the original purpose of the on-site support, the responding activity will coordinate with the Area RMC and TYCOM, and provide FTA data upon completion for tracking purposes. If the additional support will cause additional cost, the responding activity will need pre-approval from the cognizant RMC. The administrative requirements in paragraph 2.8 of this chapter also apply. Where Other Source of Support SMEs are onboard for FTA and provide non-FTA support, whether solicited or unsolicited, the cognizant RMC is not responsible for funding this work outside of FTA.

g.   (Submarines Only) Accomplish assigned Fleet Technical Support as outlined in Appendix D.

2.7 <u>REGIONAL MAINTENANCE CENTERS</u>.

2.7.1 <u>Regional Maintenance Centers</u>. RMCs will serve as the primary source of Fleet Technical Assistance. For purposes of this specific FTA policy, use of the term "RMC" includes Regional Support Group New London and TRIDENT Refit Facility Kings Bay since these two activities will be serving as "Area RMCs" in providing FTA as noted in Table 2-1 of this chapter.

2.7.2 <u>Area Regional Maintenance Center Area of Responsibility</u>. Regional RMC Area of Responsibility (AOR) assignments are listed in Table 2-1. Figure 2-1 graphically supplements Table 2-1 in depicting the AOR for each RMC. The AOR in which a ship is operating at the time a CASREP or emergent FTA request is initiated will dictate which Area RMC is responsible for coordinating or providing that FTA (becomes the "cognizant Area RMC"). If a ship is located in an AOR other than their homeport AOR, and the ship initiates a routine FTA request (one that does not require the cognizant RMC to expend travel or overtime funds for on-site support in the event Distance Support is unsuccessful), the homeport Area RMC will assume cognizance of that FTA request and accomplish it as a routine priority via Distance Support or, if necessary, via on-site FTA when the ship returns to homeport.

AREA RMC	AREA OF RESPONSIBILITY (AOR)
Southwest Regional Maintenance Center (SWRMC), San Diego, CA	Ships, SSNs*, aircraft carriers and craft in port or operating off the U.S. West Coast from the San Francisco Bay area south to the southern point of South America and selected mine warfare systems worldwide.
Puget Sound Naval Shipyard & Intermediate Maintenance Facility (IMF), Bremerton, WA	Ships, SSNs, aircraft carriers and craft in port or operating in the PACNORWEST area from North of San Francisco, CA, to northern Pacific or Alaska area and all SSBN and SSGN units in PACFLT.
Pearl Harbor Naval Shipyard & IMF, Pearl Harbor, HI	Ships, aircraft carriers, craft and SSN 688 and SSN 774 Class submarines in port or operating in the MIDPAC area and all non-SSBN or SSGN submarines (excluding SSN 21 Class) and submarine tenders operating in the Seventh Fleet AOR (excluding those SSN 688 and SSN 774 Class submarines operating in port or operating out of Diego Garcia, UK).
Ship Repair Facility (SRF) and Japan Regional Maintenance Center (JRMC), Yokosuka, Japan	Ships, aircraft carriers and craft in port or operating in the Seventh Fleet AOR.
Mid-Atlantic Regional Maintenance Center (MARMC), Norfolk, VA	Ships, aircraft carriers and craft in port or operating in the Atlantic Ocean from Charleston, SC, latitude northward extending to the Azores longitude eastward. Submarines* in port and all SSN 688 and SSN 774 Class submarines operating in the Second, Fourth, Fifth and Sixth Fleet AOR and those submarines operating in port or out of Diego Garcia, UK, excluding those submarines in port or in the Groton and New London, CT regional waters.
Forward Deployed Regional Maintenance Center (FDRMC) Naples, Italy FDRMC Detachment Bahrain FDRMC Detachment Rota, Spain	Ships, aircraft carriers and craft in port or operating from the Azores longitude eastward to include the Fifth Fleet and Sixth Fleet AOR.
Regional Support Group or Submarine Technical Support Center (STSC) Groton, CT	SSN 688 and SSN 774 Class submarines* in port or operating in the Groton-New London, CT regional waters.
TRIDENT Refit Facility, Kings Bay, GA	All Atlantic Fleet SSBN and SSGN units. Underwater ship husbandry to Naval Nuclear Power Training Unit Charleston.
Southeast Regional Maintenance Center (SERMC), Mayport, FL	Ships, aircraft carriers and craft in port or operating south of the Charleston, SC latitude in the Atlantic Ocean to the southern tip of South America.

* Puget Sound Naval Shipyard & Intermediate Maintenance Facility has responsibility for all SSN 21 Class submarines regardless of location.

Table 2-1 RMC Area of Responsibility Assignments
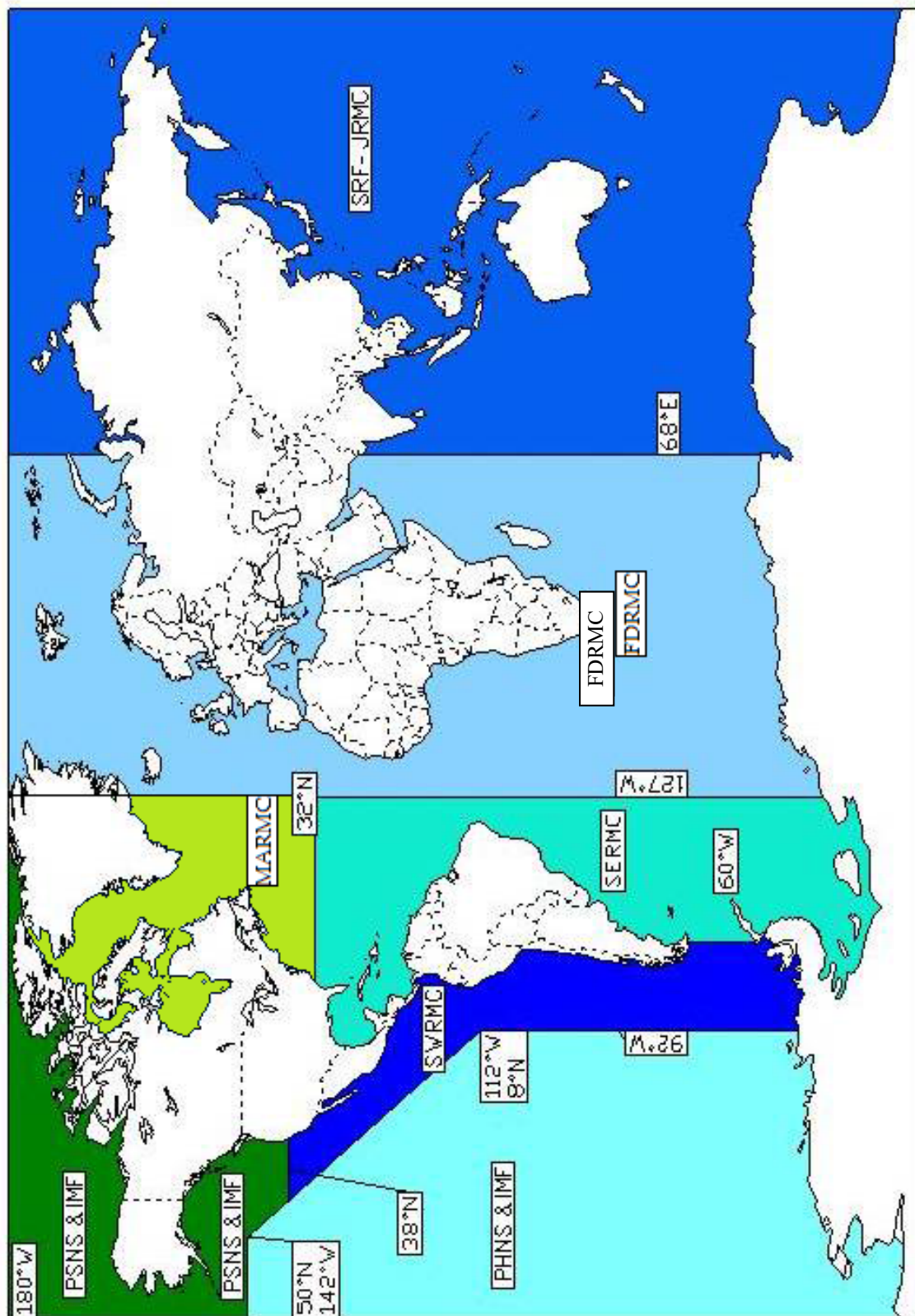
Figure 2-1 RMC Area of Responsibility

2.7.3 Considerations for Providing Assistance.

2.7.3.1 Distance Support. Costs to provide FTA can be dramatically reduced using Distance Support especially when a ship is underway or is not in a port with a RMC. Distance Support may include various forms of two-way communication such as telephone, e-mail, web "chat", streaming video, etc. Additionally, its use has facilitated a more effective use of limited technical resources to service a larger number of customers more efficiently. Normally, the cognizant RMC will have a subject matter expert available to respond to FTA requests via Distance Support, but in the event that such an expert is not readily available, the cognizant RMC is encouraged to contact another RMC to enlist their assistance in providing such Distance Support. In support of the Chief of Naval Operation's guidance to shift away from a risk averse culture in the Navy, not all FTA requests will be responded to with on-site support. However, the Operational Commander or TYCOM may direct immediate on-site support, if warranted.

2.7.3.2 On-Site Support. If the use of on-site support is warranted, the cognizant RMC will provide or obtain personnel to affect on-site assistance. When a ship transits from one AOR to another, the cognizant RMC will validate the need for on-site support before transitioning from Distance Support . The cognizant RMC will take into account the ship's operational schedule, as well as ship, ISIC, Operational Commander and TYCOM requirements, when determining if and at what point to shift from Distance Support to on-site support. Paragraph 2.7.4.1 of this chapter provides additional specific guidance regarding when on-site support will be provided and the prioritization of such responses should there be multiple requirements for the same FTA support personnel.

2.7.3.3 Fleet Technical Assistance Support Transfer and Acceptance. The cognizant RMC is responsible for providing or obtaining FTA support and is responsible for its completion. If the cognizant area RMC has neither the capability nor capacity to provide the FTA support required, the cognizant RMC will request FTA support from another RMC or another source of support per paragraph 2.6.3 of this chapter.

2.7.3.4 Transferring Regional Maintenance Center. The RMC transferring the FTA will transmit FTA status via appropriately classified e-mail or Naval message, detailing actions taken to date on the FTA after reaching agreement with another source of support to accept responsibility for the FTA.   For Surface Ships and Carriers, the transferring cognizant RMC requests FTA support from another RMC, each RMC shall document all time and actions taken in approved FTA software. For submarines, the ship's homeport will broker the 2-kilo to the accepting source of support.

2.7.3.5 Accepting Source of Support. The accepting source of support for the FTA assumes responsibility to provide the necessary support to resolve the FTA. If the source of support cannot resolve the FTA, they must request the cognizant RMC obtain the necessary support to resolve the FTA. The accepting source of support shall document all time and actions taken related to the FTA, and inform the cognizant RMC on the status of the FTA. If the source of support resolves the FTA, the accepting source of support shall document all time and actions taken to resolve the FTA via TAVR. A TAVR shall be provided to the cognizant RMC to ensure the cognizant RMC can provide timely FTA completion status to ship, ISIC, Operational Commander, TYCOM and stakeholders.

2.7.3.6 Support Coordination. If another source of support is required, close coordination should be maintained between the supporting activity providing such assistance and the cognizant RMC to ensure the highest level of responsiveness is being provided. Assistance from another Area RMC does not abrogate the cognizant RMC's responsibility to ensure completion of the FTA request and the cognizant RMC retains full responsibilities as outlined in this manual.

2.7.4 Funding.

    a.   Expenditure of funds for on-site FTAs has been significantly reduced by increased use of Distance Support. The source selection to provide on-site FTA must consider overall resource availability and total cost to the Government (e.g., labor, travel, per diem, administration, etc.) balanced against criticality of need and required speed of response. Resources to meet on-site FTA needs should be considered in the following priority order:

        (1)   Area RMC personnel.

        (2)   other RMC personnel.

        (3)   other government resources.

        (4)   private sector.

    b.   If personnel from another Area RMC are used to support the FTA requirement, the Area RMC providing the personnel will pay all costs for those personnel including base salary, overtime, travel and per diem. For all other sources of support, the cognizant RMC will pay all costs for providing the on-site support. RMCs will notify the Fleets if their total FTA related expenditures in support of ships home ported in other RMC locations become significant. The Fleets will review these submissions and determine if funds transfer(s) are required to ensure RMC mission completion.

NOTE 1: PER REFERENCE (a), FORWARD DEPLOYED NAVAL FORCES CONTINUOUSLY OPERATE WITHIN THE INTEGRATED OR SUSTAINMENT PHASE UNLESS IN A CNO AVAILABILITY.

NOTE 2: IF U.S. COAST GUARD OR FOREIGN NAVY VESSELS ARE PART OF A CARRIER STRIKE GROUP OR EXPEDITIONARY STRIKE GROUP, EITHER IN WORK-UP PHASE OR DEPLOYMENT, THEY WILL RECEIVE FTA SUPPORT PRIORITIZATION AS THOUGH THEY WERE UNITED STATES NAVY SHIPS (PRIORITIES 1-7 APPLY). REIMBURSEMENT FOR ALL COSTS TO PROVIDE SUCH FTA SERVICES WILL BE FOLLOWING THE MEMORANDUM OF AGREEMENT OR MEMORANDUM OF UNDERSTANDING THAT IS NORMALLY SIGNED BETWEEN THE SERVICES OR GOVERNMENTS WHEN SUCH JOINT OPERATIONAL ARRANGEMENTS EXIST.

    c.   On-Site Support. If Distance Support is unsuccessful or if the nature of the FTA request warrants immediate transition to on-site support, the cognizant RMC will coordinate and provide such on-site support as prioritized:

Priority 1 -   Casualties requiring clear and immediate action to offset personnel safety hazards or catastrophic equipment damage.

Priority 2 - Services to deployed ships. If resource constrained when there are multiple requirements to provide on-site support to deployed ships, prioritization of response will be:

    (1)   SSBN FTAs;

    (2)   FTAs associated with a CASREP as determined by the TYCOM;

    (3)   Other FTA requirements as determined by the Operational Commander and TYCOM.

Priority 3 - Services to ships that are classified as within the pre-deployment or post-deployment part of the Sustainment Phase of reference (b). If resource constrained when there are multiple requirements to provide on-site support, prioritization of response will be:

    (1)   SSBN FTAs;

    (2)   FTAs associated with a CASREP as determined by the TYCOM;

    (3)   Other FTA requirements as determined by the Operational Commander and TYCOM.

Priority 4 - Services to ships that are classified as within the Integrated phase of reference (b), or ship's that are classified as Independent Unit Ready for Tasking. If resource constrained when there are multiple requirements to provide on-site support, prioritization of response will be:

    (1)   SSBN FTAs;

    (2)   FTAs associated with a CASREP as determined by the TYCOM;

    (3)   Other FTA requirements as determined by the Operational Commander and TYCOM.

Priority 5 - Services to ships that are classified as within the Basic phase of reference (b). If resource constrained when there are multiple requirements to provide on-site support, prioritization of response will be:

    (1)   SSBN FTAs;

    (2)   FTAs associated with a CASREP as determined by the TYCOM;

    (3)   Other FTA requirements as determined by the Operational Commander and TYCOM.

Priority 6 - Other U.S. Navy FTA requests not addressed in one of these priorities (e.g., FTA support during Chief of Naval Operations availabilities addressed in paragraph 2.4.3 of this chapter).

Priority 7 - Technical assistance requests from non-Navy organizations (e.g., Coast Guard, U.S. Army, U.S. Air Force, Foreign Military Sales, etc.).

2.8. <u>POST-FLEET TECHNICAL ASSISTANCE ADMINISTRATIVE REQUIREMENTS</u>.

a. At the conclusion of an on-site technical assistance visit, the RMC representative(s) will assist the ship in completing the 2-Kilo and provide a final debrief to the ship's cognizant Department Head, or their designated representative, prior to departing the ship. Information collected for the FTA must be uploaded to 3M history.

b. A TAVR is required at the completion of on-site FTA visits as addressed in paragraph 2.6.2.h through 2.6.2.k of this chapter. TAVRs shall be submitted within 5 working days after departure from the ship. In cases where urgent information needs to be conveyed, an e-mail will be sent to the ISIC or TYCOM while the TAVR is in routing.

APPENDIX A

AREA REGIONAL MAINTENANCE CENTER FLEET TECHNICAL ASSISTANCE CONTACT INFORMATION

AREA RMC	COVERAGE HOURS	PHONE	E-mail/Message PLADs
Mid-Atlantic Regional Maintenance Center (MARMC) Norfolk, VA	24/7/365	Comm: 757-400-0000 Secure: 757-400-3174 CDO: 757-739-5324	NIPRNET: marmc_tsdo@navy.mil SIPRNET: marmc_sipr_tsdo@navy.smil.mil MSG PLAD: MARMC NORFOLK VA//
Forward Deployed Regional Maintenance Center (FDRMC NAPLES) Naples, Italy	0600-1800 Weekdays 0800-1200 Weekends & Holidays	Comm: 011-39-081-568-7857 DSN: 314-626-7857	NIPRNET: fdrmcnaplescdo@eu.navy.mil SIPRNET: fdrmcnaplescdo@eu.navy.smil.mil MSG PLAD: FDRMC NAPLES IT//
FDMRC Detachment Bahrain	Hours: 0730-1600 Sunday-Thursday (TD available after normal hours)	Comm: 011-973-1785-3777 DSN: 318-439-3777	NIPRNET: m-ba-fdrmcbahasst@me.navy.mil SIPRNET: m-ba-fdrmcbahasst@me.navy.smil.mil MSG PLAD: FDRMC DET BAHRAIN//
FDRMC Detachment Rota, Spain	Hours: 0730-1600 Monday-Friday (TD available after normal hours)	Comm: 011-34-956-82-2883 DSN: 314-727-2725	NIPRNET: rmcdetrota.techassist@eu.navy.mil SIPRNET: rmcdetrota.techassist@eu.navy.smil.mil MSG PLAD: FDRMC DET ROTA SP//

AREA RMC	COVERAGE HOURS	PHONE	E-mail and Message PLADs
Regional Support Group Groton/ Submarine Technical Support Center (STSC) Groton, CT	0700-1630 Weekdays CDO after hours	Comm: 860-694-7872 Admin: 860-694-4714 DSN: 694-7872/4714 STSC Groton CDO after hours: 860-625-3230	NIPRNET: nwln_stsc_prod@navy.mil MSG PLAD: COMREGSUPPGRU STSC GROTON CT//
Puget Sound Naval Shipyard & IMF (North West Regional Maintenance Center) PSNS Code 210 Everett, WA (Surface)	0630-1500 Weekdays CDO - 24/7	Comm: 425-304-5449 DSN: 727-5449 Duty Phone: 360-340-6811 Everett, WA	NIPRNET: techassistnw@navy.mil MSG PLAD: NAVSHIPYD AND IMF PUGET SOUND WA//210/290//
Puget Sound Naval Shipyard & IMF (North West Regional Maintenance Center) PSNS Code 290EE Bremerton, WA (SSNs, SSGNs, SSBNs undergoing overhaul)	0630-1500 Weekdays CDO - 24/7	Comm: 360-476-5734 DSN: 439-5734 CDO: 360-340-0106 Bremerton, WA	NIPRNET: brem_psnsfleettechassist@navy.mil SIPRNET: brem_psnsfleettechassist@navy.smil.mil MSG PLAD: NAVSHIPYD AND IMF PUGET SOUND WA//290//
TRIDENT Refit Facility (TRF) Bangor (North West Regional Maintenance Center) TRF Code 740 Bangor, WA (SSBNs)	0630-1500 WEEKDAYS CDO - 24/7	Comm: 360-315-1336 DSN: 322-1336 CDO: 360-340-7430 360-315-1297/98/99 DSN: 322-1297/98/99 Bangor, WA	NIPRNET: ssbnpactechassist@us.navy.mil SIPRNET: ssbnpactechasst.fct@navy.smil.mil MSG PLAD: TRIREFFAC BANGOR WA//740//

AREA RMC	COVERAGE HOURS	PHONE	E-mail/Message PLADs
South West Regional Maintenance Center (SWRMC) San Diego, CA	24/7/365	DSOC: 619-556-3608 DSN: 526-3608 Secure: 619-556-8710 CDO CELL: 619-381-6632	NIPRNET: swrmctechassist@navy.mil SIPRNET: swrmctechassist.fct@navy.smil.mil MSG PLAD: SOUTHWEST RMC SAN DIEGO CA//
TRIDENT Refit Facility (TRF) Kings Bay Kings Bay, GA	24/7/365	CDO: 912-674-3125	NIPRNET: cdo.trfkb@navy.mil MSG PLAD: TRIREFFAC KINGS BAY GA//
Pearl Harbor Naval Shipyard and IMF Hawaii Regional Maintenance Center (HRMC) Pearl Harbor, HI	24/7/365	Comm: 808-630-7762 DSN: 315-473-0614 Code 210 DO: 808-630-7762	NIPRNET: hrmc.techassist@navy.mil SIPRNET: hrmc.techassist@navy.smil.mil MSG PLAD: NAVSHIPYD AND IMF PEARL HARBOR HI//101/200/210//
Ship Repair Facility (SRF) and Japan Regional Maintenance Center (JRMC) Yokosuka, Japan	0730-1630 Mon-Fri CDO after hours	CDO DSN: 011-81-46-816-5488 CDO Cell: 011-81-9006-7005	NIPRNET: techassist_jrmc@srf.navy.mil SIPRNET: techassist_jrmc@fe.navy.smil.mil MSG PLAD: NAVSHIPREPFAC AND JAPAN RMC YOKOSUKA JA//
South East Regional Maintenance Center (SERMC) Mayport, FL	Call CDO If no CDO contact, call Quarterdeck	CDO: 904-591-8008 Quarterdeck: 904-270-5126 DSN: 270-5126	NIPRNET: sermc-cdo.fct@navy.mil MSG PLAD: SOUTHEAST RMC MAYPORT FL//

APPENDIX A

APPENDIX B

SAMPLE TECHNICAL ASSISTANCE VISIT REPORT (TAVR) MESSAGE

FROM ON-SITE FTA PERFORMING ACTIVITY// (Could be RMC, NSY, NWC, etc.)
TO: SHIP REQUESTING ASSISTANCE
ADDITIONAL ACTION ADDRESSEES (AS APPROPRIATE, TO INCLUDE ACCEPTING
RMC FOR FTA TRANSFERS)
INFO: COMUSFLTFORCOM NORFOLK VA// (AS APPROPRIATE)
COMPACFLT PEARL HARBOR HI// (AS APPROPRIATE)
NUMBERED FLEET COMMANDER
TYCOM
GROUP
SQUADRON
COMNAVSEASYSCOM WASHINGTON DC//(PROGRAM MANAGER)//
ISEA/PROGRAM MANAGER//
COMNAVWARSYSCOM SAN DIEGO CA// (FOR ASSISTS ON C4I)
OTHER REGIONAL MAINTENANCE CENTER (AS APPROPRIATE)
RMC DET (AS APPROPRIATE)
NAVAL SURFACE WARFARE CENTER CORONA CA// (FOR ASSISTS ON C5I AND
HM&E SYSTEMS)
COMNAVSAFECEN NORFOLK VA// (SAFETY RELATED ITEMS ONLY)
NETC PENSACOLA FL// (TRAINING ISSUES ONLY)
SERVSCOLCOM GREAT LAKES IL// (TRAINING ISSUES ONLY)
FLEASWTRACEN SAN DIEGO CA// (ASW TRAINING ISSUES ONLY)
FCTCLANT DAM NECK VA// (FOR ASSISTS ON C4I/COMBAT SYSTEM)
SWRMC// (FOR PACFLT SSN ONLY)
NAVSUBSCOL GROTON CT// (FOR SUBMARINES ONLY)
TRITRAFAC KINGS BAY GA// (FOR SSBN/SSGN SUBMARINES)
NWRMC// (FOR SSBN/SSGN SUBMARINES)
SUBMEPP// (ALL SUBMARINES)
SURFMEPP// (AS APPLICABLE)
CPA// (AS APPLICABLE)
OTHERS (AS APPROPRIATE)
BT
UNCLAS //N0XXXX//
MSGID/GENADMIN/RMC XXXX//
SUBJ/USS XXXX (HULL) EQUIPMENT NAME-NOMENCLATURE TECH ASSIST VISIT
REPORT//
REF/A/CASREP/MSG/TELCON REQUESTING TECH ASSIST//
REF/B/DOC/APPLICABLE TECH MANUAL/(OPTIONAL)//
REF/C/OTHER REFS AS NECESSARY//
NARR/REF A IS SHIP MESSAGE OR TELCON BETWEEN XXXX/X AND XXXX/X.//
POC/NAME/CIV/CODE/-/TEL:DSN XXX-XXXX/TEL:XXX XXX-XXXX//
RMKS/1. BACKGROUND: REF A REPORTED (PROBLEM). AS REQ REF A,
RMCXXXX REP, (NAME) PROVIDED TECH ASSIST (DATE) AT (LOCATION) TO

ASSIST WITH CORRECTION OF THE PROBLEM. REF B IS THE APPLICABLE
TECHNICAL MANUAL.

2. REPORTED DISCREPANCY:

    A. BRIEF PROBLEM DESCRIPTION:

3. FINDINGS/CORRECTIVE ACTION:

    A. SUMMARIZE FINDINGS & CORRECTIVE ACTION ON HARDWARE. (STATE
       WHY DISTANCE SUPPORT WAS UNABLE TO RESOLVE THIS ISSUE. IF THIS
       TAVR IS TO DOCUMENT AN FTA TRANSFER, SO STATE AND INCLUDE FTA
       ACCEPTING RMC COMMAND TITLE AND SPECIFIC POC INFO.).

    B. SUMMARIZE FINDINGS & CORRECTIVE ACTION ON LOGISTICS (IF ANY

4. CONCLUSION:

    A. STATEMENT ON CAUSE OF PROBLEM (IF NOT OBVIOUS).

    B. SOMETIMES CONVENIENT TO COMBINE WITH FINDINGS.

5. LEVEL OF SHIP'S FORCE SUPPORT:

    A. ABOVE AVERAGE/AVERAGE/BELOW AVERAGE.

    B. NUMBER OF SHIP'S FORCE PERSONNEL TRAINED DURING VISIT.

6. RECOMMENDATIONS:

    A. FOR USS XXXXX:

      (1)   IDENTIFY FOLLOW-ON ACTION.

      (2)   ABOVE DISCUSSED WITH (NAME) PRIOR TO DEPARTING SHIP.

    B. FOR TYCOM/RMC:

      (1)   IDENTIFY FOLLOW-ON ACTION.

      (2)   ABOVE DISCUSSED WITH (NAME) ON (DATE).

    C. FOR NAVSEA/ISEA:

      (1)   IDENTIFY FOLLOW-ON ACTION.

      (2)   ABOVE DISCUSSED WITH (NAME) ON (DATE).

7. INFORMATION FOR BLOCK 35 OF 2-KILO PROVIDED TO SHIP DURING DEBRIEF.
JCN _____ APPLIES.

8. A. MAN HOURS EXPENDED FOR TECHNICAL ASSISTANCE.

    B. MAN HOURS EXPENDED FOR TRAINING.

    C. MATERIAL COSTS.

9. EVALUATION OF NECESSITY FOR TECHNICAL ASSISTANCE:

    A. WAS ADEQUATE TECHNICAL DOCUMENTATION AVAILABLE TO SHIP'S
      FORCE TO CORRECT PROBLEM?

    B. WERE ADEQUATE TOOLS AVAILABLE TO SHIP'S FORCE TO CORRECT THE
      PROBLEM?

    C. WERE ADEQUATE MATERIALS/SPARE PARTS AVAILABLE TO SHIP'S FORCE
      TO CORRECT THE PROBLEM?

    D. WAS SHIP'S FORCE LEVEL OF KNOWLEDGE ADEQUATE TO CORRECT THE
      PROBLEM?

    E. WAS THIS A CYBER-SECURITY PROBLEM?

    F. FOLLOW-ON TA-1 DEPOT AND/OR TA-2 IMA JOB REQUIREMENT?

BT

**NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
          AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS
          UTILIZED.**

APPENDIX C

SAMPLE E-MAIL TECHNICAL ASSISTANCE VISIT REPORT (E-TAVR)

E-mail TAVR distribution will include the following:
TO: SHIP REQUESTING ASSISTANCE (C.O., X.O., DEPT HEADS)
ADDITIONAL ACTION ADDRESSEES (AS APPROPRIATE, TO INCLUDE ACCEPTING
RMC FOR FTA TRANSFERS)
CC:
U.S. FLEET FORCES COMMAND N43
COMMANDER U.S. PACIFIC FLEET N43
FLEET COMMANDERS: (as appropriate)
TYPE COMMANDERS: (as appropriate)
NAVSEA/NAVWAR PROGRAM MANAGERS: (as appropriate)
NSWC/SSC IN-SERVICE ENGINEERING AGENTS: (as appropriate)
RMCS: (as appropriate)
TRAINING COMMANDS: (TRAINING ISSUES ONLY, as appropriate)
NAVAL SURFACE WARFARE CENTER CORONA (crna_tavr@navy.mil)

Email TAVR format will be:

SUBJ/USS XXX (HULL) EQUIPMENT NAME TECH ASSIST VISIT REPORT// (Insert brief
equipment description; for ex. T 1348 Transmitter)
REF/A/CASREP/DTG//(Reference Designation, change as necessary/Change as necessary/Date
Time Group of reference)
REF/B/DOC/2-KILO//
REF/C/TEL/TELCON INFO//
NARR/REF A IS XXXXXX. REF B IS XXXXXX. REF C IS XXXXXX.// (Summary of
Tech Assist request. For ex., REF A is CASREP Initial 04003 request for tech assist)
POC/NAME/GRADE-RATE/TEL:DSN   /TEL: // (Identify RMC Technician/RMC
Technician Grade/Rank. For ex., GS-12 or E7 / RMC Technician DSN/extention/RMC
Technician Comm/extention)
1. BACKGROUND: REF A REPORTED (Problem). AS REQUESTED REF A, RMCXXXC
REP, (Name) PROVIDED TECH ASSIST (Date) AT (Location) TO ASSIST WITH
CORRECTION OF THE PROBLEM. REF B IS THE APPLICABLE TECH MANUAL.
2. REPORTED DISCREPANCY:
     A.   BRIEF PROBLEM STATEMENT.

3. FINDINGS/CORRECTIVE ACTION:
     A.   SUMMARIZE FINDINGS & CORRECTIVE ACTION ON HARDWARE.
     (STATE WHY DISTANCE SUPPORT WAS UNABLE TO RESOLVE THIS ISSUE.
     IF THIS TAVR IS TO DOCUMENT AN FTA TRANSFER, SO STATE AND
     INCLUDE FTA ACCEPTING RMC COMMAND TITLE AND SPECIFIC POC
     INFO.).
     B.   SUMMARIZE FINDINGS & CORRECTIVE ACTION ON LOGISTICS (IF
     ANY).
4. CONCLUSION:

    A. STATEMENT ON CAUSE OF PROBLEM/ROOT CAUSE.

    B. SOMETIMES CONVENIENT TO COMBINE WITH FINDINGS.

5. LEVEL OF SF SUPPORT:

    A. ABOVE AVERAGE/AVERAGE/BELOW AVERAGE

    B. NUMBER OF SHIPS FORCE PERSONNEL TRAINED DURING VISIT

6. RECOMMENDATIONS:

    A. FOR USS XXXX:

       (1) IDENTIFY FOLLOW-ON ACTION

       (2) ABOVE DISCUSSED WITH (Name) PRIOR TO DEPARTING SHIP

    B. FOR TYCOM/RMC:

       (1) IDENTIFY FOLLOW-ON ACTION

       (2) ABOVE DISCUSSED WITH (Name) ON (Date)

    C. FOR NAVSEA/ISEA:

       (1) IDENTIFY FOLLOW-ON ACTION

       (2) ABOVE DISCUSSED WITH (Name) ON (Date)

7. INFORMATION FOR THE 2-KILO PROVIDED TO SHIP DURING DEBRIEF. JCN
    _____ APPLIES.

8.   A. MANHOURS EXPENDED FOR TECH ASSIST.

    B. MANHOURS EXPENDED FOR TRAINING.

9. EVALUATION OF NECESSITY FOR TECHNICAL ASSISTANCE:

    A. WAS ADEQUATE TECHNICAL DOCUMENTATION AVAILABLE TO
       SHIP'S FORCE TO CORRECT THE PROBLEM?

    B. WERE ADEQUATE TOOLS AVAILABLE TO SHIP'S FORCE TO CORRECT
       THE PROBLEM?

    C. WERE ADEQUATE MATERIAL/SPARE PARTS AVAILABLE TO SHIP'S
       FORCE TO CORRECT THE PROBLEM?

    D. WAS SHIP'S FORCE LEVEL OF KNOWLEDGE ADEQUATE TO CORRECT
       THE PROBLEM?

    E. WAS THIS A CYBER-SECURITY PROBLEM?

    F. FOLLOW-ON TA-1 DEPOT AND/OR TA-2 IMA JOB REQUIREMENT?

NOTE: **DEFAULT TO NAVAL MESSAGE TAVR IF NECESSARY EMAIL
      ADDRESSES ARE NOT KNOWN.**

APPENDIX D

SUBMARINE FLEET TECHNICAL SUPPORT PROVIDERS ROLES AND RESPONSIBILITIES

1. The purpose of this Appendix is to provide standard policy for direction on Fleet Technical Support (FTS) for Submarine Regional Maintenance Centers (RMCs).

2. For the purpose of the FTS policies of this Appendix, use of the term "RMC" includes all Fleet funded activities (i.e., RMC, FMA, NSY, SRF, IMF, RSG, TRF) that execute FTS mission tasks for Submarines.

3. Submarine RMC Commanding Officers are accountable and responsible for accomplishing assigned FTS as outlined here:

    a.   Execute FTS mission tasks for Fleet and Type Commander (TYCOM) customers using FTS mission funding.

    b.   Work with the TYCOM and other FTS providers in the execution of assigned FTS tasks.

    c.   Work with the TYCOM to forecast annual FTS workload and identify resources required to accomplish projected workload.

    d.   Manage, track and report actual FTS workload and expenditures to TYCOM and CNRMC.

    e.   Utilize common reporting mechanisms, standard reports, metrics and processes in reporting FTS workload and financial data.

    f.   Provide resources required to manage and accomplish FTS in assigned AOR.

    g.   Categorize FTS mission tasks using the following six functions:

        (1)   Function F1. Fleet Technical Assistance (FTA). FTA is characterized by performing troubleshooting and fault isolation. FTA support consists of waterfront and deck-plate engineering, technical, logistics, management and coordination assistance and services; technical over-sight and consultation; over-the-shoulder maintenance training; and FTA data collection and reporting.

        (2)   Function F2. System or equipment operational and maintenance assessment. System or equipment operational and maintenance assessments include scheduled shipboard assessments (i.e., Total Ship Readiness Assessment (TSRA), Combat Systems Assessments (CSA)) and continuous operational and maintenance data assessments (i.e., Top Managements Actions (TMA), Submarine Continuous Operational and Maintenance Assessment). Scheduled shipboard assessments are characterized by teams of Subject Matter Experts (SMEs) led by a Test or Assessment Director performing authorized or approved test plans or procedures to determine material or mission readiness; identifying, resolving, and reporting discrepancies; and providing over-the-shoulder maintenance training to ships force. Continuous data assessments are

characterized by system or equipment analysts and SMEs working together and analyzing fleet maintenance data to identify or address fleet system/equipment problems and trends and provide "Actionable Data" to Fleet, TYCOM and SYSCOM customers in order to make "Data Driven Decisions" to improve mission readiness, system or equipment design, and life-cycle support. Also included in the (F2) Assessment Function is SME waterfront, engineering, technical, and logistics support and feedback to Fleet, TYCOM, SYSCOM, and ISEA customers at Technical Conferences, Lean Events, Working Groups, Integrated Product Teams, etc., for system or equipment maintenance or maintainability and product improvement.

(3)   Function F3 – Modernization or Installation support. Modernization or installation support consists of Alteration Installation Team (AIT) support including dockside, at-sea, pre- and post-modernization or installation testing (PICO and SOVT) and shipboard technical and logistics support during system or equipment modernization installations.

(4)   Function F4. Shipyard, Availability, IMA support. Maintenance support is characterized by SMEs providing technical assistance to shipyard or IMA engineering and ship personnel in troubleshooting and fault isolation; pre-post-availability inspections and grooms; work packages and Task Group Instructions (TGIs) review; provide engineering technical, logistics oversight, guidance, and support to shipyard and IMA personnel during repair, replacement, overhaul, and testing. Maintenance support also includes providing system or equipment operation and maintenance on-the-job training to shipyard and IMA personnel.

(5)   Function F5. Onboard logistics and configuration management support. Onboard logistics and configuration management support is characterized by SMEs and logistics personnel working with Fleet, TYCOM, SYSCOM, ISEA, OEM, NAVSUP WSS, Class CDM, shipyard, IMA, and ships force personnel to identify and resolve logistics and configuration management problems to improve material condition readiness. Onboard logistics and configuration management support includes system or equipment specific logistics and configuration management support for all of the FTS Functions (1-4) such as FTA CASREP material support; assist or support parts identification, requisition, expedition, and delivery; identify or address system, equipment, and material configuration issues; TSRA and CSA logistics or CM audits; assisting ships force in updating supply or COSAL records; installation of ILS products; RMMCO support; and generating 4790CKs.

(6)   Function F6. CHENG or Engineering Technical Authority support. CHENG or Engineering Technical Authority support is characterized by managers, engineers, and SMEs working with and providing engineering and technical support or recommendations to the AOR Chief Engineer (CHENG) to support the resolution of technical authority issues or questions which arise out of FTS and waterfront work executed in their homeport or AOR. Only activities with a warranted CHENG may charge to this functional area.

VOLUME VI

CHAPTER 3

SUBMARINE MODERNIZATION

REFERENCES.

(a)   NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and Operations Manual (NMP MOM)

(b)   NAVSEAINST 9210.4 - Changes, Repairs and Maintenance to Nuclear Powered Ships

(c)   NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual

(d)   NAVSEA 0989-LP-037-2000 - Commissioned Submarine General Reactor Plant Overhaul and Repair Specification

(e)   NAVSEA S9213-45-MAN-000 - Navy Nuclear Material Management Manual

(f)   NAVSEAINST 4720.14 - Temporary Alterations to Active Fleet Submarines; Control of

(g)   NAVSEA Technical Specification 9090-310 - Alteration to Ships Accomplished by Alteration Installation Teams

(h)   NAVSEA T9044-AD-MAN-010 - Requirements Manual for Submarine Fly-By-Wire Ship Control Systems

(i)   COMUSFLTFORCOMINST/COMPACFLTINST 4720.3 - Commander United States Fleet Forces Command (COMUSFLTFORCOM)/Commander Pacific Fleet (COMPACFLT) C5ISR Modernization Policy

(j)   COMSUBFORINST 4720.15 - Submarine C5ISR Modernization Policy

(k)   NAVSEA Technical Specification 9090-100A - Liaison Action Record

(l)   NAVSEA 0989-LP-058-1000 - Destroyer Tender and Submarine Tender Nuclear Support Facilities Overhaul and Repair Specification

LISTING OF APPENDICES.

A   Major Ship Alteration Types Executive Summary
B   Submarine Alteration Request Format
C   Sample TEMPALT or OPALT Reporting Message
D   TYKIT Requisition Form
E   TYCOM Alteration Management System Interpretation Guide
F   Sample Alteration Feedback Message and Email Format

3.1 PURPOSE. To establish procedures, policy and responsibilities for fleet level management and execution of the Navy Modernization Program (NMP) as it pertains to the Submarine Force. Additional information is contained in references (a) and (b).

3.1.1 Scope. The scope of this chapter is limited to Ship Alterations (SHIPALT), Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) Alterations (NUCALT), Alteration and Improvement (A&I) Items, Type Zero (TZ) Improvements, Engineering Changes, Field Changes (FC), Ordnance Alterations (ORDALT), Temporary Alterations (TEMPALT), Operational Alterations (OPALT), TRIDENT Command and Control System Modifications,

Temporary Engineering Changes and Type Commander (TYCOM) Discretionary Changes (TDC). Appendix A of this chapter provides an executive summary of these major alteration types.

3.1.2 <u>Definition</u>. An alteration is defined as any modification in the hull, machinery, equipment or fittings that involves a change in design, materials, number, location or relationship of an assembly's component parts, whether the change is separate from, incidental to, or in conjunction with repairs. All modifications affecting ship's configuration, both major and minor, are prohibited without the applicable Systems Command technical approval and TYCOM authorization.

3.2 <u>RESPONSIBILITIES</u>.

3.2.1 <u>Immediate Superior In Command (Squadron or Naval Submarine Support Command)</u>. The Immediate Superior In Command (ISIC) will assign an Alteration Coordinator who is responsible for managing the alteration program for each assigned unit:

a.   Informing the Fleet Maintenance Activity (FMA) of upcoming availabilities.

b.   Monitoring FMA long-range modernization and availability planning.

c.   Establishing installation priorities. Based on FMA evaluation, inform the TYCOM of any alteration that can only be accomplished in a major availability.

d.   Screen alterations to the FMA for accomplishment immediately upon receiving TYCOM authorization. Ensure no action is taken to accomplish alterations which are not TYCOM authorized. TYCOM concurrence is required for exceptions.

e.   Maintaining a file of active alteration briefs and other related documentation.

f.   Assisting units in the preparation of alteration requests (Appendix B) and reviewing them for technical adequacy, applicability and recommended level of accomplishment. Alteration requests should be limited to alterations affecting safety or providing a substantial maintenance or operational benefit.

g.   Identifying design deficiencies, changes to hull applicability, or non-availability of material or design for alterations.

h.   Ensuring that only TYCOM authorized (including partially completed alterations) appear on the individual ship's Current Ship's Maintenance Project (CSMP). Review the Type Availability Code to ensure alterations have been properly screened for either FMA or Ship's Force accomplishment (Type Availability Two for FMA or Type Availability Four for Ship's Force). Reference (c) provides detailed Maintenance and Material Management (3-M) Program requirements.

i.   Ensuring that the Master Job Catalog (MJC) contains all alterations authorized for accomplishment. The Maintenance Document Control Office (MDCO) or comparable local organization is responsible for the retrieval of authorized alteration information from the MJC and its addition to the appropriate maintenance brokering database. If an authorized alteration is not contained in the MJC, contact the TYCOM or SUBMEPP or take appropriate steps to locally add it. Reference (c) provides detailed 3-M Program requirements.

j. Ensuring that all OPNAV 4790/CKs are collected three days prior to the end of the availability. Within two days of receipt, the MDCO (or equivalent maintenance document processing office) will input the original OPNAV 4790/CK into the appropriate maintenance database. Provide copies of all OPNAV 4790/CKs to the TYCOM Modernization Program Manager.

k. Ensuring that a Reactor Plant Configuration Change Report (RPCCR) Completion Report summarizing reactor plant configuration changes accomplished by a shipyard organization, Nuclear Regional Maintenance Department (NRMD) or FMA are forwarded to the ship's Commanding Officer either electronically or by hard copy at the end of each availability. Ensure the ship's engineer acknowledges the report back to the installing activity and that a copy of the RPCCR Completion Report is provided to the ISIC alteration manager and Squadron Engineer so the NUCALTs can be closed out in the appropriate maintenance brokering database. Additional details are available in references (d) and (e).

l. Ensuring situational alterations are accomplished when conditions warrant.

m. Informing ships of alterations planned during an availability in the pre-arrival message. Include alterations being accomplished by outside activities (industrial activity, vendor, Alteration Installation Team (AIT), etc.).

n. Verifying reports of alteration completions provided by the industrial activity during Chief of Naval Operations (CNO) Maintenance Availabilities.

o. Ensuring that alterations authorized for Forces Afloat accomplishment are completed to the maximum extent possible prior to ship entry into a CNO Maintenance Availability.

p. Ensure a Memorandum of Agreement (MOA) is in place for any alteration, TEMPALT or OPALT scheduled for accomplishment before installation begins. Ensure the MOA provides the duration of installation and scheduled removal date for TEMPALTs or OPALTs. Reference (f) provides detailed TEMPALT Program requirements.

q. Ensuring installation of TEMPALTs or OPALTs are per reference (f) and installation or removal is reported in the format provided in Appendix C of this chapter.

r. Ensuring installation of alterations by the AIT is per reference (g).

s. Ensuring that the FMA requisitions Ready for Issue (RFI) TYCOM Alteration Kits (TYKIT) using a TYKIT Requisition Form provided in Appendix D.

t. Ensuring that TYCOM authorized Category A Mandatory Safety A&Is and Mandatory Safety Title D SHIPALTs are completed during the next availability of sufficient duration. If Ready for Accomplishment (RFA) Category A Mandatory Safety A&I or Mandatory Safety Title D SHIPALT must be deferred beyond an availability of sufficient duration, concurrence must be granted by the TYCOM, Ship's Program Manager and NAVSEA 05 Chief Engineer. This concurrence communication may be conducted via electronic mail.

u.   Ensuring that Category "B" A&Is are completed within 24 months of the date of authorization. Category "B" A&Is affect personnel and equipment safety and failure to complete a Category "B" A&I within 24 months could result in personnel injury or equipment damage. Provide a Quarterly Plan of Action and Milestones for the accomplishment of overdue Category "B" A&Is to the TYCOM Modernization Program Manager.

v.   Ensuring all Fly-By-Wire Ship Control System alterations are planned and installed per the requirements of reference (h) and Chapter 34 of this volume.

3.2.2   <u>Fleet Maintenance Activity</u>. The FMA will establish and maintain an Alteration Management Group. This group will be responsible for:

a.   Using the priorities set by the TYCOM or ISIC, commence alteration planning and material procurement in time to permit on time accomplishment.

b.   Ensuring required ship checks are conducted in a timely manner.

c.   Ensuring no action is taken to accomplish alterations which are not authorized for accomplishment. TYCOM concurrence is required for exceptions.

d.   Notifying the ISIC that an alteration is ready to work when all procedures have been prepared and all material is on hand.

e.   Upon completion of each non-reactor plant alteration, ensure that the OPNAV 4790/CK is completely filled in by the Lead Work Center per reference (c) and returned with the signed off Automated Work Request to the Analysis, Records and Reports Section. The OPNAV 4790/CK will be forwarded by the Analysis, Records and Reports Section to MDCO (or equivalent maintenance document processing office) for entry into the appropriate maintenance brokering database and then forwarded to the ship for follow-up. Reference (c) provides detailed 3-M Program requirements.

f.   Ensuring that an RPCCR Completion Report summarizing reactor plant configuration changes accomplished by the NRMD or FMA are forwarded to the ship's Commanding Officer either electronically or by hard copy at the end of each availability. Ensure the ship's engineer acknowledges the report back to the installing activity and that a copy of the RPCCR Completion Report is provided to the ISIC alteration manager and Squadron Engineer so the NUCALTs can be closed out in the appropriate maintenance brokering database. Once the ship's engineer acknowledges the report, distribute the RPCCR(s) electronically via the Enterprise Business System RPCCR application. Additional details are available in references (d) and (e).

g.   Maintaining a current scheduling and completion status of alterations on assigned units.

h.   Maintaining the status of alteration planning for all alterations authorized for Forces Afloat accomplishment.

i.   Requisitioning RFI TYKITs using Appendix D.

j.   Ensuring material necessary for the installation of alterations is procured in sufficient time to ensure availability during scheduled upkeeps. This includes obtaining all hardware and software required for Ship's Force responsible alterations.

k.   Providing for proper stowage of TYKITs and other alteration material pending installation.

l.   Ensuring all Fly-By-Wire Ship Control System alterations are planned and installed per reference (h).

m.   Upon completion of each installation, ensure that red lined drawings (if required) are provided to the ship and planning yard per reference (a).

n.   Ensure delivery of all required Integrated Logistics Support (ILS) documentation to the ship per reference (a) and the approved ILS Certification Form. Inform ISIC or TYCOM if all ILS is not available prior to the start of the installation so a TYCOM Risk Assessment can be conducted.

3.2.3 Ship's Alteration Coordinator. Ships will designate the Ship's Maintenance Manager, the 3-M Coordinator or a designated assistant as the Alteration Coordinator. Responsibilities will include:

a.   Acting as the central point of contact for all matters relating to alterations.

b.   Responding to specific requests for ship checks made by the TYCOM, ISIC or FMA.

c.   Ensuring no alteration is attempted by Ship's Force until the alteration appears in the unit's CSMP as planned for accomplishment by the appropriate work center.

d.   Ensuring that all OPNAV 4790/CK forms provided by the installing activity are expeditiously completed and submitted to MDCO or equivalent maintenance document processing office per reference (c) three days prior to end of upkeep.

e.   For reactor plant alterations completed by the Shipyard or NRMD, an RPCCR Completion Report will be provided by the shipyard or NRMD and within four weeks of receipt, the ship's engineer must acknowledge receipt and return the report to the Naval Supply Systems Command (NAVSUP) Code N87 Waterfront Representative. The shipyard or NRMD will be responsible for electronically processing these RPCCRs via the Enterprise Business System RPCCR application.

f.   For reactor plant alterations completed by Ship's Force, RPCCRs will be submitted via SIPR e-mail to BPMI at address pomms.fct@navy.smil.mil. The TYCOM Modernization Manager and squadron Alteration Coordinators should also be copied on the e-mail. Detailed instructions governing RPCCR submission are contained in references (d) and (e).

g.   Monitoring the accomplishment of alterations during Depot Maintenance Availabilities by both the industrial activity and Ship's Force and reviewing alteration completion reports provided by the industrial activity. Report any discrepancies to the ISIC or TYCOM.

h   Ensuring proper 3-M reporting by monitoring the submission of OPNAV 4790/CK forms regardless of the installing activity or availability. If an OPNAV 4790/CK form

has not been submitted for a completed alteration, obtain one. The certification letter of alterations accomplished by a shipyard or AIT will be processed as OPNAV 4790/CKs as required by reference (c).

i. Ensuring an MOA is in place before installation of an alteration or TEMPALT or OPALT by any industrial activity. Ensure the MOA provides the duration of installation and scheduled removal date for TEMPALTs or OPALTs.

j. Ensuring installation of TEMPALTs or OPALTs is per reference (f) and installation or removal is reported in the format provided in Appendix C.

k. Ensuring TEMPALTs are removed and the ship is returned to its original configuration by the scheduled removal date.

l. Ensuring all TEMPALTs are removed and the ship is returned to its original configuration prior to a CNO Maintenance Availability.

m. Ensuring installation of alterations by an AIT is per reference (g).

n. Ensuring all Fly-By-Wire Ship Control System alterations are planned and installed per the requirements of reference (h).

o. Following installation of an alteration that modifies the structure of the ship, such that access to vital equipment is or may be impacted, the ship must evaluate the need to perform Unrestricted Operation (URO)-29. If access to vital equipment could be restricted, the ship must perform URO-29 and provide a copy to the installing activity and the ISIC. Partial accomplishment of URO-29 is acceptable if appropriate for the alteration.

3.3 ALTERATION PROGRAMS.

3.3.1 Reactor Plant Ship Alteration Package Program (Nuclear Powered Ships only). A NAVSEA 08 program to package and position reactor plant alteration material at the NAVSUP Weapons System Support (WSS) Mechanicsburg for requisition and installation by Forces Afloat. RFI reactor plant alteration packages should be requisitioned via fax to (717) 605-7706 or official correspondence to the address identified in this paragraph. All requests must include National Stock Number, alteration number, hull number and name, complete shipping address, point of contact (including phone number), and required delivery date.

> Naval Supply Systems Command Weapons System Support (NAVSUP WSS)
> Code (per Field Change instructions)
> P.O. Box 2020
> Mechanicsburg, PA 17055-1788

3.3.2 Alteration Installation Team Program. A program to support the installation of alterations by an industrial team normally outside of a CNO Maintenance Availability. Specific guidelines governing AITs are contained in reference (g). AIT installations are scheduled and authorized through the Submarine Modernization and Alteration Requirements Tool (SMART).

3.3.3 Type Commander Alteration Kit Program. A TYCOM program which packages hardware and software required to plan, install and report completion of the alteration. Accomplishment will be authorized in TYCOM Alteration Management System (TAMS) when the TYKIT

becomes available. The TYKIT inventory report is available on the SUBLANT and SUBPAC websites. Once TYKITs are reported available for issue, installing activities should use the form provided in Appendix D to request shipment the TYCOM.

3.3.4 <u>Alteration & Improvement Item Program</u>. A TYCOM program to issue NAVSEA approved changes to the fleet which are different from SHIPALTs in that they do not normally result in significant design changes, have no logistically significant material requirements, no significant ILS Requirements and no significant industrial production work or support requirements. Joint COMSUBLANT/COMSUBPAC A&I approval letters are issued by COMSUBLANT.

3.3.4.1 <u>Message Alterations and Improvements</u>. In the event that operational concerns require an immediate configuration change to ships at sea, a Naval Message may be used to direct specific actions with an assigned A&I number.

3.3.4.2 <u>Alteration and Improvement Category Codes</u>.

Category A: Mandatory Safety – After TYCOM authorization accomplish at the next availability of sufficient duration based on scope and complexity. Deferral requires TYCOM, Ship's Program Manager and SEA05 approval.

Category B: Safety - Accomplish within two years of authorization.

Category C: Maintenance Improvement - Accomplish within three years of authorization.

Category D: Optional (Habitability).

Category E: Optional (Minor Improvement).

Category F: Situational - Accomplish when the condition outlined in the A&I occurs.

3.3.5 <u>Command, Control, Communications, Computer, Combat Systems, Intelligence, Surveillance and Reconnaissance (C5ISR) Modernization Program (C5IMP)</u>. The Submarine Force C5IMP was established to manage configuration baselines, ensure critical C5ISR interoperability and manage operational risks associated with C5ISR modernization. The C5IMP is scheduled and authorized through the SMART. C5I modernization is normally accomplished during CNO Maintenance Availabilities or by an AIT during pier side availabilities. Additional details are available in references (i) and (j).

3.4 <u>MONITORING OF ALTERATION STATUS</u>.

3.4.1 <u>Type Commander Alteration Management System</u>. An automated system operated by the TYCOMs containing information relating to an alteration's authorization, completion status, scheduling and designated accomplishing activity for all A&I Items, TZ Improvements and SHIPALTs. TAMS is the instrument by which the TYCOM authorizes the accomplishment of TYCOM alterations and maintains completion status. Appendix E provides a TAMS Interpretation Guide.

3.4.2 <u>Navy Data Environment - Navy Modernization</u>. The official automated system supporting the information and decision support requirements of NMP managers Navy wide. Navy Data Environment - Navy Modernization (NDE-NM) contains data related to ships and their availability schedules, alteration applicability, alteration material requirements and procurement

status and installation and outfitting costs for non-nuclear alterations. Submarine TYCOM alterations and SSBN and SSGN alterations are not scheduled in NDE-NM at this time.

3.4.3 <u>Submarine Modernization and Alteration Requirements Tool</u>. SMART is the authoritative tool for the Submarine Force C5IMP. All C5I modernization planning, scheduling and authorization is conducted utilizing SMART. SMART is available on COMSUBLANT/COMSUBPAC NIPR site for SSNs and SSGNs and on COMSUBLANT/COMSUBPAC SIPR site for SSBNs. In addition, the TYCOM uses SMART to schedule and authorize all Hull, Mechanical and Electrical non-nuclear alterations being accomplished by AIT.

3.4.4 <u>Nuclear Alteration Technical Documentation Compact Disk</u>. The NUCALT Technical Documentation CD provides information required to accomplish nuclear SHIPALTs and A&I items. It is issued to applicable ships, ISICs and FMAs quarterly. It provides information on all outstanding nuclear alterations applicable to each individual ship.

3.5 <u>LIAISON ACTION REQUEST</u>. A Liaison Action Request (LAR) is to be submitted to the appropriate Planning Yard or Reactor Plant Planning Yard, with copy to the TYCOM Modernization Program Manager, when a technical problem is encountered during the planning for or installation of an alteration. The use of eLARs is preferred. The LAR form in reference (k) may be used. Non-technical issues should be addressed to the TYCOM via Alteration Feedback per paragraph 3.6 of this chapter.

3.6 <u>ALTERATION FEEDBACK</u>. An Alteration Feedback message or e-mail (Appendix F) is to be submitted to the TYCOM Modernization Program Manager when a non-technical or administrative problem is encountered during the planning for or installation of an alteration. Technical issues should be addressed to the appropriate planning yard via LAR per paragraph 3.5.

3.7 <u>ALTERATION REQUESTS</u>. Requests for new alterations should be made using the format provided in Appendix B. Alteration requests should be limited to alterations affecting safety or those providing a substantial warfighting or maintenance benefit. Initiator must provide adequate justification or the alteration request will be returned disapproved. ISIC endorsement of Alteration Requests from the fleet is required.

3.8 <u>TYCOM MODERNIZATION WEBSITES</u>. Both the COMSUBLANT and COMSUBPAC NIPRNET and SIPRNET Websites provide a wealth of modernization information to include periodic TAMS Reports, TYKIT Inventory and Requisition Form, Alteration Document (SHIPALT, A&I, TZ Improvement) Archives and general information.

3.9 <u>PERMANENT MODIFICATIONS TO TENDERS WITH NUCLEAR SUPPORT FACILITIES</u>. Rearrangement or modification to spaces within or adjacent to the Nuclear Support Facility must be accomplished per reference (l).

APPENDIX A

MAJOR SHIP ALTERATION TYPES EXECUTIVE SUMMARY

TYPE ALTERATION	BRIEF	WHO FUNDS FMP INSTALLATION
Title K SHIPALT	Most complex military characteristic change; requires Industrial Activity (including AIT) expertise.	Program Office
Title K-P SHIPALT	Approved package alteration for AIT or forces afloat accomplishment.	Program Office
Title D SHIPALT	Less complex fleet responsible Alteration Equivalent to a Repair. May require Industrial Activity or FMA expertise. Reactor Plant Title "D" SHIPALTs are situational - to be accomplished only when the situation outlined in the SHIPALT occurs.	Fleet Commander or TYCOM
Title F SHIPALT	Less complex fleet responsible Alteration Equivalent to a Repair. May require FMA or Ship's Force expertise. Only used for Reactor Plant alterations.	Fleet Commander or TYCOM
ORDALT	Modification of ordnance equipment or systems after establishment of the product baseline which involves a change in design, material, quantity, installed location, ILS, or the relationship of the component parts of an assembly within the ship. ORDALTs are normally accomplished by an AIT.	Program Office
MACHALT NOTE: Submarines no longer issue MACHALTs but will retain this definition to support legacy MACHALTs.	Hull, Mechanical and Electrical changes within strict equipment/system boundaries and with limited system ramifications managed by the In-Service Engineering Activity.	Program Office or TYCOM
Engineering Changes, Field Changes (FC)	A mechanical, electronic or electrical change, made to electronic equipment after establishment of the product baseline and delivery to the government, 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. Engineering Changes and FCs are normally installed by AIT or Ship's Force.	Program Office
Alteration & Improvement (A&I) Item	Tests, inspections and minor alterations to submarines and submarine tenders; no significant ILS impact.	Fleet Commander or TYCOM
Type Zero (TZ) Improvements	Minor alterations to SSBN and SSGN 726 Class submarines; no significant ILS impact.	Fleet Commander or TYCOM
TYCOM Discretionary Changes (TDC) NOTE: Submarines no longer issue TDCs but will retain this definition to support legacy TDCs.	Minor alteration to SSBN and SSGN 726 Class submarines at the discretion of the TYCOM or ISIC; no significant ILS impact.	Fleet Commander or TYCOM
TRIDENT Command and Control System Modification	Alterations on the TRIDENT Command and Control System.	Program Office

TYPE ALTERATION	BRIEF	WHO FUNDS FMP INSTALLATION
Temporary Engineering Changes	Emergent temporary modification to the TRIDENT Command and Control System.	Program Office
TEMPALT	Emergent, proof of concept or mission related temporary modification to submarines; installed for short, predetermined time frame not normally to exceed 24 months or 18 months wet duration time with any external structure or any implodable volume features.	Technical Sponsor
OPALT	TEMPALTs with ILS requirements (usually an interim installation pending SHIPALT development).	Technical Sponsor
TRIDENT Alteration (TRID)	Major alteration to SSBN and SSGN 726 Class submarines. Significant ILS impact.	Program Office

APPENDIX B

SUBMARINE ALTERATION REQUEST FORMAT

4720
Ser
Date

From: Commanding Officer, USS (Ship's Name and Hull No.)
To: Commander, Naval Sea Systems Command
Via: ISIC (as appropriate)
          TYCOM (as appropriate)

Subj: USS (Ship's Name and Hull No.) ARN (Hull No.-CY-Ser No.) REQUEST FOR ALTERATION TO (PROVIDE, REMOVE, REPLACE, RELOCATE, INSTALL, CORRECT, etc.) IN (Ship Type or Class)

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

Encl: (1)   (Photographs, sketches, etc. to fully describe the proposed alteration)
        (2)   Recommended Changes to Technical Documentation

1. Existing Deficiency or Condition. Statement of circumstances which warrant initiation of alteration request.

2. Alteration Request. Per Volume VI, Chapter 3 of reference (a), request that the following alteration be approved for (Ship Type or Class) ships and be authorized for accomplishment on USS (Ships Name and Hull No.).

    a.   Brief: Description of alteration desired.

    b.   Justification: Statements that the alteration meets one or more of the following criteria:

        (1)   Significant improvement in ship or equipment safety.

        (2)   Significant improvement in equipment or system reliability, reduction in maintenance requirements or both.

        (3)   Significant benefits to health or safety of personnel.

        (4)   Significant improvement in mission capability.

    c.   Applicable Plans and Publications: List applicable technical manuals, drawings, correspondence, maintenance documentation, etc.

    d.   Priority: Defined by TYCOM instructions.

    e.   Relationship to other issued alterations:

    f.   Manual Changes: Recommended manual changes (attached as enclosure (2)).

    g.   Effect on Habitability.

    h.   Materials.

    i.   Work to be accomplished by:

**ISIC ENDORSEMENT OF SUBMARINE
ALTERATION REQUEST FORMAT**

**4720
Ser
Date**

FIRST ENDORSEMENT on Commanding Officer, USS (Ship's Name and Hull No.) ltr 4720 (Ser No. and Date)

From: ISIC (as appropriate)
To: Commander, Naval Sea Systems Command
Via: TYCOM (as appropriate)

Subj: USS (Ship's Name and Hull No.) ARN (Hull No.-CY-Ser #) REQUEST FOR ALTERATION TO (PROVIDE, REMOVE, REPLACE, RELOCATE, INSTALL, CORRECT, ETC.) IN (Ship Type or Class Ships).

1. Forwarded, concurring with the basic correspondence (with the following comments).

2. The alteration should be applicable to (Type, Class, Hulls).

3. This alteration should be issued as an (A&I, Title D, F, K, P SHIPALT).

4. This alteration should be accomplished by (Forces Afloat or industrial activity).

Copy to:
USS (Ship's Name and Hull No.) (requesting ship)

APPENDIX C

SAMPLE TEMPALT OR OPALT REPORTING MESSAGE

FM (INSTALLING ACTIVITY)//
TO COMNAVSEASYSCOM WASHINGTON DC//PMS392 (SSN/SSBN/SSGN)//
TYCOM//N42T// (AS APPROPRIATE)
INFO COMSUBRON (SQUADRON NO.)//
USS (SHIP'S NAME AND HULL NO.)//
BT
UNCLAS //N04720//
MSGID/GENADMIN/(INSTALLING ACTIVITY)//
SUBJ/(SUBS) INSTALLATION/REMOVAL OF TEMPALT (TEMPALT NO.) (ON/FROM)
USS (SHIP'S NAME AND HULL NO.)//
REF/A/LTR/(ORIGINATOR, SERIAL NO.)/(DATE)//
REF/B/LTR/(ORIGINATOR, SERIAL NO.)/(DATE)//
NARR/REF A APPROVED DESIGN OF TEMPALT (TEMPALT NO.). REF B APPROVED
INSTLN OF TEMPALT (TEMPALT NO.)//
POC/(NAME)/(RANK/RATE/TITLE)/(LOCATION)/(DSN/COMM TELEPHONE)//
RMKS/1. TEMPALT (TEMPALT NO. AND NARRATIVE DESCRIPTION), DESIGN
APPROVED BY REF A, INSTALLATION APPROVED BY REF B, WAS
(INSTALLED/REMOVED) (ON/FROM) USS (SHIP'S NAME AND HULL NO.) ON (DATE).
INSTALLATION WAS IAW NAVSEA APPROVED TECHNICAL DATA PACKAGE (TDP).
DEVIATIONS WERE APPROVED BY _____. THIS TEMPALT IS SCHEDULED FOR
REMOVAL ON (DATE)//
RMKS/2. URO-29 WAS OR WAS NOT ACCOMPLISHED//
BT

**NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS
UTILIZED.**

APPENDIX D

TYKIT REQUISITION FORM

DATE:

FROM:

TO: TYCOM (as appropriate)

   1.   REQUEST SHIPMENT OF BELOW LISTED TYKIT(S):

      TYKIT#   HULL#

   2.   COMPLETE SHIPPING ADDRESS:

   3.   POINT OF CONTACT:

   4.   TELEPHONE (VOICE or FAX):

   5.   DATE REQUIRED:

   6.   SPECIAL INSTRUCTIONS:

APPENDIX E

**TYCOM ALTERATION MANAGEMENT SYSTEM
INTERPRETATION GUIDE**

ALTID: Alteration Identification Number

Format of ALTID is:

PR   Type   00000

Alt Prefix   Ship Type   Alt Number

The Alt Prefix is SA for SHIPALTs, TY for A&I Items and MA for MACHALT.
Ship Type is a four-character element for the type of ship (SSN, SSBN, AS, etc.) and
the Alt Number is a five-digit number which begins with a 0 for SHIPALTs and a
letter prefix for A&I items.

Ship Type Abbreviation	A&I Prefix	Ship Type
SSN688 or 21 Class	N	Nuclear-Powered Attack Submarine
SSN774 Class	V	Nuclear-Powered Attack Submarine
SSBN or SSGN 726 Class	T	TRIDENT or SSGN Submarines
AS	A or R	Submarine Tender
All Nuclear Ships	Q	Reactor Plant Modifications
Drydocks	D or M	Drydocks

REV: Revision Number

INCR: SHIPALT Increment Number (if applicable).

TITLE: SHIPALT Title

K   =   Funded & scheduled by NAVSEA
KP =   Funded by NAVSEA and scheduled by TYCOM or NAVSEA
F   =   Funded & scheduled by TYCOM
D   =   Funded & scheduled by TYCOM

NOUN NAME: Noun Name of Alteration

EIC: Equipment Identification Code (Z0ZZ = Reactor Plant Equipment)

SWAB: Ship Work Authorization Boundary

ICNC: Alteration Cancellation Indicator

0   =   Active
1   =   Canceled
2   =   Superseded

3	=	Never Issued
4	=	Completed
5	=	Not Used
6	=	Low Priority, Obsolete, Deferred

08:      Nuclear Indicator (* denotes reactor plant alteration)

CAP: Capability Code - Recommended Level of Accomplishment

S/F	=	Ship's Force
FMA	=	Fleet Maintenance Activity
SY	=	Shipyard (Industrial Activity)
AIT	=	Alteration Installation Team
FA	=	Forces Afloat

CAT: Category Code - (non-reactor plant A&I items only)

A	=	Mandatory Safety - Accomplish at the next availability of sufficient duration based on scope and complexity after authorization. Deferral requires TYCOM, Ship's Program Manager and SEA05 approval.
B	=	Safety - Accomplish within two years of authorization.
C	=	Maintenance Improvement - Accomplish within three years of authorization.
D	=	Optional (Habitability).
E	=	Optional (Minor Improvement).
F	=	Situational - Accomplish when the situation outlined in the A&I occurs.

ALT NARR: Narrative description of the alteration.

TYST: TYCOM Status

A	=	Applicable but not yet authorized. No action should be taken to accomplish this alteration without TYCOM concurrence.
B	=	Applicable and Authorized.
C	=	Alteration has been fully completed per the alteration document. For non-reactor plant alterations, "C" is assigned only after the completion report has been up-line reported in the 3-M System. For reactor plant alteration, "C" is assigned only after the RPCCR has been distributed per reference (d) and all applicable FCs or RPSMs have been reported complete.
D	=	Deferred. No action should be taken to accomplish without TYCOM concurrence.
E	=	Intent of the alteration has been equivalently accomplished via a method other than the alteration document.

H	=	May or may not have been accomplished during new construction or Post Shakedown Availability via Headquarters or Field Modification Request. A shipcheck is required to determine status.
I	=	Incomplete Reactor Plant Alteration (all applicable FCs or RPSMs have not been completed).
J	=	Title P SHIPALT package scheduled for installation by the FMA.
K	=	Title P SHIPALT package scheduled for installation by an industrial activity during Depot Maintenance Availabilities.
L	=	Title P SHIPALT package scheduled for AIT installation.
M	=	System Under Military Sealift Command Cognizance
N	=	Not Applicable.
P	=	Partially complete.
Q	=	A reactor plant alteration reported complete via paper RPCCR but not reported complete in EBS.
T	=	Technically applicable, however, requirement to accomplish has been negated by another alteration.
V	=	Not required within five years of inactivation.
X	=	Cancelled.
Z	=	Interim completion. For non-reactor plant alterations, awaiting feedback from the 3-M system that the completion has been up-line reported. For reactor plant alterations, awaiting RPCCR or RPCCR Completion Report.

FYPR: Fiscal Year Programmed - Fiscal year in which alteration is to be accomplished (** denotes situational alteration).

PRRMK: Programming Remarks - Assigned Accomplished Level

AIT	=	Alteration Installation Team
CMAV	=	Continuous Maintenance Availability
CNX	=	Cancelled
CON	=	New Construction
DEF	=	Deferred
DSCO	=	Docking Service Craft Overhaul
EDSRA	=	Extended Docking Selected Restricted Availability
EOH	=	Engineered Overhaul (Not Refueling)
ERO	=	Engineered Refueling Overhaul
ERP	=	Extended Refit Period
FA	=	Forces Afloat
FAA	=	Forces Afloat Anytime
FAP	=	Forces Afloat Prior to Depot Availability
FMA	=	Fleet Maintenance Activity
IDD	=	Interim Dry-docking
IMA	=	Intermediate Maintenance Activity
MTS	=	Moored Training Ship
PIRA	=	Pre-Inactivation Selected Availability
PSA	=	Post Shakedown Availability

RAV = Restricted Availability
SRA = Selected Restricted Availability
SY = Shipyard
TAT = TYKIT for AIT Installation
TKT = TYCOM Alteration Kit
TOA = TYCOM Opportunity Availability
TSY = TYKIT for Depot Level Installation
TYC = No Installing Activity Assigned
XXX = Cancelled

TYCOM AUTH: Alteration authorization date.

DUE DATE: Date the alteration is required to be completed.

REMARKS: Used to record information relating to hull status or situational requirements.

APPENDIX F

SAMPLE ALTERATION FEEDBACK MESSAGE AND EMAIL FORMAT

FM ORIGINATING ACTIVITY//
TO TYCOM//
INFO ISIC//
BT
UNCLAS//N04720//
MSGID/GENADMIN/(SHIP'S NAME AND HULL NO.)//
SUBJ/ALTERATION FEEDBACK//
REF/A/(ALTERATION NUMBER)//
AMPN/REF A IS (DESCRIPTION OF ALTERATION)//
RMKS/1. DURING (PLANNING/ACCOMPLISHMENT) OF REF A THE FOLLOWING
NON-TECHNICAL PROBLEMS WERE ENCOUNTERED:

      A. INSTALLATION DOES NOT ACCOMPLISH THE INTENT OF ALTERATION
      B. MATERIAL IS NOT ADEQUATELY IDENTIFIED OR AVAILABLE TO
          SUPPORT THE INSTALLATION
      C. ALTERATION IS/IS NOT APPLICABLE
      D. ALTERATION IS/IS NOT WITHIN FMA OR SHIP'S FORCE CAPABILITY

2. DETAILS OF PROBLEM AREAS NOTED IN PARAGRAPH 1 OR OTHER PROBLEMS
ENCOUNTERED
3. RECOMMEND CORRECTIVE ACTIONS/IMPROVEMENTS/COMMENTS
4. RECOMMEND SCHEDULING/PROGRAMMING CHANGES//
BT

NOTE: **ALTERATION FEEDBACK FORMS MAY BE SUBMITTED VIA EMAIL TO
THE TYCOM MODERNIZATION PROGRAM MANAGER**

NOTE: **ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
AND CURRENT PLAD IS UTILIZED.**

VOLUME VI

CHAPTER 4

SHIPBOARD ELECTROMAGNETIC COMPATIBILITY

REFERENCES.

(a)   OPNAVINST 2400.20() - Electromagnetic Environmental Effects (E3) and Spectrum Supportability Policy and Procedures

(b)   NAVSEAINST 2400.20 - Electromagnetic Environmental Effects (E3) and Spectrum Supportability (SS) Program and Procedures

(c)   NAVSEA STD DWG 407-5291780 - Standard Electromagnetic Interference (EMI) Survey Procedures

(d)   COMNAVSURFPACINST/COMNAVSURFLANTINST 3502.3 – Surface Force Readiness Manual

(e)   NAVSEA S9040-AA-GTP-010 - NAVSEA Technical Publication Shipboard Systems Certification Requirements for Surface Ships

(f)   SUBMEPP Test Procedure 441-5-7001 - SSN 688 Class Submarine, Systems EMI Measurements, Dockside

(g)   Maintenance Plan 4100-02-01 - Command and Control System (CCS) Electromagnetic Interference (EMI) Testing

(h)   NAVSEA STD DWG 407-5287556 - Electronics Material Officer's Guide to Shipboard Electromagnetic Interference Control

(i)   NAVSEA STD DWG 407-5287561 - Industrial Electromagnetic Compatibility (IEMC) Work Process Instructions

(j)   N6-NTSP-S-70-8003() - Navy Training System Plan (NTSP) for Electromagnetic Environmental Effects (E3) and Spectrum Management (SM)

(k)   NWP 1-03.1 - Naval Warfare Publication Operational Report

(l)   NTP- 6() – Naval Telecommunications Procedures, Navy Electromagnetic Spectrum (EMS) Guide

(m)   TACMEMO 3-51.1-15 - Electromagnetic Spectrum Operations Afloat

(n)   NAVEDTRA 43357-4A - Personnel Qualification Standard (PQS) for Electromagnetic Spectrum Operations

(o)   NAVSEA S9407-AA-GYD-010/(S) OP-3840 - Electromagnetic Compatibility Criteria For Navy Systems

4.1 PURPOSE. To provide guidance in the management of shipboard Electromagnetic Compatibility (EMC) through the Shipboard Electromagnetic Compatibility Improvement Program (SEMCIP) for all ships, per reference (a) and procedures outlined in reference (b).

4.2 BACKGROUND. The SEMCIP was established by Naval Sea Systems Command (NAVSEA) under the sponsorship of the Chief of Naval Operations (CNO). The goals of SEMCIP are to rectify mission-degrading Electromagnetic Interference (EMI) problems, support fleet EMC training and maintain shipboard EMC. SEMCIP is divided into five major elements: Up-front Systems Engineering, Fleet Response, EMI Problem Quantification, Spectrum Management, EMC in the ship alteration installation approval process, Engineer EMI Fixes and Fleet EMC Support Tools. One of the Fleet tools is the SEMCIP Technical Assistance Network (STAN), a database containing current and historical information on all known shipboard,

submarine and Strike Force EMI problems. Since some SEMCIP elements are normally associated with the development of new systems, all elements will not be discussed here.

4.3 <u>ELECTROMAGNETIC COMPATIBILITY CERTIFICATIONS AND EMI SURVEYS</u>.
EMC certifications are an important line of defense against shipboard EMI problems and are performed by NAVSEA designated activities for the purpose of testing various shipboard systems for EMI degradation. During an EMC Certification or EMI Survey, EMI problems are investigated and evaluated, applicable EMI fixes are installed and effects of EMI on each system tested is ascertained and recorded in STAN.

4.3.1 <u>Surface Ships and Aircraft Carriers Electromagnetic Compatibility Certifications</u>.
Deploying surface ships and aircraft carriers will receive an EMC Certification from a NAVSEA qualified activity following CNO or extended maintenance availability periods (more than 120 days) or major topside changes prior to deployment. EMC Technicians are billeted onboard CVN, LHA and LHD class ships and at Regional Maintenance Center (RMC) or Fleet Maintenance Activity (FMA). Ships may submit requests for EMI or EMC technical assistance from co-located CVN, LHA, and LHD class ships through their normal chain of command channels. Ships may submit requests for an EMI or EMC technical assistance to the RMC or FMA by submitting an OPNAV 4790/2K. OPNAV 4790/2K should be used to document maintenance actions as part of an Availability Work Package (AWP) for completion during CNO availabilities or prior to and in preparation for EMC Certification. Since there are differences in the systems and processes between platforms, they will be discussed separately.

4.3.1.1 EMC certification consists of four phases: a planning and test plan development phase, an in-port certification testing phase, an underway certification phase, and reporting phase.

4.3.1.2 EMC certifications should not be scheduled coincidental with evolutions that restrict either antenna radiation or personnel movement about the ship.

4.3.1.3 EMC certifications must be performed per the requirements of reference (c), and include, but are not limited to:

a. Using STAN to verify that all available EMI fixes have been installed, or if not installed, documented in ship's Current Ship's Maintenance Project.

b. Performing topside visual surveys to ensure the ship conforms to the applicable topside electromagnetic control drawing as specified in STAN for that ship.

c. Performing High Frequency Intermodulation Interference (IMI) test.

d. Performing IMI source location when IMI level exceeds the 19th product order.

e. Performing broadband noise test.

f. Performing source location when broadband noise is detected.

g. Performing Time-Domain or Frequency-Domain Reflectometer measurements on all high frequency, very-high frequency and ultra-high frequency transmission lines.

h. Conducting Voltage Standing-Wave Ratio tests on all high frequency, very-high frequency and ultra-high frequency transmit antennas. Where transmission lines and antennas are coupled and cannot be easily separated, reconnected and weather-proofed, testing of transmission line and antenna combinations may be performed via

Time-Domain Reflectometer or Frequency-Domain Reflectometer, satisfying the testing requirements of this paragraph and paragraph 4.2.1.1.3.g.

i. Performing insulation resistance tests on high frequency antennas, where required by the Planned Maintenance System (PMS).

j. Documenting all discrepancies noted on OPNAV 4790/2Ks.

k. Assisting Ship's Force with hands-on training and technical guidance in correcting discrepancies as appropriate.

4.3.1.4 EMC Certifications.   EMC certifications should be scheduled during the O-FRP "Maintenance" phase per reference (d), immediately following the ships Target Configuration Date (TCD) and following periodicity requirements and prerequisites contained in reference (e).

4.3.2 Submarines Electromagnetic Compatibility Certifications.

4.3.2.1 Submarines will receive pre-deployment EMI Surveys from a NAVSEA qualified activity. Ships may submit requests for an EMI or EMC technical assistance to the RMC or FMA by submitting an OPNAV 4790/2K. OPNAV 4790/2K should be used to document maintenance actions as part of an Availability Work Package (AWP) for completion during CNO availabilities or prior to and in preparation for EMC Certification. Since there are differences in the systems and processes between platforms, they will be discussed separately.

4.3.2.2 EMI surveys require up to four working days depending on the ship class being evaluated. EMI surveys can be accomplished concurrently with most submarine work but must not be scheduled coincidental with evolutions that would impede access to the forward sonar and communications system units or cause power-down of systems during the EMI survey without prior notification of the EMC technician conducting the testing. If equipment must be powered down, the EMC technician will determine if further EMI testing can be accomplished. For an accurate assessment of the submarine EMC posture, the ship's forward electronics must be energized as close as possible to the ship's at-sea lineup. The electronics and hydraulics for both multifunction mast antennas must be operational. In addition, crane service is required to lift two antenna shields (approximate weight 130 lbs. each) to cover both partially raised multifunction mast antennas for testing. Major sonar, communications, fire control or navigation system casualties will cause test data to be invalid. EMI surveys must be performed, per references (f) and (g), by qualified NAVSEA or NAVSEA designated activities and include, but not limited to:

a. Using STAN to verify all available EMI fixes have been installed.

b. Briefing Ship's Force on the details of the EMI Survey and discussing testing time-lines and potential impacts.

c. Coordinating antenna shield installation and removal with the ship, RMC or FMA and port services.

d. Performing a visual survey in the submarine to verify EMI corrective action installations in sonar and communications equipment and to look for potential EMI coupling areas associated with these systems.

e. Energizing forward electronics following the equipment energized list, provided in reference (f) for SSN Class submarines or reference (g) for TRIDENT Class submarines.

f. Conducting EMI analysis on sonar and communications equipment.

g. Installing or repairing any EMI corrective action needed to produce EMI reduction in order to improve the total shipboard EMC of all shipboard electronic equipment and systems. This will include a retest to determine the actual reduction achieved.

h. Analyzing test data, noting all discrepancies and generating a naval message, prior to departing the ship, documenting the results of the EMI survey.

i. Providing EMC posture debrief to the designated submarine's officers, chiefs and leading petty officers. The naval message, noting all discrepancies, will be provided to the ship after final report has been reviewed.

j. Assisting ship with hands-on training and technical guidance in correcting discrepancies as appropriate.

k. Documenting all discrepancies noted on OPNAV 4790/2Ks.

4.4 <u>FLEET ELECTROMAGNETIC COMPATIBILITY SUPPORT TOOLS</u>. SEMCIP provides Fleet EMC support tools to help eliminate emergent EMI problems between certifications. When a ship encounters an EMI problem beyond the scope of Ship's Force and RMC or FMA capabilities, outside technical assistance can be arranged on short notice. The problem should be reported per guidance in Chapter 5 of this Volume. In addition to the normal message addressees, the message should also be sent to COMNAVSEASYSCOM WASHINGTON DC//05H4//, NAVSURFWARCENDIV DAHLGREN VA//B54//, NAVUNSEAWARCENDIV NEWPORT RI//3431// (submarines only), COMNAVWARSYSCOM SAN DIEGO CA //051-1C//, INFO COMNAVIFOR SUFFOLK VA, NAVINFOWARDEVCEN NORFOLK VA. NAVMARSPECCEN FT GEORGE G MEADE MD and appropriate regional Navy and Marine Corps Spectrum Office (NMCSO) as outlined in reference (h). The following paragraphs list additional support resources that will improve the warfighting readiness of EM Spectrum Dependent Systems (SDS).

a. SEMCIP Technical Assistance Network (STAN): The official repository for EMC and EM radiation hazard (RADHAZ) data for systems, ships, submarines and strike groups certifications for all SDS. RADHAZ includes several subsets (e.g., Hazard of Electromagnetic Radiation to Personnel (HERP), Hazard of Electromagnetic Radiation to Fuels (HERF)). Primary products include EMI brief sheets and associated affected ships list, EMI test procedures, tailored ship equipment lists and an Electromagnetic Environmental Effects (E3) document library. Additional products are available in STAN, such as EMI problem listings by selected criteria, EM control drawings and the EMC Certification test plan generator. STAN access and familiarity is highly recommended for all units. Requests for STAN access is obtained via the STAN web site https://semcip.nswc.navy.mil.

b. Air Systems Electromagnetic Interference Corrective Action Program (ASEMICAP): ASEMICAP provides E3 systems engineering support to the Fleet and NAVAIR team to ensure E3 hardness of operational aircraft systems, subsystems and equipment

throughout their life cycles. The primary task is to provide deck plate engineering and technical support to the Fleet in an attempt to rapidly resolve E3 problems while striving to elevate Fleet E3 capabilities through a dedicated process of deck plate support. The emphasis continues to be immediate response to EMI issues through engineering solutions for operational aircraft systems and equipment. The increasing reliance on Unmanned Aerial Systems (UAS) and the resultant demands on the congested EM operational environment (EMOE) forces improved Electromagnetic Spectrum (EMS) awareness and impacts of aviation operations by Sailors and Marines. ASEMICAP also provides engineering and technical support directly to Fleet units to resolve EMI problems and represents Fleet interest within the acquisition community. ASEMICAP is located on NIPR at https://asemicap.navair.navy.mil.

    c.   NAVSEA EMI Capability and Limitations (EMI C&L) Portal: The EMI C&L provides the Fleet a central repository for ship-specific EMI and EMC information. The data is tailored for EMI C&L individual ship and strike forces and provides an overall force-wide EMI and EMC perspective. The C&L portal includes information on shipboard characteristics, coverage plots for selected communications and weapons systems, host nation frequency restrictions (HNR), for all SDS and RADHAZ limitation information. The portal is located on SIPR at http//cnl.phdnswc.navy.smil.mil/emi_cnl/default.htm.

4.5 <u>ENGINEER ELECTROMAGNETIC INTERFERENCE FIXES</u>. SEMCIP EMC engineers identify and characterize new EMI problems and develop and formalize solutions for these problems. When new EMI problems are detected through testing, per references (c), (f) and (g), SEMCIP engineering will develop a fix. SEMCIP engineering also updates standard EMI test procedures for references (c), (f) and (g).

4.6 <u>SHIPBOARD FULL-SCALE ELECTROMAGNETIC COMPATIBILITY EVALUATIONS</u>. Shipboard full-scale EMC evaluations are performed by NAVSEA in the lead ship of a class or in individual ships at the conclusion of any major event (such as conversion, modernization or overhaul) which could affect the EMC status of the ship. SEMCIP engineering teams energize, test and evaluate the capability of electromagnetic emitters and sensors to operate simultaneously on the same ship without interference.

4.7 <u>ELECTROMAGNETIC COMPATIBILITY CERTIFICATION</u>. NAVSEA 05H coordinates EMC Certification in new construction ships, ships undergoing industrial availabilities and ships receiving new systems both in and outside of industrial availabilities. The EMC Certification testing is conducted by NAVSEA or NAVSEA-qualified activities. There are two types of EMC Certification: System and Ship EMC Certification. Each type is addressed in this section.

4.7.1 <u>System Electromagnetic Compatibility Certification</u>. System EMC Certification ensures all newly installed electrical and electronic systems are compatible with previously installed systems. System EMC Certification will be accomplished per reference (e) for surface force ships:

    a.   For electrical and electronic systems installed by Fleet or Program Alterations following the Navy Modernization Process, Management and Operations Manual (NMP-MOM).

    b.   Following the System Operational Verification Test or other operation test for the newly installed system.

    c.   By NAVSEA 05H4 test team for the first two ships of a class, flight or baseline.

    d.   By Program Acquisition Resource Manager, Ship Program Manager, Naval Supervisory Authority, RMC or FMA or a contractor witnessed by a government activity for the subsequent System EMC Certifications using test procedures provided in references (c) and (f).

    e.   System EMC Certification requirements mandate:

        (1)   The system has an approved (Stage 4) Application for Frequency Allocation (JF-12).

        (2)   No mission-degrading EMI has been introduced by installation of the system.

        (3)   EMI fixes have been installed to correct mission-degrading EMI caused by the installation of the system.

4.7.2 <u>Ship Electromagnetic Compatibility Certification</u>. Ship EMC Certification ensures all shipboard systems are compatible with each other and topside EMI mitigation treatments are in place. Ship EMC Certifications will be accomplished per references (e) and (i). Ship EMC Certification requirements mandate:

    a.   All "available EMI fixes" that correct mission-degrading EMI problems are installed. Available EMI fixes are fixes that have been developed and listed in the STAN database. An "available EMI fix" is required for certification even if the kit or parts are not in stock. In that case, priority would be given for procurement and installation of the fix required for certification.

    b.   All mission-degrading EMI problems that remain uncorrected due to non-availability of EMI fixes must be identified and reported to the ship's Commanding Officer (CO).

    c.   All discrepancies causing IMI above the 19th order must be corrected. IMI levels are defined in reference (c).

4.8 <u>ELECTROMAGNETIC COMPATIBILTY CERTIFICATION MAINTENANCE</u>. System Commands provide support during ship construction and CNO Maintenance Availabilities at industrial activities to achieve EMC certification. It is the responsibility of the Type Commander, the RMC or FMA and Ship's Force to maintain EMC at the highest level practical. EMC technical billets (Navy Enlisted Classification (NEC) ET-1419 surface) have been established in reference (j) for RMCs or FMAs, aircraft carriers and selected larger ships to provide technical assistance to Ship's Force in maintaining EMC. These technicians conduct EMI inspections, install known fixes, test for problems and investigate new problems.

4.9 <u>RESPONSIBILITIES</u>.

    a.   Type Commander should:

        (1)   Coordinate with the System Commands in identifying, solving and correcting operational EMI deficiencies.

(2)   Prior to promulgation, review and authorize all documents prepared by technical agencies that contain procedures relative to EMI reduction and the fleet EMC process.

(3)   Evaluate comments and recommendations regarding EMI reduction and the fleet EMC process. If necessary, issue changes to existing policy and procedures.

(4)   Ensure participation of each aircraft carrier, surface force and submarine EMC technician in at least one EMI survey every 6 months. Qualified EMC technicians must meet this requirement to retain qualification status.

b.   Group, Squadron and Regional Support Group Commanders should:

(1)   Schedule EMC certifications prior to deployment for each unit. For submarines, the EMI Survey should be conducted within two months of deployment during Pre-Overseas Movement 2, take up to four days to perform and can be scheduled concurrently with most shipboard evolutions provided power is not secured to a major system. NAVSEA personnel will be contacted to perform the EMC certification.

(2)   Review and take the appropriate action to correct EMI discrepancies on EMC reports for subordinate units.

(3)   Request SEMCIP engineering assistance when determined necessary.

c.   RMCs and FMAs should:

(1)   Maintain qualified EMC personnel (NEC-1419 for Surface Force Ships and Aircraft Carriers) in coordination with NAVSEA 05H4 and ensure that test equipment assets are available to perform EMC assessments and surveys.

(2)   Assist aircraft carriers, surface force and submarines in conducting EMC-related PMS procedures when requested.

(3)   Conduct EMC certifications per applicable references (c), (e) through (i) and (k).

(4)   Install authorized limited corrective actions when required in STAN.

(5)   Write a naval message, prior to departing the ship, describing the results of the EMC certification using the latest message formats. Message is submitted to the aircraft carrier, surface force or submarine during the EMC certification briefing prior to departing the ship.

(6)   Maintain an active account on STAN.

(7)   Maintain an up-to-date file of EMI and EMC information, which includes naval messages generated on tended submarines and original data recorded during the EMI surveys.

d.   Aircraft Carrier, Surface Force and Submarine Commanding Officers should:

(1)   Ensure EMI PMS is conducted. Request RMC or FMA assistance when required.

NOTE: **EMC CERTIFICATIONS CONDUCTED WITHIN ONE MONTH PRIOR TO DEPLOYMENT WILL PROVIDE THE MOST CURRENT EMI DATA.**

      (2)   Request an EMC certification within six months of deployment or when any new indications of EMI in ship's electrical and electronic systems appear.

      (3)   Transmit the EMC naval message promulgating the results of the EMI survey to all cognizant activities.

      (4)   Maintain an up-to-date file of EMI and EMC information that includes EMC naval messages from the last three surveys.

      (5)   Establish an EMS Readiness Improvement Program with following shipboard organization per references (j), (l), (m) and (n).

  e.   Electromagnetic Spectrum Operations (EMSO) Officer:

      (1)   Assigned CWO-2 or above designated in writing by the Commanding Officer.

      (2)   Qualified 308 Electromagnetic Spectrum Operations (EMSO) Officer.

      (3)   Serve as Principal Advisor to the Commanding Officer on all EMS-related issues and provide the CO with monthly EMS effectiveness summaries to include major EMS degradation, personnel compliance with EMS Certification requirements, and a plan of action and milestones to correct any tactically significant EMI degradations.

      (4)   Prioritize corrective actions for tactically significant EMC deficiencies.

      (5)   Coordinate shipboard EMS indoctrination and training for newly reported personnel.

      (6)   Serve as single point of contact for quality assurance of EMS-related maintenance projects.

      (7)   Review all topside configuration changes (including program alterations, Fleet alterations, field changes, Combat System Smooth Log, etc.).

      (8)   Review and update bills, instructions, and messages (e.g., HERP, RADHAZ, Emissions Control (EMCON), Personal Electronic Device (PED) plans, wireless plans, OPSTAT Unit, Afloat Electromagnetic Spectrum Operations Program (AESOP) reply messages, etc.).

      (9)   Review all EMS incidents (Joint Spectrum Interference Resolution Online (JSIRO), Communications Department (COMSPOTS) and EMI).

     (10)   Ensure EMS-related PMS is included in the command PMS Spot-check Program.

     (11)   Assign a Command Electromagnetic Spectrum Operations (EMSO) Coordinator.

  f.   Command EMSO Coordinator:

      (1)   Assigned E-7 or above with NEC 2379 Information Technician or NEC 1781 Cryptologic Technician Technical.

    (2)   Qualified 304 Electromagnetic Spectrum Operations (EMSO) Coordinator Afloat.

    (3)   Designated in writing by the Commanding Officer.

    (4)   Perform the duties of the Afloat Spectrum Manager outlined in references (l) and (k).

    (5)   Primary assistant to the EMS Officer maintaining the EMS Readiness Program and serve as the EMS subject matter expertise (SME) afloat.

    (6)   Perform as EMSO Team Training Lead - developing unit level EMS awareness, effects of all emitters and receivers in the EMOE.

    (7)   Establish and maintain accounts for EM SDS databases (Communications Equipment Population Survey (CEPS), JSIRO and STAN).

    (8)   Liaison with the Combat Systems Maintenance Manager (CSMM) or equivalent on all EMS issues pertaining to the combat system equipment.

    (9)   Ensure the EMS personnel are familiar with EMS tools in paragraph 4.3.

g.   EMSO Planners:

    (1)   EMSO Radar and Communication Planners should be proficient using AESOP software as mandated by the CNO, reference (o).

    (2)   Qualified 301 Radar Planner and 302 Communication Planner.

    (3)   Use the AESOP tool to assist in minimizing intra-ship EMI and IMI between radars, communications equipment and all other SDS. Inter-ship EMI mitigation through AESOP planning and best practices for ships in company and future operations.

    (4)   Achieve SME level of knowledge of all AESOP reports, reply messages, standing communication plans, radar coverage plots, spectrum occupancy displays and the spectrum monitor functionality.

    (5)   Develop and maintain working relationships with Ship's Signal Exploitation Space (SSES) Signal Warfare Officer (SIGWO) for their operations in the EMOE.

    (6)   Achieve and maintain a working knowledge of the EMOE and the warfighting impacts of all emitters and receivers in the AESOP EMSO Plan (atmospheric ducting effects on radar probability of detection, counter-detection of high power radars and ducting effects on transmitted energy within littoral operating areas and into host nation restrictions).

    (7)   Ensure EMS reporting of JSIRO and COMSPOTS.

h.   EMC Maintenance Technicians:

    (1)   Assign one E-5 or above from each of the following ratings: Electronic Technician (ET), Cryptologic Technician Technical (CTT), Cryptologic Technician Maintenance (CTM), Information Technician (IT) Fire Controlman Technician (FC), Sonar Technician (ST).

(2) Qualified 303 EMC Maintenance Technician.

(3) EMC Maintenance Technicians should be familiar with references (i), (j) and (o); and all EMI and EMC issues for their related equipment (source or victim).

(4) Serve as the EMI and IMI SME for their equipment and assist with training other personnel on the impacts to the EME and the ship's EMS footprint in the EMOE.

VOLUME VI

CHAPTER 5

DEFICIENCY DOCUMENTATION AND REPORTING

REFERENCES.

(a)	OPNAVLTR 4700	- Representative Intervals, Durations, Maintenance Cycles, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships
(b)	OPNAVINST 4780.6	- Policy for Administering Service Craft and Boats in the U.S. Navy
(c)	OPNAVINST 4700.7	- Maintenance Policy for U.S. Naval Ships
(d)	NAVSEA S0400-AD-URM-010/TUM	- Tag-Out Users Manual
(e)	NAVSEAINST 4790.8	- Ship's Maintenance and Material Management (3M) Manual
(f)	NWP 1-03.1	- Naval Warfare Publication Operational Report
(g)	MIL-STD-130N	- Identification Marking of U.S. Military Property

LISTING OF APPENDICES.

A   Equipment Operational Capability Range of Values and Definitions.

5.1 PURPOSE. The purpose of this chapter is to provide guidance on accurately documenting ship's material condition and on ensuring that this documentation is done in a timely and expeditious fashion. Deficiency documentation is used for determining and reporting a ship's material condition to ensure maximum operational readiness, maintain an adequate quality of life for embarked personnel, maximize safety for all personnel and ensure the ship reaches its designed service life. This documentation will be used for:

a.   Accurate and timely material readiness reporting.

b.   Reporting ship material deficiencies, requests for maintenance assistance or support equipment from off-ship maintenance activities and the documentation of completed maintenance actions.

c.   Maintaining an accurate Current Ship's Maintenance Project (CSMP).

d.   Maintaining an accurate and current ship's configuration database.

5.1.1 Background.

a.   The Navy has identified the need for a more near real time, accurate and comprehensive understanding of an activity's material condition in a more timely fashion to support fleet material readiness reporting. Additionally, this information is used in developing, planning and executing more thorough and comprehensive maintenance availability work packages and to better project future material condition readiness and actionable trends.

b.   Using existing maintenance documentation (Casualty Reports (CASREP), 3M Maintenance Action Forms (2 Kilo), Class Maintenance Plan (CMP), etc.), material readiness is calculated for equipment, systems, activities, ships or ship classes against various tasks, missions and warfare areas. This information is used by Navy leadership to determine an activity's ability to perform a desired mission or task, and

to make recommendations for maintenance actions that can improve the ship's readiness to perform a mission or task. Further, it allows the maintenance community working with constrained budgets to better prioritize maintenance that can most improve the activity's material readiness for a known mission or task.

c.   Ship operations involve performing various Naval Tasks when, where and how required. While there may be multiple alternate means to accomplish any particular Naval Task to adequately support operations, equipment and systems must function as designed. Constrained resources (time, funds, and manpower) require better synchronization and prioritization of the maintenance effort.

d.   Not all 4790/2Ks impact current material readiness reporting.

(1)   Condition Based Maintenance (i.e., degraded equipment). Condition Based Maintenance deficiencies drive activity material readiness reporting. The reality of Naval operations is that equipment breaks and system performance is impacted. Condition Based Maintenance is the art of managing material failures. Condition Based Maintenance items run the scope from administrative requirements (placards, stenciling, etc.), run to fail items (e.g., light bulbs, fuses, etc.), gracefully degrading distributed systems (e.g., deck covering, lagging, corrosion, minor leaks, etc.) through catastrophic failures. The Equipment Operational Capability (EOC) Value, Descriptions and Example Table (Appendix A) describes graduations of material condition (fix it after it breaks, fix it before it breaks or fix it because it is about to break).

(2)   Engineered Maintenance (i.e., CMP or Planned Maintenance System (PMS)). Until they exceed periodicity, engineered maintenance does not impact activity material readiness reporting. Typically, time directed maintenance actions encompass the art of anticipating failure. Engineered maintenance includes both push and pull CMP items, items written to arrange services or order parts to support future PMS and Baseline Automated Work Packages written by life cycle managers as placeholders for historically anticipated depot work.

(3)   Modernization (i.e., alterations). See Chapter 3 (Submarine Fleet Modernization Program) and Chapter 36 (Surface Force Ship and Aircraft Carrier Modernization Program of this volume. Planned modernization does not impact activity material readiness reporting. Modernization encompasses replacing obsolete equipment or systems, increasing capacity beyond installed design or adding new capabilities. However, because material deficiencies on replaced or removed equipment or systems are no longer applicable to the activity, material readiness may be positively impacted once modernization is accomplished.

(4)   Services (i.e., tasks that support maintenance). Services do not impact activity material readiness. Services are overhead items (force protection, berthing ashore, cranes, etc.) in support of maintenance availabilities.

5.1.2 <u>Scope</u>. Except where indicated, this chapter applies to all ships and activities of the Navy (active and reserve). It does not apply to civilian operated ships assigned to the Military Sealift Command. Throughout this chapter, the term "ship" refers to all surface ships, aircraft carriers,

submarines, shore activities and service craft specified in reference (a) and the term "activity" refers to both ship and shore activities. Ship's Force refers to personnel assigned to any "activity". Reference (b) provides policy and guidance for maintenance of service craft and boats not addressed in reference (c).

5.1.3 <u>Definitions</u>.

5.1.3.1 <u>Material Readiness</u>. Material Readiness, a term interchangeably used with Material Condition, is a value relative to the observed performance of a single component up to and including a system. The value is obtained through a process of the operator's observation of the parameters for a component and comparing this measurement to a standard (e.g., design criteria or normal operating parameters). The result of the comparison is the value of Material Readiness or Material Condition. The Fleet Measure of Effectiveness is called the EOC. Found in Appendix A, for the full range of this dimensionless value is the Color Representation when displayed, a specific Definition, a Description and Shipboard Examples.

5.1.3.2 <u>Maintenance Figure of Merit Index Value</u>. The Maintenance Figure of Merit (MFOM) was developed as part of the Defense Readiness Reporting System (DRRS) to provide an objective measure of the true material condition of an activity. The MFOM Index Value is an objectively calculated value where the scale of values and definitions are the same as the EOC as described in Appendix A.

5.1.3.3 <u>Maintenance Worthy</u>. Maintenance Worthy is any object (system, equipment, component, sub component, part, etc.) that is Danger or Caution tagged or part of a tag out (i.e., tag hung on it) per reference (d), has maintenance preformed on it that is either planned (e.g., PMS, calibration, CMP, etc.) or corrective and has maintenance information (e.g., material history, meter readings, test information) recorded about it. Maintenance Worthy is contextually different from Configuration Worthy. Traditionally, Configuration Worthy was a term used to describe the sparing plan requirements associated with onboard repair parts that enabled ships to be "maintenance self-sufficient" for periods of time away from home port or parent tender. Accordingly, the Consolidated Onboard Shipboard Allowance List provided great merit or support to self-sufficiency. The support of accurate and timely material readiness reporting necessitates the use of a broader term.

5.1.3.4 <u>Current Ship's Maintenance Project</u>. The CSMP, per references (c) and (e), is the primary repository of information concerning the material condition of the activity. The CSMP consists of two files, shipboard (local) file and the master (shore) file.

  a.   The Shipboard File must be maintained by Ship's Force in a complete and current status at all times. The CSMP must be used by the activity to document all completed without prior deferral preventive and corrective maintenance requirements. These deferred items must be validated by Ship's Force and entered into the CSMP per reference (e) guidelines.

  b.   The Master File contains the material deficiencies uploaded from the shipboard (local) file, other work identified by shore-based managers and tasks from CMPs.

  c.   Reconciliation of the Shipboard File and Master File is the process of insuring that the two files are essentially the same.

NOTE: THE TERMS "4790/2K", "2K", "2 KILO", "AWR", "AUTOMATED WORK

REQUEST", "AUTOMATED WORK NOTIFICATION", "NOTIFICATIONS", "AWN" AND "WORK CANDIDATE" ARE USED GENERICALLY THROUGH OUT THIS CHAPTER AND THIS MANUAL TO DESCRIBE ANY SHIP MAINTENANCE ACTION FORM.

5.1.3.5 Ship Maintenance Action Form. The Ship Maintenance Action Form (4790/2K), located at https://navalforms.documentservices.dla.mil/formsDir/_OPNAV_4790_2k__IMF_VER__3915.pdf and discussed in chapter 19 of this volume, is the principal means used to document material deficiencies and completed maintenance actions.

    a.   A Maintenance Ready 4790/2K contains correct and complete information, and provides an accurate diagnosis of the deficiency affecting the object.

    b.   Validated Maintenance Ready 4790/2K properly supports the planning and executing activities ability to understand the maintenance requirement; does not require the expenditure of additional manpower or time to obtain missing required data or information.

    c.   Completion 4790/2K contains:

        (1)   A detailed and comprehensive description of the "as found" condition.

        (2)   A synopsis of tasks and actions taken to complete the maintenance requirement.

        (3)   Failure Mode and Root Cause identified.

        (4)   Documentation of labor and material costs.

5.1.3.6 Casualty Report. The CASREP, per reference (f), is used to both notify the chain of command and the readiness stakeholders of degradations to operational readiness caused by deficiencies in an activity's material condition and alert support activities to the nature of outside assistance required for correction. A CASREP is made on a system or equipment which has a maintenance requirement that cannot be corrected within 48 hours and the maintenance requirement reduces the activity's ability to perform an assigned task or mission (primary or secondary). The CASREP category (C2, C3 and C4) must be determined per reference (f).

5.1.3.7 Department of Defense Readiness Reporting System. The DRRS was established by the Department of Defense (DoD) Directive 7730.65 (June 2, 2002) establishing the requirement and means to manage and report the readiness of the DoD and its subordinate components to execute the National Military Strategy as assigned by the Secretary of Defense in the Defense Planning Guidance, Contingency Planning Guidance, Theater Security Cooperation Guidance and the Unified Command Plan. All DoD components will align their readiness reporting processes to DRRS. The DRRS will build upon processes and readiness assessment tools used in the DoD to establish a capabilities-based, adaptive, near real-time readiness reporting system. All DoD Components will use the DRRS to identify critical readiness deficiencies, develop strategies for rectifying these deficiencies and ensure they are addressed in program or budget planning and other DoD management systems.

5.1.3.7.1 Joint Mission Essential Tasks. Joint Mission Essential Tasks are developed in support of missions as assigned by the Secretary of Defense. The Joint Mission Essential Tasks will be based on tasks derived from mission analysis using the language of the Universal Joint Task List.

Additionally, the DoD components will develop Mission Essential Tasks or similar indicators for all assigned missions, and use information technology to collect near real-time data on the readiness of military forces and support organizations to perform these missions. The Mission Essential Tasks are based on mission analysis and approved by the commander as absolutely necessary, indispensable or critical to the success of a mission. For a given mission there is generally more than one Mission Essential Task that the object supports.

5.1.3.7.2 Navy Capabilities Readiness Reporting System. Subsequent guidance (NAVADMIN 172345ZAUG05) identified DRRS-N (Navy) as Navy's Capabilities Readiness Reporting System, identified OPNAV N4 as Resource Sponsor and identified United States Fleet Forces Command as executive agent.

5.1.3.8 Item Unique Identification. Item Unique Identification (IUID) is an asset identification system instituted by the United States DoD to uniquely identify a discrete tangible item or asset and distinguish it from other like or unlike tangible items. Reference (g) provides evolving clarification, increased insight and guidance regarding implementation of Machine-Readable Information (MRI) for item identification marking and automatic data capture associated with IUID. The IUID is used by MFOM and the Navy's Configuration Data Base of Record, Ship's Configuration and Logistics Support Information System to uniquely differentiate an object from other objects. IUIDs are either installed by the original manufacture or for legacy items, through the use of the eSOMS software and per reference (d).

5.2 RESPONSIBILITIES. Chapter 19 of this volume provides detailed responsibilities with respect to the implementation of policies for the Maintenance and Material Management (3-M) system as set forth in reference (e). The responsibilities delineated here represent an overview of those policies.

5.2.1 Ship's Force.

a.   Ship's Force will comply with the guidance provided in reference (c) and Chapter 19 of this volume when submitting a 4790/2K.

b.   Ship's Force will comply with guidance provided in reference (f) and paragraph 5.3.2 of this chapter when submitting a CASREP.

5.2.2 Immediate Superior In Command.

a.   The Immediate Superior In Command is responsible for screening and technically reviewing all submitted 4790/2Ks.

b.   The Immediate Superior In Command is responsible for technically reviewing all submitted CASREPs.

5.2.3 Maintenance Team. The Maintenance Team is responsible for reviewing and validating all submitted 4790/2Ks for content and technical correctness. When directed by the Type Commander (TYCOM), members of the Maintenance Team are responsible for validating, screening and brokering all 4790/2Ks.

5.2.4 Type Commander.

a.   The TYCOM is responsible for validating, screening and brokering all 4790/2Ks.

b. The TYCOM is responsible for brokering all 4790/2Ks associated with any outstanding C3 or C4 CASREP during the next scheduled maintenance availability if it has not previously been corrected as an emergent availability.

c. The TYCOM is responsible for:

(1) Complying with the policy provided in paragraph 5.3.2.3 of this chapter.

(2) Enforcing compliance with the policy of paragraph 5.3.2.2 of this chapter.

5.2.5 <u>Fleet Maintenance Activity</u>. The Fleet Maintenance Activity, as described in Volume II, Part I, Chapter 4 of this manual, will comply with paragraph 5.1.3.5.c of this chapter when preparing end of availability completion data associated with each 4790/2K.

5.3 <u>GUIDANCE</u>.

5.3.1 <u>Generation of a Ship Maintenance Action Form OPNAV 4790/2K</u>. The 4790/2K is the principal means used to document material deficiencies and completed maintenance actions. These actions require the highest degree of accuracy and accomplishment in a timely and expeditious fashion. Chapter 19 of this volume provides policy and assigns responsibility applicable to specified 4790/2K data elements critical to obtaining outside support and material readiness reporting.

5.3.1.1 <u>Procedures for Documenting a Maintenance Action</u>. A 4790/2K must be filled out per Chapter 19 of this volume and the Software Users Guide for the Automated Information System being used. All Unclassified Non-Nuclear Naval Propulsion Information will be handled per current regulations and standing guidance from NAVSEA 08. The following policy guidance for data elements is provided:

a. The 4790/2K associated with a CASREP will remain open, even after the CASREP is cancelled, until repairs have been completed.

b. Every active CASREP must have at least one active associated 4790/2K. To ensure timely, accurate material readiness reporting when the CASREP is updated, the 4790/2K must be updated concurrently. If circumstances dictate, a more appropriate active 4790/2K may be associated with the CASREP and the existing 4790/2K closed or canceled.

c. The associated 4790/2K to the CASREPs must have a comparable or equivalent severity coding per reference (e). In particular, Ship's Force will ensure that the Equipment Status Code corresponds directly to the equipment configuration (Allowance Parts List (APL) or Equipment Identification Code (EIC), Location) that the 4790/2K is written against. Examples where attention to detail is particularly warranted:

(1) 4790/2K written against the Main Engine when a thermometer is Out Of Commission (OOC). Equipment Status Code 2 (non-operational) should not be used since it indicates the Main Engine is OOC.

(2) 4790/2K written against a Weapons System when construction of storage space was requested. Assigning a Status Code 2 indicates the Weapons System is OOC.

d. Attention to detail when selecting equipment configuration is critical. To support repair part ordering, some configuration data may be generic (e.g., circuit breaker in the Consolidated Onboard Shipboard Allowance List could have multiple applications). For readiness reporting purposes, it is important to specify which application. Determine if the reported configuration would support an equipment Tag-Out. Configuration elements include:

(1) APL or Allowance Equipage List (AEL). Must be written against the sub APL or AEL where applicable. Avoid using just any higher level APL or AEL for the system or equipment.

(2) EIC. Must be for the lowest affected assembly, not just any higher level EIC for the system or equipment. The selected level of assembly should be lowest that fully encompasses the material deficiency.

(3) Equipment Serial Number: When multiple equipment (fire pumps, main engines, radio transceivers) have the same APL or EIC, ensure the serial number designation is appended.

(4) Location.

(5) Equipment Noun Name. Must be the same name that would be used on a Danger or Caution Tag per reference (d).

5.3.2 <u>Generation of a Casualty Report</u>. The CASREP is used to both notify the chain of command and readiness stakeholders of degradations to operational readiness caused by deficiencies in an activity's material condition and alert outside support activities to the nature of outside assistance required for correction. The CASREP is not a onetime report, but has four distinct types; initial, update, correct or cancel, as specified and described in reference (f). Submitting a CASREP does not relieve the requirement for timely submission of work notifications (OPNAV 4790/2K) or material requisitions.

5.3.2.1 <u>Guidance on Initial Documenting with a Casualty Report</u>. A CASREP must be prepared per reference (f) and the Software Users Guide for the Automated Information System being used. This section does not apply to Fleet Ballistic Missile systems under the cognizance of Strategic Systems Programs. All Unclassified Non-Nuclear Naval Propulsion Information will be handled per current regulations and standing guidance from NAVSEA 08. The following policy guidance is provided:

a. C3 or C4 CASREPs identify severe task or mission degradation that generally requires emergent repairs be effected at the earliest opportunity. C2 CASREPs are less severe and are generally corrected during scheduled maintenance availabilities. C2 CASREPs requiring Fleet Technical Assistance (i.e., Distance Support or onboard Technical Assistance) in determining repairs should result in the technical assistance completed well enough in advance of the scheduled maintenance availability to facilitate repairs during the maintenance availability.

(1) CASREP category must be assigned per reference (f). It must not be elevated solely to expedite onboard technical assistance, services, parts delivery or repairs.

(2) Any outstanding C3 or C4 CASREP requiring repair assistance should be repaired during the next scheduled maintenance availability if it has not previously been corrected in an emergent availability.

(3) If an outstanding C2 CASREP requiring repair assistance is not scheduled for repairs during the next scheduled maintenance availability, it should not be canceled and repairs should be pursued following the normal C2 CASREP procedures.

b. Submitting a CASREP during maintenance availabilities is only justified if repairs to the system or equipment resulting in the task or mission degradation will not be corrected during the maintenance availability.

c. An activity must submit a cancellation CASREP (Casualty Cancellation (CASCAN)) upon the commencement of a maintenance availability for which the effected system or equipment is scheduled for repair.

d. Do not CASREP hardware or software that have not completed system operational testing or have not been turned over to the activity for operational use (e.g., System Operation Verification Testing, Acceptance Trials, post availability testing).

e. Ship's Force or others may not submit a CASREP for installation of an alteration that will provide for either modernization of existing systems or equipment, or add new capability. CASREPs are used to document material readiness issues with installed systems or equipment. See Volume II, Part I, Chapter 2, Section 2.6 of this manual for questions concerning alterations.

f. Any system or equipment casualty that would threaten to cause or cause a discharge of oil or oily waste to sea must be reported with a CASREP.

g. Any equipment mishap involving damages or losses exceeding $50,000 must be reported with a CASREP. The CASREP alerts the Naval Safety Center an incident has occurred that requires a mishap investigation.

h. Estimated Time to Repair (ETR). The ETR must be realistic and an accurate ETR is required for all repairs. Simply extending the ETR by three days (or 30 days for C2) every update period does not support the intent of providing an ETR. If the problem will not be corrected within 24 hours of the ETR, send an update to change the ETR.

i. A 4790/2K is required to receive off-ship assistance (technical, repair, parts) or to document Ship's Force work. Every active CASREP must be associated with an active JCN – no exceptions.

(1) CASREPs must never be generated with associated 4790/2Ks that have an Equipment Status Code of 1 (operational) or 0 (N/A), or a Priority code of 4 (routine). If the CASREP is required, then the Equipment Status Code and Priority code for the 4790/2K need to be updated.

(2) The associated 4790/2K must have the correct configuration data (e.g., APL, EIC) to the lowest assembly and that configuration data must be reported on the CASREP.

(3)   To associate multiple 4790/2Ks with a CASREP, pick a primary 4790/2K to list as JCN and list the remaining 4790/2Ks in the remarks section. If parts are ordered against other APLs than the APL used on the primary associated 4790/2K, those APLs must be listed in the amplification line of the parts section.

j.   An assist line is mandatory for an initial CASREP and optional on subsequent updates. In the ASSIST AMPN line, clearly specify type of off-ship assistance and the time frame desired by the activity. Clearly identify Distance Support efforts. The following options are acceptable:

(1)   Assist, Technical or Distance.

(2)   Assist, Other or Distance.

(3)   Assist or none.

k.   CASREP description and remarks should be concise and consistent with the 4790/2K without sacrificing clarity. The system or equipment listed in the casualty line must indicate the affected assembly. Wording must accurately portray present and potential impacts on the task or mission. The remarks section for an initial CASREP must contain the sub-paragraphs here. Indicate the classification at the beginning of individual sub-paragraphs to facilitate access to non-classified information.

(1)   Summary or Impact: Brief executive overview of casualty and specific Naval Tactical Task(s) or ROC-POE mission(s).

(a)   Indicate if this message reflects a downgrade to C2 or upgrade to C3 or C4.

(b)   Identify any loss of operational capabilities such as speed, power output, detection range, self-defense, loss of a sensor, etc.

(c)   Equipment serial number, location and number of similar equipment (backup or redundancy).

(d)   Identify which warfare area(s) are impacted, what capabilities or functions are degraded and to what degree.

(2)   Technical Description: Concise synopsis of sufficient granularity to facilitate future Distance support or prepare shore maintenance support services.

(a)   How and when the casualty was discovered. Provide description of the casualty to include information on operating configuration, symptoms and indications, initial follow-up and troubleshooting.

(b)   Repair efforts completed to date, or technical assistance received.

(c)   To facilitate distance support, include any test results from troubleshooting.

(3)   Pending Actions: Any ongoing or anticipated actions to be taken by Ship's Force or any outside activity.

      (4)   Activity Point of Contact: Include name, best time period and the best way to contact the Point of Contact in Zulu time. Typically, phone numbers and E-mail addresses are provided.

      (5)   Mishap Report: (If required) Is required to identify whether it has been completed or is still in progress. If in progress, an estimated completion time should be provided.

      (6)   Ships Schedule: For the next 30 days at a minimum. Where appropriate, indicate next scheduled maintenance availability.

      (7)   Minimize Considered: (When required) Ensure this statement is included inside the remarks section.

   l.   CASREP transmission, receipt and processing.

      (1)   Ship's Force is responsible to verify CASREPs reach the intended recipients. There have been incidents where a CASREP has been released via naval message, but has not reached the intended recipients intact. Attention to detail with respect to Plain Language Addressees (PLAD), a well-trained Radio Central and a controlled chop process are key to success. At a minimum, COMUSFLTFORCOM Norfolk VA (AIG 6842 or 6843) must be included on all CASREPs to ensure the CASREP is captured in the shore based CASREP Automated Information System.

      (2)   Ship's Force must ensure CASREPs are forwarded in a timely manner when requested.

5.3.2.2 <u>Guidance on Updating a Casualty Report</u>. Follow the format guidelines defined in paragraph 5.3.2.1 of this chapter for Initial CASREPs. CASREP update is required for:

   a.   Revisions to previously submitted information.

   b.   Changes in parts status including receipt of parts.

   c.   Requests for additional assistance (an assist line is mandatory).

   d.   Substitution of an alternate active 4790/2K in place of a closed or canceled one.

   e.   Changes to ship's schedule.

   f.   Changes to ETR (CASREP updates are to me made 24 hours prior to the expiration of the ETR).

   g.   C4 CASREP, at least every 72 hours.

   h.   C3 CASREP at least every 10 days.

   i.   C2 CASREP every 30 days.

NOTE: IF A DEFERRED CASREP IS CORRECTED AT ANYTIME DURING THE DEFERRED PERIOD, A CASCOR MUST BE SUBMITTED.

5.3.2.3 <u>Guidance on Deferral of a Casualty Report</u>. The TYCOM is required to approve any planned delay of action on a CASREP. In the event that the delay effectively constitutes a CASREP deferral, the activity will forward the deferral recommendation to the TYCOM for

approval. A CASREP Deferral is submitted when it is determined that the CASREP will not be corrected while the activity is in the Sustainment Phase (i.e., deployment or surge). This action places the CASREP in an inactive status which reduces the support and eliminates the activity's requirement for updating the CASREP.

    a.   The activity must not report a CASREP as deferred until directed by the TYCOM or his designated representative.

    b.   The activity must submit a CASREP update with the word DEFRD in the estimated time of repair section of a CASREP update. See reference (f) for details.

NOTE: **CASREPS WILL NOT REMAIN OPEN FOR RECEIPT OF PARTS IF THE SYSTEM OR EQUIPMENT IS OPERATIONAL. SENDING A CASUALTY CORRECTION (CASCOR) WITH PARTS REQUESTED VIA A WHISKEY NUMBER WILL NOT CANCEL THE PARTS REQUISITION.**

5.3.2.4 <u>Guidance on Correction of a Casualty Report</u>.

    a.   CASREP Correction is required:

        (1)   After repairs are completed to the affected system or equipment to restore to operational condition. If the system or equipment subsequently fails operational testing, a new CASREP must be submitted.

NOTE: **MAINTENANCE ASSIST MODULES INSTALLED ASSEMBLIES ARE CONSIDERED TEMPORARY REPAIRS.**

        (2)   After temporary repairs have been accomplished, and the system or equipment restored to operational status to support the task or mission. Most temporary repairs will require a DFS (see Volume V, Part I, Chapter 8 of this manual) with its associated active 4790/2K until permanent repairs are completed per all technical requirements.

    b.   Include in the remarks section of the CASCOR:

        (1)   A detailed but concise summery of repairs. If operational testing was not completed, include an estimated date for accomplishment.

        (2)   Ship's Force understanding of what the root cause was for the failure (e.g., normal wear and tear, inadequate design, power transient, etc.). Normally the root cause will mirror the input for block 8 on the 4790/2K.

        (3)   Hours since last failure of the system or equipment prior to the initiation of the CASREP.

        (4)   Adequacy of Ship's Force resources to prevent or correct the CASREP. Details should be provided as to what contributed to the CASREP (e.g., troubleshooting procedures, PMS coverage, parts support, test equipment, conduct of drills, operational policy, technical documentation, training, manning, etc.). Include actions taken to correct lack of resources.

5.3.2.5 <u>Guidance on Cancellation of a Casualty Report</u>.

a.   An activity must submit a cancellation CASREP (CASCAN) upon the commencement of a maintenance availability for which the affected system or equipment is scheduled for repair. Ensure the maintenance availability for which repairs are scheduled is recorded in the remarks section of the CASCAN.

b.   If all associated 4790/2Ks are closed or cancelled without repairs being affected, the corresponding CASREP must be cancelled (CASCAN).

APPENDIX A

EQUIPMENT OPERATIONAL CAPABILITY RANGE OF VALUES AND DEFINITIONS

Examples are:

EOC Value - 1.0 (Green)   EOC DEFINITION - Fully Operable.

EOC Description – Configuration or maintenance worthy object appears to be in very good material condition. It has no evidence of corrosion or noticeable discrepancies. Notification created only for Preventive Maintenance actions or ordering parts.

Actions – Document man-hour expenditures.

EOC Value - 0.9 (Green)   EOC DEFINITION - Fully Operable with Cosmetic Discrepancies.

EOC Description – Maintenance worthy object works with only cosmetic discrepancies. It may have slight corrosion. The documented discrepancy does not affect performance. There are no anticipated problems or a need for troubleshooting.

Actions - Equipment requires cleaning or minor maintenance that may be accomplished by Ship's Force. Document man hour expenditures.

Shipboard Examples:

AIR -   Minor leaks (moisture, drips) that do not present a safety hazard. Missing label plates or stenciling. Worn paint or scratches on consoles. Surface Dirty. Minor Surface rust present.

C4I, CS -   Minor leaks (moisture, drips) that do not present a safety hazard. Missing label plates or stenciling. Worn paint or scratches on consoles. Surface Dirty. Minor Surface rust present.

HM&E -   Minor leaks (moisture, drips) that do not present a safety hazard. Missing label plates or stenciling. Worn paint or scratches on consoles. Surface Dirty. Minor Surface rust present.

Corrosion - Minor Surface rust present. Few corroded topside fasteners. Tank coatings recently inspected. Lifelines have light rust.

EOC Value - 0.8 (Green)   EOC DEFINITION – Fully Operable with No Performance Impacting Discrepancies.

EOC Description - Maintenance worthy object works with no loss in performance but has minor discrepancies or minimal corrosion. Problems are anticipated or troubleshooting is necessary. Minor redundancy impacted with no effect on performance.

Actions – Document man-hour expenditures and 4790/2K deferral for future Ship's Force actions.

Shipboard Examples:

AIR -   Centrifugal pumps cavitate too much. Indicator lights are burnt out. Filters need to be changed.

C4I, CS - Centrifugal pumps cavitate too much. A minor number of redundant modules within electronic systems (SLQ-32, SPY-1, etc.) are inoperative. Indicator lights are burnt out. Filters need to be changed.

HM&E - Centrifugal pumps cavitate too much. Indicator lights are burnt out. Filters need to be changed.

Corrosion - Some running rust topside. Bilge foundations need preservation. Discolored deck non-skid. Vent plenums have some minor corrosion damage

EOC Value - 0.7 (Yellow)	EOC DEFINITION - Operable with minor discrepancies that do not impact performance.

EOC Description – Maintenance worthy object works with no loss in performance but has significant discrepancies that need to be corrected or monitored. One of many modes may be inoperative. Minor corrosion.

Actions – 4790/2k notification needs to be created for discrepancies or requesting outside activity assistance in troubleshooting. Troubleshooting procedures should be initiated. Consult reference (d) for proper usage of Yellow Caution Tags.

Shipboard Examples:

AIR - Vibration levels for rotating equipment are approaching limits or rising. Object running hotter than normal. Pressure drops more than maximum. Radar fails minimum transmit power specification by a small amount. Significant leakage of fluid(s). Expansion tank levels dropping. Chemistry difficult to maintain.

C4I, CS - Vibration levels for rotating equipment are approaching limits or rising. Object running hotter than normal. Pressure Drops more than maximum. Radar fails minimum transmit power specification by a small amount. Significant leakage of fluid(s). Expansion tank levels dropping. Chemistry difficult to maintain.

HM&E - Vibration levels for rotating equipment are approaching limits or rising. Object running hotter than normal. Pressure drops more than maximum. Significant leakage of fluid(s). Expansion tank levels dropping. Chemistry difficult to maintain.

Corrosion - Running rust in several topside areas. Fasteners in topside boxes need replacement. Tank coating work package close to availability maximum. Watertight Door hinges and latches rusted.

EOC Value - 0.6 (Yellow)	EOC DEFINITION - Operable with discrepancies that could potentially impact performance in the future. No Restrictions.

EOC Description – Maintenance worthy object works with no current loss in performance but performance degradation is anticipated. Significant discrepancies need to be corrected or troubleshooting initiated to prevent performance degradation. Corrosion could impact performance if not corrected.

Actions – A standing order must be issued to ensure all watch standers are aware of the work around modification to operating instructions and procedures. 4790/2K notification needs to be created for discrepancies. Consult Volume V, Part I, Chapter 8 of this manual for requirements for submitting a DFS.

Shipboard Examples:

AIR - Leaks that can be controlled (prevented from becoming a safety issue) by wiping up. Temperature that can be controlled by using artificial cooling. Electronic cooling water low flow alarm bypassed because of a faulty flow switch and flow must be monitored by a designated watch stander.

C4I, CS -   Leaks that can be controlled (prevented from becoming a safety issue) by wiping up. Temperature that can be controlled by using artificial cooling. Electronic cooling water low flow alarm bypassed because of a faulty flow switch and flow must be monitored by a designated watch stander.

HM&E -   Leaks that can be controlled (prevented from becoming a safety issue) by wiping up. Temperature that can be controlled by using artificial cooling. Electronic cooling water low flow alarm bypassed because of a faulty flow switch and flow must be monitored by a designated watch stander. Testing salinity manually or sounding tanks manually with alarms disabled. Shifting steering could only be accomplished in after steering with bridge syncro OOC.

Corrosion - Incipient damage to structure due to corrosion. Tank work package at limit for next availability. Bilges have loose rust. Fasteners broken due to heavy corrosion. Crew engaged in extensive topside preservation. Some cause code 8 2Ks in CSMP. Vent Plenums significant rusting.

EOC Value - 0.5 (Yellow)   EOC DEFINITION - Operable with discrepancies that effect performance. No restrictions on operation.

EOC Description – Maintenance worthy object is capable of performing intended functions, but not to all designed performance standards, or not capable of performing required functions in all operating modes.

Actions – A standing order must be issued to ensure all watch standers are aware of the work around modification to operating instructions and procedures. 4790/2K notification needs to be created for discrepancies. Based on status of related equipment or systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags for troubleshooting.

Shipboard Examples:

C4I, CS -   Primary power to weapons system has failed and system is operating on alternate power.

HM&E -   Ship speed degraded due to hull fouling. Evaporators operating at reduced capacity (less than 50% of optimum capacity).

Corrosion - Corrosion induced structural damage. Hull thinning based on UT measurements. Loose topside fixtures due to missing or corroded fasteners. Localized non-skid coating failures.

EOC Value - 0.4 (Red)   EOC DEFINITION - Restricted operation. Significant discrepancies.

EOC Description – Maintenance worthy object not operating correctly and no means or work-around allow the object to do everything it was designed to perform.

Actions – 4790/2K notification needs to be created for discrepancies. Based on status of related equipment or systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.

Shipboard Examples:

AIR -   Radar operates but to a reduced range.

C4I, CS -   Radar operates but to a reduced range.

HM&E -   Main Engine Lube Oil Pump sequencing not consistent.

Corrosion - Tank contents contaminated due to leakage. Ladder corrosion limits personnel access. Many tanks require immediate preservation. Non-skid Coefficient of Friction failures.

EOC Value - 0.3 (Red)   EOC DEFINITION - Severely degraded with major operational restrictions.

EOC Description – Maintenance worthy object not operating correctly or performing intended functions. Not a threat to personnel safety but further equipment damage may occur from continued operation.

Actions – 4790/2K notification needs to be created for discrepancies. Based on status of related equipment or systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.

Shipboard Examples:

AIR   -   Can operate a piece of equipment in local manual subject to the watch stander's response time, but not in remote automatic as designed. Remote operators are all inoperative, so space isolation can only be accomplished locally.

C4I, CS - Can operate a piece of equipment in local manual subject to the watch stander's response time, but not in remote automatic as designed. Weapons system cannot accept engagement orders from Combat Direction System, but can be operated manually. Remote operators are all inoperative, so space isolation can only be accomplished locally.

HM&E - Can operate a piece of equipment in local manual subject to the watch stander's response time, but not in remote automatic as designed. Remote operators are all inoperative, so space isolation can only be accomplished locally.

Corrosion- Structural damage to superstructure due to corrosion that restricts access. Corroded and inoperable combat systems equipment. Corrosion to key sensors. Watertight doors inoperable due to corroded hinges.

EOC Value - 0.2 (Red)   EOC DEFINITION - Repair Before Operation (RBO).

EOC Description – Maintenance worthy object not functioning within designed parameters and may only be operated under emergency conditions.

Actions - Secure or turn off object. Use object only in an operational emergency. 4790/2K notification needs to be created for discrepancies. Based on status of related equipment or systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.

Shipboard Examples:

AIR   -   Certified Inspector identifies a RBO discrepancy. Loss of dry air system (or electronic cooling water) to a Radar.

C4I, CS -   Certified Inspector identifies a RBO discrepancy. Loss of dry air system (or electronic cooling water) to a Radar.

HM&E -   Certified Inspector identifies a RBO discrepancy. Boiler inspection device not available.

Corrosion - Significant tank leakage due to corroded structure. Evidence of cracking in structural elements. Lifelines corroded through.

EOC Value - 0.1 (Red)   EOC DEFINITION - Should not be operated-Battle Short.

EOC Description – Maintenance worthy object not functioning. Secure or turn off immediately.

Actions - Secure or turn off immediately. 4790/2K notification needs to be created for discrepancies. Based on status of related equipment or systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.

Shipboard Examples:

AIR   -   Steam Receiver alarms are all cut out.

C4I, CS -   Safety Cutouts missing on gun mount.

HM&E -   Generator vibrates, arcs and sparks. Boiler alarms are all cut out.

Corrosion - Critical tanks corroded so that they cannot be used (Fuel Oil Service, Potable Water, JP-5 or Reserve Feed).

EOC Value - 0.0 (Red)   EOC DEFINITION - Totally Inoperative.

EOC Description – Maintenance worthy object does not work at all.

Actions – 4790/2K notification needs to be created for discrepancies. Based on status of related equipment or systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.

Shipboard Examples:

AIR - Turn on-off switch on and no response. Pump or equipment removed.

C4I/CS - Turn on-off switch on and no response. Pump or equipment removed.

HM&E - Turn on-off switch on and no response. Pump or equipment removed.

Corrosion - Corrosion in hull such that leakage from sea is occurring.

The EOC range of values and definitions are:

Title	EOC value or range	Description or Definition
Fully Operable	1.0 (Green)	Configuration or maintenance worthy object appears to be in very good material condition. It has no evidence of corrosion or noticeable discrepancies. Notification created only for Preventive Maintenance actions or ordering parts.
Fully Operable with Cosmetic Discrepancies	0.9 (Green)	Maintenance worthy object works with only cosmetic discrepancies. It may have slight corrosion. The documented discrepancy does not affect performance. There are no anticipated problems or a need for troubleshooting.
Fully Operable with no Performance impacting discrepancies	0.8 (Green)	Maintenance worthy object works with no loss in performance but has minor discrepancies or minimal corrosion. Problems are anticipated or troubleshooting is necessary. Minor redundancy impacted with no effect on performance.
Operable with minor discrepancies that do not impact Performance	0.7 (Yellow)	Maintenance worthy object works with no loss in performance but has significant discrepancies that need to be corrected or monitored. One of many modes may be inoperative. Minor corrosion.
Operable with discrepancies that could potentially impact Performance in the future. No Restrictions	0.6 (Yellow)	Maintenance worthy object works with no current loss in performance but performance degradation is anticipated. Significant discrepancies need to be corrected or troubleshooting initiated to prevent performance degradation. Corrosion could impact performance if not corrected.
Operable with discrepancies that effect Performance. No restrictions on operation.	0.5 (Yellow)	Maintenance worthy object is capable of performing intended functions, but not to all designed performance standards, or not capable of performing required functions in all operating modes.
Restricted operation. Significant discrepancies.	0.4 (Red)	Maintenance worthy object not operating correctly and no means or work around allows the object to do everything it was designed to perform.
Severely degraded with major operational restrictions.	0.3 (Red)	Equipment operating with a "safety" out of specification, an "alarm" bypassed or constant, or in a battle short condition.
Severely degraded	0.2 (Red)	Equipment operating outside of design parameters or presents an immediate or near term danger to the equipment or downstream component. Equipment shall not be operated without an approved major Departure from Specifications.
Repair Before Operating	0.1 (Red)	Equipment presents an immediate or near term hazard to personnel. Equipment shall not be operated without adjudication and clearance from a certified inspector, FTA authority or ISEA.
Totally Inoperative	0.0 (Red)	Maintenance worthy object does not work at all.

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CHAPTER 6

INDUSTRIAL PLANT EQUIPMENT

REFERENCES.

(a)   NAVSO P-1000 - Navy Comptroller Manual
(b)   NAVCOMPTINST 7000.38 - Productivity Enhancing Incentive Fund (PEIF)/The Productivity Enhancement Capital Investment Fast Payback Program
(c)   NAVSUP 5009 (DLAM 4215.1) - Management of Defense-Owned Industrial Plant Equipment
(d)   NAVSO P-3635 - Federal Acquisition Regulation, Section 13, Chapter 312
(e)   SECNAVINST 4855.3 - Product Data Reporting and Evaluation Program (PDREP)

LISTING OF APPENDICES.

A   Plant Equipment Project Form

6.1 PURPOSE. To define the responsibilities and procedures for the acquisition and management of Class Three and Class Four Plant Property (inactive equipment) as defined in reference (a).

6.1.1 Scope. This instruction applies to Class Three and Class Four Plant Property as defined in reference (a) with the following exclusions:

a.   Alterations. Develop and submit requests for alterations per Volume VI, Chapter 3 of this manual. Requests for additional shipboard equipment that will be permanently installed require an approved alteration.

b.   Productivity enhancement or fast paybacks. Develop and submit requirements per reference (b). Due to payback documentation requirements the Productivity Enhancement Incentive Fund is most often used in requesting new technology equipment for the establishment of major new capabilities. This fund is also used for the implementation of radical procedural, productivity or efficiency improvements to current maintenance capabilities.

c.   Plant property assigned an active National Stock Number (NSN). Forward requirements by requisition through the supply system to the cognizant Inventory Control Point. Acquisition of new equipment discussed in this chapter pertains only to items that are not assigned an active NSN.

d.   Operating Forces Support Equipment. Submit requirements to the cognizant Area Commander for funding consideration and local procurement by the requesting activity.

e.   Materials Handling Equipment is under the single manager control of the Naval Supply Systems Command (NAVSUP) (see Volume IV, Chapter 13 of this manual). Civil engineering support equipment is under the single manager control of the Naval Facilities Engineering Command. General Purpose Electronic Test Equipment

(GPETE) is under the single manager control of Naval Sea Systems Command (NAVSEA) 04DS (see Volume VI, Chapter 9 of this manual).

6.1.2 Background. The program for acquisition of Class Three and Class Four Plant Property (as defined in section 6.2 of this chapter) is managed and funded by NAVSEA PMS 335. References (a) and (c) provide instructions to facilitate procurement and management of Class Three and Class Four Plant Property within the Department of the Navy.

6.2 DEFINITIONS.

6.2.1 Plant Equipment - Classes Three and Four Plant Property. Navy owned plant property of a capital nature (consisting of equipment, machine tools, test equipment, furniture, vehicles, accessories and auxiliary items, but excluding special tooling and special test equipment) used or capable of use in the manufacture of supplies or in the performance of services or for any administrative or general purpose.

6.2.2 Class Three Plant Property - Other Plant Equipment. That part of plant equipment, with an acquisition cost of $100,000 or more, used in or in conjunction with the manufacture of components or end items relative to maintenance, supply processing, assembly or research and development operations, but excluding items categorized as Industrial Plant Equipment (IPE).

6.2.3 Class Four Plant Property - Industrial Plant Equipment. That part of plant equipment with an acquisition cost of $100,000 or more, used for the purpose of cutting, abrading, grinding, shaping, forming, joining, testing, measuring, heating, treating or otherwise altering the physical, electrical or chemical properties of materials, components, or end items entailed in manufacturing, maintenance, supply processing, assembly or research and development operations as identified by noun name in references (a) and (d).

6.3 PROCUREMENT REQUIREMENTS.

6.3.1 Requesting Activities. All requesting activities must submit requests for plant property as outlined in paragraphs 6.3.2 through 6.3.4.

6.3.2 New Procurement. Submit all replacement (new equipment) requirements, with an acquisition cost of $100,000 or more, to the cognizant Type Commander (TYCOM). Use the Plant Equipment Project (PEP) form, Appendix A of this chapter, to submit requirements one calendar year prior to the start of the fiscal year in which equipment is actually required (e.g., 1 October 1995 for Fiscal Year 1997).

   a.   Identify each different requirement by individual project format. Instructions for completing the PEP form are included in Appendix A of this chapter.

   b.   Provide a priority listing of all projects with each annual submission.

   c.   Activities, such as Fleet Maintenance Activities, having an IPE Management System or IPE Maintenance Module Program must submit PEPs on computer disk accompanied by a hard copy.

   d.   New procurement requirements, with an acquisition cost of less than $100,000 and Other Plant Equipment or IPE Maintenance Requirements (e.g., major repairs or overhaul) must be forwarded to the cognizant TYCOM for funding consideration.

6.3.3 <u>Urgent Replacement</u>. Submit previously unidentified requirements to the cognizant TYCOM. Use the PEP form of Appendix A of this chapter, or message format if the replacement is associated with correcting a Casualty Report. Assign an integrated priority position for each requirement. If message format is used, justification and all relevant data for equipment acquisition must be provided.

 a. All PEPs must be prioritized and evaluated to ensure compatibility with maintenance capability requirements or configuration.

 b. PEPs for replacement of currently installed equipment must be screened to ensure there is no conflict with other maintenance actions.

 c. Cancel any project which is no longer required. Notify the TYCOM by letter of any canceled requirements.

6.3.4 <u>Receipt of Plant Property</u>. Upon receipt of plant property, comply with the procedures described here:

 a. Receive the equipment from the staging area.

 b. Notify the procurement activity immediately if deficient conditions are found after receipt. Notifications will be made via a Product Quality Deficiency Report with an information copy to the cognizant TYCOM. Product Quality Deficiency Report preparation and processing instructions are available in reference (e).

  (1) When timing is critical, such as near the end of the warranty period, or when an urgent need to correct the problem exists, notify the procurement activity by the most expedient method (i.e., telephone or message).

  (2) Provide the contract number, model and serial number of the plant property, date accepted, date problem developed, nature of the problem and local point of contact (name and telephone numbers).

 c. Notify the TYCOM of actual equipment delivery date.

 d. Notify the TYCOM when installation is satisfactorily completed.

 e. Submit an OPNAV 4790/CK or Allowance Change Request as required to initiate Coordinated Shipboard Allowance List support for new equipment and, if appropriate, to stop Coordinated Shipboard Allowance List support for IPE replaced by new equipment.

 f. Submit requests for excess IPE or Other Plant Equipment disposition instructions to the cognizant TYCOM.

6.4 <u>RESPONSIBILITIES</u>.

6.4.1 <u>Fleet Commander</u>. Fleet Commanders must:

 a. Review all PEPs submitted by the TYCOMs.

 b. Prioritize and assign a Project Number to PEPs and forward the approved requests to NAVSEA PMS 335. Return the unapproved requests to the TYCOM.

c. Upon notification from NAVSEA PMS 335, forward the information regarding disposition (approval or disapproval), acquisition status and delivery dates for PEPs to the submitting activities with an information copy to the cognizant TYCOM.

6.4.2 <u>Type Commander</u>. TYCOMs must:

a. Review all PEPs submitted by cognizant afloat and shore activities for technical accuracy and completeness.

b. Review each PEP that requests replacement of currently installed equipment to ensure there is no conflict with other maintenance actions (e.g., separate repair, rebuild or replacement action).

c. Prioritize all PEPs and evaluate each project to ensure compatibility with the requesting activity's maintenance capability requirements and site configuration.

d. Forward the approved requests to the Fleet Commander for consolidation. Return unapproved requests to the submitting activity.

e. Schedule an annual assessment of assigned activity's IPE and coordinate repairs.

6.5 <u>REPORTS</u>. Information forwarded on forms pertaining to the requirements of PEP, as required in this chapter, are exempt from the report controls required by reference (e).

APPENDIX A

PLANT EQUIPMENT PROJECT FORM

PLANT EQUIPMENT PROJECT			
1. Activity, UIC & Location	2. Activity Priority	3. Type Commander Priority	4. MILCON Proj Number
		5. Project Number 6. Fiscal Year	7. Date

8. Description	9. Plant Equipment Code (12 Digits)
	10. Number of Equip Items/Systems Requested
	11. DD Form 1419 (List Req Numbers for each)

12. ESTIMATED COST - PROJECT				13. JUSTIFICATION CATEGORY (Check Approp. Block)	
(1) Total Cost	(2) Equipment	(3) Transportation	(4) Installation	☐ A. Additional	☐ B. Replacement

C. ☐ Economic   D. ☐ Mandatory   E. ☐ Safety/OSHA F. ☐ Pollution Abatement

14. SPECIAL PROGRAM

A. ☐ FORCES AFLOAT   B. ☐ SHIPALT   C. ☐ PRODUCTIVITY ENHANCEMENT/FAST PAYBACK

D. ☐ NUCLEAR SUPPORT   E. ☐ COLLATERAL EQUIP.

15. PROCUREMENT	16. LOCATION OF EQUIPMENT		
☐ A. Procured by NAVSEA ☐ B. Procured Locally by Activity	A. Shop/Code	B. WC	C. Bldg.

17. Purpose, Description and Justification of Project (Identify other special projects here)

18. Typed Name of Project Preparer	19. Signature of Preparer	20. Date Signed	21. APL No.
			PAGE of

INSTRUCTIONS FOR COMPLETION OF PLANT EQUIPMENT PROJECT FORM

1. (Block 1). Activity, Unit Identification Code (UIC) and Location.

    a. Activity. The name of the military facility (and hull number if applicable) where the proposed equipment is to be used. (mandatory)

    b. UIC. (mandatory)

    c. Location. For shore activities: building number, street, city, state and zip code. (mandatory)
    For ships: homeport and building number (if applicable), street, city, state and zip code. (mandatory)

2. (Block 2) Activity Priority. Priority of requested equipment. (Example: 001-94) (mandatory)

3. (Block 3) Type Commander Priority. Priority order for TYCOM. (mandatory)

4. (Block 4) Military Construction (MILCON) Project Number. MILCON Project Number if equipment requested is to be installed as part of a MILCON project.

5. (Block 5) Project Number. Assigned by the cognizant Fleet Commander.

6. (Block 6) Fiscal Year. The fiscal year in which the equipment is requested to be purchased. (mandatory)

7. (Block 7) Date. Record the month, day and year the PEP is developed. (mandatory)

8. (Block 8) Description. Description title of the proposed equipment or system. Include capacity or size. (mandatory)

9. (Block 9) Plant Equipment Code. Use Plant Equipment Code number and include all 12 digits, if possible. Plant Equipment Code numbers are assigned per reference (e). For Class Three, use NSN (preferred), or Federal Supply Class.

10. (Block 10) Number of Equipment Items or Systems Requested. The total number of items or systems in Block 8 required by this project. (mandatory)

11. (Block 11) DD Form 1419. Required only for surplus Class Four equipment acquisition.

12. (Block 12) Estimated Costs - Project.

    (1) The total estimated cost including equipment, transportation and installation. (mandatory)

    (2) The estimated cost of the equipment includes all desired accessories. (mandatory)

    (3) The estimated cost of transportation shipping from the supplier to the activity. (mandatory)

    (4) The estimated installation cost. (mandatory)

13. (Block 13) Justification Category. Check Appropriate Block. (mandatory)

    A. Indicate if equipment is an additional requirement (additional shipboard requirements to be permanently installed require an approved alteration).

B.   Indicate if equipment is a replacement requirement. For shipboard activities this requires entering the Allowance Parts List (APL) number (if assigned) in Block 21 when replacing existing equipment. A copy of the APL page must be attached with the PEP submission.

NOTE: CHECK ONLY ONE OF THE ABOVE TWO CHOICES.

C.   Indicate if equipment is being replaced or added for economic reasons. Economic reasons may include frequent and costly maintenance or an advanced equipment design that makes the installed version obsolete.

D.   Indicate if equipment replacement or addition is mandatory. This block should be checked if new or additional equipment is required to meet significant increases in, or new, tasking.

E.   Indicate if equipment is being replaced or added to meet safety or Occupational Safety and Health Administration requirements. Reasons for checking this block could include replacement of equipment that has become unsafe to operate or is required to meet new safety or Occupational Safety and Health Administration regulations.

F.   Indicate if equipment is being replaced or added to meet pollution abatement standards. This block should be checked if the replacement or addition of equipment will facilitate significant reduction in the generation of hazardous waste or is required to satisfy newly levied pollution abatement criteria.

NOTE: MORE THAN ONE BLOCK (C THROUGH F) MAY BE CHECKED.

14. (Block 14) Special Program.

A.   Indicate if equipment is for Forces Afloat Program.

B.   Indicate if equipment is for Ship Alteration Program.

C.   Indicate if equipment is for Productivity Enhancement or Fast Payback Program.

D.   Indicate if equipment is for Nuclear Support.

E.   Indicate if equipment is Collateral Equipment for MILCON.

15. (Block 15) Procurement. (mandatory)

A.   Indicate if project is recommended for procurement by NAVSEA.

B.   Indicate if project is recommended for procurement locally by requesting activity.

16. (Block 16) Location of Equipment.

A.   Shop/Code. The shop number, activity code, cost center or organizational segment, as applicable, where the proposed equipment or system is to be used. (mandatory if applicable)

B.   Work Center. Work Centers where the equipment will be assigned. (mandatory if applicable)

C.   Building. The building number where the proposed equipment or system is to be used. (mandatory if applicable)

17. (Block 17) Purpose, Description and Justification of Project.

NOTE: BLOCK 17 MAY BE CONTINUED ON THE BACK OF THE FORM OR ON ADDITIONAL PAGES. IF BLOCK 17 IS CONTINUED ON ADDITIONAL PAGE(S), REPEAT BLOCKS 1 AND 8 ON EACH PAGE. ENSURE ADDITIONAL PAGE(S) ARE ANNOTATED IN THE SPACE PROVIDED BELOW BLOCK 21.

    a.   Purpose. Purpose for which the new equipment or system is to be used. In addition, state increased capacities or capabilities (increased power, speeds, feeds, safety, state of the art improvements, pollution abatement features, etc.). An alteration may be required for shipboard applications if other than a "one-for-one" replacement (mandatory).

    b.   Description. Include a complete technical description and specifications in sufficient detail to ensure procurement of the exact equipment required (include necessary accessories and attachments). If any of the description is restrictive or proprietary to one manufacturer, underline this portion and give adequate justification for the proprietary requirement. State the manufacturer, model number(s), size, weight, or utility restrictions (mandatory).

    c.   Justification. Information and data concerning the following items will constitute the basis of the requirements. Each item should be addressed as fully as possible and in the same sequence in which they are listed in the following sub-paragraphs: (A positive or negative statement should be used in lieu of yes or no answers) (mandatory.)

       (1)   Reason for the replacement of the equipment. Identify item being replaced (include manufacturer, model number, serial number, plant account number (where applicable), size and capacity).

       (2)   Is additional space required for the installation? If so, where will the installation be made? Submit sketches, complete with size restrictions, including hatch sizes to be considered if equipment must pass through them.

       (3)   Is military or minor construction required? If MILCON, give the title of the MILCON project and beneficial occupancy date, if available. If MILCON, ensure the project number is in Block 4.

       (4)   Indicate the particular electrical characteristics from which the equipment is to be powered (voltage, frequency, phase, number or wires, and if power source is grounded or ungrounded). Also, state whether or not sufficient power is available.

       (5)   Is the need for the requested equipment generated wholly or partially by the assignment of new tasks or by new or tightened specifications for existing task(s)? If so, give details.

       (6)   Will the new equipment produce products of better usable quality (products which will last longer, perform better, ensure ready interchangeability, etc.)? If so, give details.

    (7)   What would happen if the present equipment failed? Also, answer the following:

          (a)   What is the remaining life expectancy of present equipment?

          (b)   Is the present equipment worn? To what extent?

          (c)   Is the present equipment unsafe? To what extent?

          (d)   Does the present equipment have an adequate capacity or capability?

    (8)   Is the proposed equipment a mandatory requirement (capability increase)? If so, give reason.

    (9)   Is the proposed equipment recommended for local procurement? Block 15B must be checked. If so, give justification.

    (10)   Does the requested equipment require an hour meter?

    (11)   Will this equipment or system be installed in a secure area thus requiring the prime contractor to provide the installer(s) with current security clearance requirements to enable the timely accomplishment of installation services, training, or warranty repairs?

18. (Block 18) Typed Name of Project Preparer. (mandatory)

19. (Block 19) Signature of Preparer. (mandatory)

20. (Block 20) Date Signed. (mandatory)

21. (Block 21) APL Number.

VOLUME VI

CHAPTER 7

SUBMARINE FORCES AFLOAT PAINTING AND PRESERVATION GUIDELINES FOR NON-NUCLEAR SPACES AND COMPONENTS

REFERENCES.

    (a)   NAVSEA S9086-VD-STM-010 - NSTM Chapter 631 (Preservation of Ships In-Service - General)

    (b)   URO-MRC 003 - Conduct Hull Structural Survey

    (c)   SMS 6310-081-015 - Submarine Maintenance Standard - Submarine Preservation General Painting

    (d)   COMSUBLANT/COMSUBPACINST 5400.49 - Submarine Organization and Regulations Manual (SORM)

    (e)   OPNAVINST 5100.19 - Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

    (f)   SSPC Painting Manual - Society for Protective Coating Standards and Specifications

    (g)   NAVSEA S6360-AD-HBK-010 - Special Hull Treatment Maintenance and Repair for Submarines

    (h)   NAVSEA S6360-AN-MMA-010 - Submarine Mold In-Place Special Hull Treatment and Repair

    (i)   NAVSEA S6360-AV-MMA-010 - Submarine Special Hull Treatment; Maintenance and Repair

LISTING OF APPENDICES.

    A   Submarine Paint Guide

    B   Coating Inspection Report Form

    C   Shipboard Power Cleaning Tools

7.1 INTRODUCTION. The objective of this document is to provide Fleet Maintenance Activities (FMA) with the procedures necessary to perform preservation maintenance between major shipyard availabilities. It has consolidated all the necessary knowledge from reference (a) for submarine crews that may be inexperienced in the areas of surface preparation and touch-up painting to maintain protective coating systems. This document is to be used in maintaining and repairing preservation systems on non-nuclear components and spaces of U.S. Navy submarines. Appendix A is a guide to assist with preparing, handling and applying paint to interior submarine surfaces.

7.1.1 Applicability.

    a.   This document is not to be used during regular shipyard work, where all prevailing technical requirements of reference (a) applies. This includes preservation of tanks, voids and underwater hull, otherwise referred to as critical coated areas. Critical coated areas are defined as areas that cannot be easily accessed and represerved without drydocking of the ship. Many of these areas are also monitored under the reference (b) inspection program. Ship's Force should not be conducting preservation of these areas unless addressed in this manual. FMAs who are supporting shipyard

availabilities should utilize a trained workforce to accomplish work in critical coated areas or to complete preservation work associated with reference (b). The lead maintenance activity (shipyard, Regional Maintenance Center, Intermediate Maintenance Facility) executing the availability should publish to the FMA the qualifications required of personnel who can accomplish preservation in these areas. These qualifications must meet the requirements of references (a) through (i) and be acceptable to the lead maintenance activity.

b. Occasionally tanks are entered for other reasons by the FMA or Ship's Force. National Association of Corrosion Engineers (NACE) Level I and Naval Sea Systems Command (NAVSEA) Basic Paint Inspector (NBPI)), and Society of Protective Coatings (SSPC) Protective Coating Inspector Program (PCI) training do not fully instruct on how to inspect an in-service coating system. References (c) and (f) provide further information for in-service coating system evaluation. If a tank is entered for any reason, it must be inspected. If significant defects or paint failure is found, the Type Commander or shipyard must be contacted. A Departure from Specification may need to be submitted to evaluate deferring repair to a future availability. If immediate repairs are needed, NAVSEA will provide the proper guidance.

7.1.2 Technical Point of Contact. Point of Contact for technical questions regarding this chapter is NAVSEA 05U7124.

7.2 SCOPE. This manual provides information to the FMA with basic step-by-step instructions for:

a. Inspecting and reporting areas of coating failure.

b. Providing oversight during the paint process.

c. Identifying the required surface preparation method.

d. Preparing the surface for repainting using hand or power tools.

e. Selecting proper paint(s) for a given application.

f. Becoming familiar with the Product Data Sheet (PDS) or American Society for Testing and Material (ASTM) F-718 sheet and Material Safety Data Sheet (MSDS) for a given paint.

g. Mixing and applying the paints.

h. Using a Wet Film Thickness (WFT) gauge to determine if the proper coating thickness was applied.

i. Knowing when to apply overcoats in a two (or more) coat system.

7.2.1 Ship's Force Responsibilities. This document assumes that Ship's Force personnel are being assisted by an FMA and:

a. Will apply all coatings using a brush or roller.

b. Will not be required to measure environmental conditions such as surface temperature, dew point and Relative Humidity (RH). Personnel should be instructed, during the training program established in Chapter 27, paragraph 27.3.2 of this Volume, that environmental conditions are important when painting and to consult a NACE or

NPBI from the FMA if conditions are questionable.

c.   Will not be required to measure surface salt contamination, but should be instructed, as part of the Chapter 27, paragraph 27.3.2 of this Volume, training, that excessive surface salt contamination will shorten the service life of a coating system and to consult a NACE or NPBI paint inspector from the FMA to determine if surface salt concentrations are within the acceptable range for paint application. Also ensures that the surface is washed with clean water.

d.   Will not use spray equipment to apply paint.

e.   Will not use abrasive blast or hydroblasting equipment to prepare the surface.

7.2.2 <u>Fleet Maintenance Activity Responsibilities</u>. This document assumes that the FMA:

a.   Will maintain the tools needed by Ship's Force to accomplish the preservation process and instruct Ship's Force in their proper use.

b.   Will maintain and be familiar with NACE or Society For Protective Coatings surface preparation and cleanliness standards (NACE Level 1 or NPBI inspectors).

c.   Will assist Ship's Force in accomplishing inspections and prioritizing work.

d.   Will maintain copies of reference (f) (VIS-2 Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces) to use when accomplishing inspections.

e.   Will assist in the training of Ship's Force in the preservation process.

f.   Will be onboard when painting operations are underway to monitor that the various steps of the process are being properly accomplished (NACE Level 1 or NPBI inspector).

g.   Will perform spot checks of surface cleanliness, surface profile and WFTs during the coating process (NACE Level 1 or NPBI inspector).

h.   Will monitor environmental conditions, temperature, humidity, dew point, to ensure they are within required limits during the coating process (NACE Level 1 or NPBI inspector).

i.   Will conduct soluble salt testing when needed (NACE Level 1 or NPBI inspector).

j.   Will advise Scheduled Preservation Upkeep Coordinated Effort (SPRUCE) Manager or ship's designated representative if required environmental conditions cannot be met (NACE Level 1 or NPBI inspector).

7.2.3 <u>Quick Reference</u>. A Quick Reference, section 7.10 of this chapter, provides concise steps for surface preparation and coating application in specific areas such as the sail and bilges as well as a "catch all" entitled "Miscellaneous Areas of General Corrosion".

7.3 <u>GENERAL SAFETY PRECAUTIONS</u>.

7.3.1 <u>Hazards</u>. Every painting assignment exposes maintenance personnel to conditions and situations that represent actual or potential danger to them and to others in the area. The frequent necessity to use toxic and flammable materials, pressurized equipment, ladders, scaffolding and rigging always presents a potential hazard. Hazards may also be inherent in the very nature of the environment or caused through ignorance or carelessness of the operator. It is, therefore,

extremely important to be aware of all potential hazards, since continuous and automatic precautionary measures will minimize the problem and improve both efficiency and morale of the painting crew.

NOTE: **THE PRECAUTIONS CONTAINED IN THIS MANUAL ARE IN ADDITION TO, AND DO NOT SUPERSEDE, OTHER SAFETY REQUIREMENTS THAT HAVE BEEN ESTABLISHED IN REFERENCE (d), SECTION D AND REFERENCE (e).**

7.3.2 <u>Precautions</u>. This document highlights safety precautions for surface preparation and the mixing, handling and application of coatings. The local environmental, safety and health organization has cognizance over the safety precautions to be implemented during all phases of the painting process.

7.4 <u>INSPECTION OF EXISTING PAINT AND BASE METAL</u>.

7.4.1 <u>Required Tools</u>. The purpose of this section is to describe how to report the condition of the coating system in various ship areas. The inspector will need the following tools:

a. Flashlight.

b. Inspection mirror (to see hard-to-reach areas, such as behind beams).

c. Pocket knife.

e. Rag.

f. Paint stick or non-grease marker.

7.4.2 <u>Failure Locations</u>. Where practical, circle areas of failure with a paint stick or non-grease marker. Record location and type of failure on Appendix B. The following failure types should be reported:

7.4.2.1 <u>Percent of General Corrosion</u>. The extent of corrosion in the inspection area will determine how much surface preparation and painting is required. Therefore, the prime objective of the inspection is to accurately report the extent of corrosion. To facilitate accurate evaluation and reporting, reference (f) is available from the FMA and must be used. Reference (f), (VIS-2 Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces), is a series of photographs showing various extents of corrosion. To use the reference photos, examine the surfaces in the area being inspected and then select one of the reference photographs that most closely resembles the extent of rust in the area being inspected. Enter the percent on Appendix B in the column labeled, "Percent General Corrosion". If reference (f) is not available, estimate the amount of rust and indicate on the form that the standard was not used in the estimation.

7.4.2.2 <u>Corrosion</u>. After removing the corrosion scale with a scraper, look for structural steel defects such as visible metal loss, pitting or large corroded areas. If any defects are discovered, report findings to cognizant supervisor or hull survey team for further instructions and enter "Y" in column labeled, "Pitting Corrosion". Mark the pits with a paint stick or non-grease marker and make a note in the "Notes" column on Appendix B.

7.4.2.3 <u>Percent of Blistering</u>. Enter percentage of the total area showing blistering. Even though the pictorial representations contained in reference (f), (VIS-2 Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces), are intended for evaluating the degree

of rusting, they can also be used as a guide in determining the percentage of an area that has blistered paint. Use the "General Rusting" diagrams (not the photographs) and select the diagram that most closely resembles the pattern of blistering in the area being inspected. Enter the percent on Appendix B in the column labeled "Percent Blistering". Work should be prioritized by:

    a.   Order of importance for type of failure: pitting > corrosion > blistering.

    b.   Order of importance for areas: pressure hull > non-pressure hull.

7.4.3 <u>Cosmetic Paint Failure</u>. Cosmetic paint failures may also be observed and should be repaired only after all other types of preservation failures have been repaired. Repeated cosmetic painting can cause excessive film build that will lead to premature paint failure. Stained or discolored paint should first be washed with detergent and lightly hand sanded to attempt to remove stains. If a cosmetic topcoat is applied, it should be applied in as thin a layer as possible to avoid excessive film build over time.

7.4.4 <u>The Difference Between Rust and Rust Staining</u>. It is necessary to know the difference between rust and rust staining. Dirt, residue or rust staining may be mistaken for rust. Stained, intact paint does not require removal and touch-up. Figures 1 and 2 show two photographs taken in the same location. The top photograph shows what may appear to be extensive rust, especially in a poorly lit area. However, the bottom photograph shows that, after rubbing a small circular area with a rag, the discoloration was caused by dirt and residue, not rusted metal.

Figure 1. Stained area before wiping a small area with a rag.

Figure 2. Stained area after wiping a small, circular area with a rag.

7.5 <u>GENERAL SURFACE PREPARATION</u>.

NOTE: POOR SUFACE PREPARATION IS THE CAUSE OF 95% OF COATING FAILURES. PREPARING THE SURFACE PROPERLY MAY WELL PREVENT RE-DOING THE SAME JOB.

7.5.1 <u>Surface Cleaning Methods</u>. The most important factor affecting the service performance of a coating is the degree of care taken in preparing the surface for painting. When scheduling surface preparation work, ensure that sufficient time will be available to paint all surfaces that have been prepared and allow the paint to fully cure before placing the surfaces into service. The goal of surface cleaning is to provide a roughened surface that is free of contamination and gouges or sharp projections. Roughening is necessary to attain the necessary anchor pattern for good paint adhesion. Surface cleaning methods vary with the type of surface preparation needed, location and size of the area being cleaned. These different cleaning methods are described in the following paragraphs. The steps required to prepare a surface for painting are:

a. Solvent cleaning to remove oil, grease, dirt, chemicals and water-soluble contaminants. If solvents are prohibited, use detergent and fresh water.

b. Mechanical cleaning (Hand Tool or Power Tool Cleaning) to remove rust and loose paint and to roughen or profile the surface for better coating adhesion.

c. Feathering edges.

d. Sweeping or vacuuming loosened material.

e. Solvent cleaning, if necessary. Check to see if oil was deposited on the surface during power tool cleaning.

f. Schedule paint application as soon as possible.

7.5.2 <u>Solvent Cleaning</u>. Solvent cleaning prepares surfaces by removing oil, grease, dirt and other foreign matter prior to mechanical cleaning or painting. The simplest procedure is to first remove soil and other dry material with a wire brush. The surface is then scrubbed with rags saturated with solvent. Clean rags are then used to rinse and wipe dry. Solvent cleaning must be

accomplished only when allowed by local air quality regulations. Recommended solvents: Super high-flash naphtha; Mineral spirits, NSN 010-00-558-7026 (alkyd paints). Surface preparation accomplished by solvent cleaning must meet the requirements of reference (f), (SP-1 Solvent Cleaning).

7.5.3 <u>Detergent Cleaning</u>.

    a.   If solvent cleaning is prohibited, detergent cleaning may be substituted. A recommended detergent is MIL-D-16791, Type 1, Liquid Detergent. The procedure is:

        (1)   Mix detergent in fresh water according to packaging instructions.

        (2)   Wash substrate surface.

        (3)   Rinse with fresh water.

        (4)   Dry surface with clean dry rags to remove residual water.

    b.   Several non-specification cleaners such as Simple Green (produced by Sunshine makers, Inc.) have also been used successfully for smaller areas.

7.5.4 <u>Hand Tool Cleaning</u>.

    a.   Hand tools such as scrapers and wire brushes are used on surfaces in confined spaces (corners) that cannot be reached with power tools. Hand tool cleaning will remove only loose or loosely adhering surface contaminants, including rust scale, loose mill scale, loose rust and loosely adhering paint. Hand tool cleaning is not to be considered an appropriate procedure for removing tight mill scale and all traces of rust. It is primarily recommended for spot cleaning in areas where corrosion is not a serious factor. Surface preparation accomplished by hand tool cleaning must meet the requirements of reference (f), (SSPC-SP-2 Hand Tool Cleaning).

    b.   Before hand tool cleaning, the surface must be free of oil, grease, dirt, chemicals and water-soluble contaminants, all of which may be removed with solvent cleaners and fresh-water rinsing. For small areas, clean dirt, soil, dust or other surface contaminants by using a detergent wash and freshwater rinse. Wipe the surface with rags or a stiff brush as necessary to remove any residue that does not wash off. Impact tools, such as chipping hammers, chisels or scalers must be used to remove rust scale and any heavy buildup of old coatings. Start painting as soon as possible after cleaning.

    c.   In those situations where areas are not accessible to power tools, hand tool cleaning methods may have to be used. Since hand tool cleaning will remove only the loosest contamination, careful application of primers is required, preferably by brushing, to thoroughly wet the surface. To achieve satisfactory results, all applied coats must be capable of overcoming the interference of contaminants left behind after hand tool cleaning.

7.5.5 <u>Power Tool Cleaning</u>.

7.5.5.1 <u>Safety Warning</u>. Before power tool cleaning, the surface must be free of oil, grease, dirt, chemicals and water soluble contaminants, all of which may be removed with solvent cleaners

and freshwater rinsing. Never try to remove oil or grease by the use of power tools. This causes the grease to become further imbedded in the metal surface, thus preventing good paint adhesion.

7.5.5.2 <u>Power Tool Cleaning Procedure</u>. The proper procedures for cleaning surfaces prior to the use of power tools are:

  a.   For small areas, clean dirt, soil, dust or other surface contaminants by using a detergent wash and freshwater rinse. Wipe the surface with rags or a stiff brush as necessary to remove any residue that does not wash off.

  b.   To remove embedded grease, oil or soil from small areas, clean the surface with a clean cloth wetted with solvent. After final application of the solvent, wipe dry with a clean cloth.

  c.   Power tool cleaning will prepare surfaces faster and better than hand tool methods. Surface preparation acccomplished with power tools must conform to the requirements of reference (f), (SSPC-SP 11, Power Tool Cleaning to Bare Metal). Power tool cleaning to bare metal is defined as removal of all rust, loose mill scale and paint to bare metal (except for slight residue in pits if surface is pitted) by chipping, scraping, sanding or wire brushing. Power tools are used for removing small amounts of tightly adhering contaminants that hand tools cannot remove.

  d.   If oil residue is detected after power tool cleaning, solvent cleaning should be repeated.

  e.   Painting must be started and completed as soon as possible after completion of power tool cleaning.

7.5.5.3 <u>Types of Power Tools</u>. Power tools are driven either electronically or pneumatically and the basic units include a variety of attachments. Chipping hammers are used to remove tight corrosion, mill scale and old paint from large metallic and masonary areas. Wire brushes (cup or radial) are used to remove loose mill scale old paint, weld flux, slag and dirt deposits. Grinders and sanders are used to smooth excessively rough surfaces. As with hand tools, care should be exercised with power impact and grinding tools so they do not remove metal or cut too deeply into the surface, resulting in burrs that are difficult to cover and protect satisfactorily. Care should be taken when using wire brushes and sanders to avoid polishing metal surfaces, which would prevent adequate adhesion of subsequent coatings.

7.5.5.4 <u>Power Tool Allowance</u>. The Master Allowance List, Part II, Group S92-1, contains the base allowances of power preservation tools for all ships. Changes in shipboard allowances may be implemented by direction of the Type Commanders. Common shipboard power tools are shown in Appendix C.

7.5.6 <u>Feathering Edges</u>. After mechanical cleaning (hand, power tool cleaning) is complete, edges of the intact paint surrounding the mechanically prepared area must be "feathered" into the metal. Feathering eliminates the "step" from the intact paint to bare metal. If this "step" is not removed, newly applied paint may crack as it dries leading to premature coating failure. The procedure for feathering an area of exposed metal surrounded by intact paint is:

  a.   Lightly abrade the edges of intact paint with a power disk sander or rough sand paper.

  b.   Taper the edges to make a gradual transition from intact paint to bare metal so that the

underlying coats are exposed at the edges.

c.   Solvent (or detergent) clean.

d.   Apply paint.

7.5.7 <u>Aged Paint</u>. Old paint in good condition is an excellent base for repainting. When a surface is to be repainted and the old paint is not to be removed, the surface must be roughened with abrasive and thoroughly cleaned and dried before new paint is applied. When only localized areas of spots require repainting, it is essential that the removal of the old paint be carried back around the edges of the spot or area until an area of completely intact and adhering paint film with no rust or blisters is attained. Edges of tightly adherent paint remaining around the area to be recoated must be "feathered". Painting should not be done over loose and cracked paint. When painted surfaces show evidence of corrosion, peeling, blistering, checking, scaling or general disintegration, remove the paint down to the bare surfaces.

7.5.8 <u>Surface Salt Concentration</u>. Coatings will fail prematurely if excess surface salts are not removed prior to coating application. Ship's Force personnel are not expected to measure surface salt concentration. However, Ship's Force is expected to know where to find qualified help (e.g. Quality Assurance personnel (Code 340)) at TRIDENT Refit Facilities.

7.5.9 <u>Equipment Maintenance</u>. To assure the safe and proper operation of surface preparation equipment, the following are provided:

a.   Power Tools.

(1)   Ensure that no oil or grease is left exposed after completing maintenance work on surface preparation equipment. The slightest amount of oil or grease on the equipment will contaminate the surface and cause poor paint adhesion.

(2)   Replace the disk on the disk sander when it no longer cuts through the paint film or when dirty. Replace the head of the wire brush unit when the wires are bent, worn, broken or frayed. Clean wires when dirty.

(3)   Replace the head of the needle gun when over one-half of the needles become bent.

b.   Hand Tools.

(1)   Maintain a sharp and smooth edge on the scraper.

(2)   Clean wire brush when dirty.

(3)   Discard wire brush when wires become frayed or broken.

c.   Care and Maintenance of Paint Brushes.

(1)   Brushes that are to be reused the following day should be marked for white, light colors or dark colors.

(2)   The weight of the brush should not rest on the bristles.

(3)   Brushes not to be immediately reused should be cleaned with at least three washings of thinner or solvent, then washed with detergent and water.

(4)   Brushes should be stored by suspending them from the handle on racks or

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wrapped in paper and stored flat.

    (5)   Paint rollers should be disposed.

7.6 <u>GENERAL MIXING AND PAINT APPLICATION</u>.

NOTE: **PRIOR TO USING ANY PAINT, THE TWO FOLLOWING DOCUMENTS, ISSUED BY THE PAINT MANUFACTURER, SHOULD BE READ AND UNDERSTOOD.**

7.6.1 <u>Product Data Sheet or Material Safety Data Sheet</u>. The PDS (or ASTM F-718 sheet) and MSDS provide the information to use the coating properly and safely. To obtain the PDS (or ASTM F-718 sheet) and MSDS, call the coating manufacturer and request them to FAX the PDS (or ASTM F-718 sheet) and MSDS. ASTM F-718s can also be obtained from the National Surface Treatment Center web site, http://www.nstcenter.biz . Some paint manufacturers may provide an ASTM F-718 sheet instead of a PDS. The use of ASTM F-718 sheets is preferred because they have been approved by NAVSEA. Both documents generally provide similar information.

7.6.1.1 <u>Product Data Sheet</u>. This document provides information about the proper use of the paint including:

    a.   Mixing instructions including mix ratio (for a two-part system).

    b.   Induction period (if required).

    c.   Application methods.

    d.   Pot life.

    e.   Drying and over coat times.

    f.   Wet and Dry Film Thickness (DFT) requirements.

7.6.1.2 <u>Material Safety Data Sheet</u>. This document provides information concerning safe use of the paint including the following sections:

    a.   Product identification.

    b.   Hazardous ingredients.

    c.   Physical data.

    d.   Fire and explosion data.

    e.   Health hazard data.

    f.   Reactivity data.

    g.   Spill or leak procedures.

    h.   Special protection information including Personal Protective Equipment (PPE).

    i.   Special precautions.

7.6.2 <u>Mixing Area</u>.

    a.   Shore Facilities.

        (1)   Painters should have detached shops or detached temporary structures where

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all paint should be mixed, and where paint buckets, brushes and rags can be temporarily stored.

  (2) Only the quantity of paint needed for one day's work must be taken into the mixing area.

 b. Forces Afloat.

  (1) Paint must not be stowed in the mixing area.

  (2) Mixing of paints and their solvents must be confined to the paint mixing room or other designated compartment.

  (3) Paint must not be mixed aboard a submarine.

7.7 SPECIFIC PAINTING REGULATIONS FOR SUBMARINES.

7.7.1 <u>Motor Generator Units</u>. Prior to any interior painting, Positive Pressure Unit must be activated if the Motor Generator is not sealed or is open within five days of paint application. This will prevent solvent from damaging motor generators.

7.7.2 <u>Coating Material</u>.

 a. Mix all paints BEFORE bringing it aboard the submarine. The use of paint pre-packaged in cartridge dispensing systems is encouraged because the paint is mixed in the static mixer as it is dispensed from the cartridge and open containers of paint are eliminated. MIL-DTL-24441 and VACTAN are currently the only paints that are used by Ship's Force available in cartridges.

 b. With the exception of topside boot or other areas that do not vent to the submarine interior, all appreciable painting described in this document must be completed at least five days prior to departure for sea. (The date of departure, as it relates to painting, must be the date of the first dive after departure for a period of operation. The Commanding Officer of the submarine involved should determine the "date of departure" whenever the question arises.)

 c. Bring onboard only the amount of paint than can be used in the immediate painting operation. The use of paint pre-packaged in cartridge dispensing systems is encouraged because a partially used cartridge can be capped and reused.

 d. Where paint is applied to surfaces that later will be heated (e.g., thermal piping and lagging), the systems must be activated (heated) prior to sealing the boat.

7.7.3 <u>Items Not To Be Painted</u>. The following surfaces are not to be painted and, therefore, should be masked off when paint is applied in the vicinity:

 a. Corrosion Resistant Steel (CRES) on decks, CRES galley equipment and CRES bulkheads in wet spaces.

 b. Decorative plastic surfaces such as on bulkheads or table tops.

 c. Dogs or operating gear of watertight doors, hatches, scuttles and similar items.

 d. Hatch and door rubber gaskets.

 e. Labels (e.g., identification plates).

f.   Insulators.

g.   Knife edges of watertight doors and hatches.

h.   Tiled areas.

i.   Threaded parts, such as adjusting threads and take-up threads that, if painted, would not function properly.

j.   Anodic and cathodic protectors (zincs).

k.   Composition metal water ends of pumps.

l.   Condenser heads and outside surfaces of condensers when of composition metal.

m.   Exposed composition metal parts of any machinery.

n.   Glands, stems, yokes, toggle gear and all machined external parts of valves.

o.   Heat exchange surfaces of heating or cooling equipment.

p.   Joint faces of gaskets and packing surfaces.

q.   Lubricating gear, such as oil holes, oil or grease cups, lubricators and surfaces in contact with lubricating oil.

r.   Lubricating oil reservoirs.

s.   Charging water tanks.

t.   De-mineralized water tanks.

u.   Amine storage tanks.

v.   Machined metal surfaces of reciprocating engines or pumps and all "oil wetted" surfaces of internal combustion engines.

w.   Metal lagging.

x.   Rods, gears, universal joints and couplings of valve operating gear.

y.   Expansion joints, pipe hangers, flexible hose connections, items partially fabricated of rubber and rubber resilient elements of isolation mounts.

z.   Springs.

aa.   Strainers.

ab.   Turbine casing joints, nuts and bolts.

ac.   Working surfaces.

ad.   Brass, bronze, gun metal and copper where used in submarine systems.

ae.   Foundation bearing surfaces where alignment or sliding is required.

af.   Electrical outlets, terminals, activating mechanisms of electrical safety devices, control switchboards on machinery elevators and grounding contact surfaces.

ag.   Joints and contact surfaces of explosion-proof enclosures.

ah.   The following interior surfaces (aluminum surfaces may be waxed where desired for

appearance).

ai.   Bins, shelves, dressers, drawers, cabinets, battens and fittings.

aj.   Interior gratings, hand rails and floor plates.

ak.   Internal surfaces of ventilation ducts.

al.   Sight glasses, gauge faces or identification plates or other markings, which, if painted, would be illegible.

am.   Faces of sonar transducers, hydrophones, no-foul rubber shelling, sonar dome rubber windows, rubber sonar domes and glass reinforced plastic domes.

an.   Any other components or surfaces where the application of paint would affect the fit, form or function.

ao.   When in doubt, contact the technical authority for guidance.

7.7.4 Shelf Life of Paints. Shelf life is the period after manufacture when the paint can be used. The date of manufacture is printed on the paint can. Refer to the PDS (or ASTM F-718 sheet) to determine the shelf life of the paint being used. Do not use paint that has passed the shelf life given on the PDS (or ASTM F-718 sheet). Partially used cartridges can be reused if the paint is still within the shelf life.

7.8 MIXING PROCEDURES.

7.8.1 Pre-Packaged Paint. The use of paint prepackaged in cartridge dispensing systems is encouraged because it eliminates mixing of paint. The cartridges may have to be shaken using a mechanical shaker designed for the cartridges. Cartridges are an alternative form of packaging and the dispensing system eliminates mixing. The properties of the paint remain the same with regard to WFT, spread rates, dry times, overcoat times, etc.

7.8.2 Mixing Observations. The following steps should be observed when mixing paint:

a.   Prior to mixing paint, read and understand information in the manufacturer's PDS or ASTM F-718.

b.   Mix all paints BEFORE bringing them aboard the submarine.

c.   Paints should be thoroughly mixed (3 to 5 minutes with a mechanical mixer) and free of lumps, cakes and sediments prior to use. Multiple component paints require thorough mixing of each component before they are combined.

d.   Mixing is best accomplished by the use of mechanical shakers or stirrers. Ground all mixing equipment shakers, stirrers, containers and platforms prior to use.

e.   If a mechanical device is not available, a manual method, such as the boxing method, may be used. The boxing method is a manual paint mixing technique that is used in combination with manual stirring as described here:

(1)   Pour the top two-thirds of the paint from the original can (#1) into a clean empty can (#2).

(2)   Stir the pigment and liquid left in can #1 with a paddle until smooth.

(3)   Gradually pour the paint in can #2 into can #1 while stirring.

    (4)   Pour the paint from can #1 into can #2. Reverse this step and repeat until the paint is uniformly smooth.

    (5)   If any particles do not dissolve after stirring and mixing, strain the paint through a wire screen or two layers of cheesecloth.

  f.   The following list of "DO NOTS" should be observed when mixing paints:

    (1)   DO NOT make any assumptions about the correct procedure for mixing paints. Consult the paint manufacturer's PDS or ASTM F-718 sheet.

    (2)   DO NOT mix more paint than can be used during the pot life time period. Read PDS (or ASTM F-718 sheet) for pot life.

    (3)   DO NOT mix components of different paint formulas.

    (4)   DO NOT use paint with large undissolved particles.

    (5)   DO NOT dilute paints with solvents (thinners).

    (6)   DO NOT keep epoxy paints out in the sun in warm weather, including epoxy paint pre-packaged in cartridges.

7.8.3 <u>Mixing and Application Procedures for the Navy Epoxy Paint System</u>. Navy epoxy Formula 150 is a primer coat that can be applied to bare metal or to sound paint. Topcoats of various colors (Formulas 151-156) are used for specific applications. Formula 151 is the gray color most commonly used. The following procedures should be followed in mixing these paints. Read and understand the manufacturer's current PDS or ASTM F-718 sheet.

  a.   The Navy epoxy paints are supplied in kits containing two components. One container is labeled Component A and the other is labeled Component B. These components are mixed in a 1:1 ratio by volume, i.e., for one gallon of component A add an equal amount of component B. Check the designation on both containers before mixing to ensure that the proper components are being used. The components of the various formula numbers are NOT interchangeable.

  b.   Both components in an epoxy paint kit must be stirred separately prior to mixing them together. After combining equal volumes of the two components, the mixture must be thoroughly stirred until well blended, and then allowed to react for the appropriate "induction" stand-in time as stated in the PDS (or ASTM F-718 sheet). Type IV does not require an induction period, but earlier formulations (Types I and III) require induction.

  c.   If an induction period is required, the paint should be stirred or agitated for at least 2 minutes every 30 minutes during the induction period. Two minutes of stirring or agitation are required at 4-hour intervals during the application process.

  d.   When Navy epoxy paints are used at a work site having temperatures in the range 35° to 50°F, it is essential that the paint components be pre-warmed to 70°F, mixed, and then allowed to stand for 2 hours prior to delivery to the work site. The preferred method of pre-warming is to store unmixed paint at 70°F for 24 hours prior to the job.

  e.   After being mixed, epoxy paints must be used within the pot life period, as specified in the PDS (or ASTM F-718 sheet).

f.   During maintenance painting, brush application is recommended for the first coat of paint over mechanically cleaned surfaces such as hand-cleaned bilges. The brushing forces the paint into surface contaminants or displaces them. The MIL-P-24441 paints do not require thinning before application. Apply the topcoat(s) after the first coat has dried.

g.   If more than seven days elapse before over coating, the surface should be cleaned with water and detergent (if required) for grease and oil removal. This should be followed by a fresh water rinse and wiped dry. Then, a tack coat (1 to 2 wet mils) of the last coat applied or Formula 150 is reapplied to the hard epoxy coat and allowed to dry approximately four hours before application of the next full coat of the system.

h.   If more than 30 days elapse before over coating, clean and roughen the aged topcoat before new paint application.

7.8.4 Mixing and Application Procedures for Commercial Epoxy Paint Systems. Read and understand the manufacturer's current PDS or ASTM F-718 sheet. Specific items that vary depending on the coating manufacturer include:

a.   Mix ratio. Mixing the two components in the proper ratio is absolutely vital.

b.   Induction period. Refer to PDS (or ASTM F-718 sheet) for induction times.

c.   Both components in an epoxy paint kit must be stirred separately prior to mixing them together. In short, there are several qualified commercial epoxy coating systems that are authorized for touch-up painting. They vary depending on the manufacturer. Follow instructions in the PDS or ASTM F-718 sheet for the particular coating being used.

7.9 PAINT APPLICATION.

7.9.1 General Considerations.

a.   Inspect cleaned areas of the ship to determine the suitability of the surfaces for applicable touch-up or repainting operations. Surfaces must be free of rust, deteriorated paint, dust, scale, oil, grease, salt deposits or other surface contaminants.

b.   Do not paint over oily, damp or icy surfaces.

c.   Never paint over loose, badly cracked or blistered paint. Old paint in good condition is an excellent base and should be cleaned, roughened and dried before repainting.

d.   Under normal circumstances, the following environmental conditions apply:

(1)   Surface temperature must be at least 5°F higher than the dew point.

(2)   Paint should not be applied at temperatures of 35°F or lower; check the PDS or ASTM D-718 sheet for the low temperature application limit.

(3)   Wind velocity should be below 15 miles per hour (exterior work).

(4)   Relative humidity below 85 percent.

e.   When successive coats of the same paint are used, different colors should be applied to visually facilitate complete coverage.

f.   Apply paint as soon as possible after surface preparation has been completed. Bare metal surfaces will flash rust soon after exposure to the atmosphere.

g.   When painting over a fully cured epoxy paint film, use a "tie coat" to ensure proper adhesion of the overcoat to the existing paint. A tie coat is a thin layer of paint (generally the same type of paint as the preceding coat) that is applied to the surface by brush or roller. The coat should be applied to a DFT of approximately 1 mil (2 mils WFT).

h.   When painting over welds or in hard-to-get-at spaces that could not be cleaned to the proper surface cleanliness, brush on the first coat of paint to obtain the best adhesion. This comment applies to corners behind stiffeners or over weld seams. Hidden areas should be inspected with a pocket mirror to ensure total coverage before applying each succeeding coat and after the final coat.

i.   Do not store paints and solvents inside submarines. Remove paint from the submarine when painting is completed or interrupted.

j.   When replacing anodes, ensure that the area under the anode is adequately painted, but DO NOT PAINT THE ANODES themselves.

7.9.2 Brush Application. In larger areas, start work on overhead areas first, and then work downward. Begin painting at a corner or some other logical vertical division. Cover only that area which can be easily reached without moving ladders. Work downward, painting progressive sections to the deck level, then start at the top of the adjacent area and work down again. Paint trim, doors or similar areas after bulkheads and other major surfaces are completed.

a.   Dip the brush into the paint up to ½ the bristle length. Withdraw the brush and tap it against the inside of the bucket to remove excess paint. Hold the brush at a 45o angle to the surface to be painted. Make several light strokes in the area to be painted. This will transfer much of the paint to the surface. Then spread the paint evenly and uniformly. Do not bear down on the brush.

b.   When using paint dispensing cartridges, apply a small amount to an area and spread evenly with a brush. It is better to start with a small amount and apply additional paint, than to dispense a large amount which may have to be spread into areas that were not prepared for painting.

c.   When one section of the surface is painted, adjacent areas should be painted so that the brush strokes are completed by sweeping the brush into the wet edge of the paint previously applied. This helps eliminate lap marks and provides a more even coating.

d.   Finally, cross-brush lightly to smooth the painted surface and to eliminate brush or sag marks. Very fast drying finishes will not permit much brushing and cross-lapping; in such cases, the paint must be applied, spread rapidly and then allowed to dry undisturbed. Going back over a fast drying finish will cause piling up of the coating.

7.9.3 Roller Application. To apply paint with a roller, pour the premixed paint into the tray to about ½ tray depth. Immerse the roller and then roll it back and forth along the ramp to coat the roller cover completely. (A specially designed galvanized mesh screen positioned vertically in a 5-gallon bucket may be used instead of a paint tray.) The first load of paint should be worked out on a newspaper to remove trapped air from the roller cover. It is then ready to apply to a

surface. Always roll paint onto the surface, working from the dry area into the area just painted. Never roll completely in the same direction. One good technique is to roll the paint onto the surface in a "W" pattern while the roller is very wet. Distribute the paint using horizontal or vertical strokes. Pressure must be applied when rolling or the paint will not adhere and will soon peel off. Do not roll too fast. Avoid spinning the roller at the end of a stroke. Always feather out final strokes to pick up any excess paint on the surface. Feathering is done by rolling out the final stroke with minimal pressure. Paint from cartridge dispensing systems can be poured into trays for roller application.

NOTE: FMA PERSONNEL ARE TRAINED IN THE USE OF WFT GAUGES AND SHOULD BE CONSULTED FOR ASSISTANCE.

7.9.4 <u>Wet Film Thickness Check</u>. The performance of the coating depends on applying the proper thickness. The proper thickness, called DFT, is stated in the PDS or ASTM F-718 sheet. In order to obtain the proper DFT, WFT must be measured and controlled during application. The required WFT for a coating is stated in the PDS or ASTM F-718 sheet. A WFT gauge is used to measure the thickness of a coat of paint that is still wet to the touch. A typical wet film gauge (Figure 3) has several legs, with each of the inner legs (measuring legs) of varying known lengths and somewhat shorter than the two outer legs (support posts). When the gauge edge is pressed into the wet film (Figure 4), the two outer legs penetrate through the wet film to the substrate. Depending on the thickness of the wet film, some of the inner legs will dip into the wet film while others will not touch it. The length of longest inner leg that is wetted by the coating is the WFT (Figure 5). Proper use of the wet film gauge includes the following:

a. Measure WFT during coating application to determine if sufficient paint has been applied. The PDS or ASTM F-718 sheet will provide the required WFT.

b. Use the WFT gauge only on a flat surface. Both end legs must be firmly touching the steel surface.

   (1) On a vertical surface, such as a bulkhead, hold the gauge in a north-south (vertical) position with the longer legs at the top.

   (2) On a pipe, place the gauge along the length. Both legs must touch the surface.

c. Lift the gauge from the surface without sliding. Slipping and sliding will give an inaccurate reading because extra paint will be picked up on the legs.

d. Use only a clean, dry gauge. Clean the gauge after each reading. Dirt or old paint on the bottoms of the legs adds to their length giving lower readings.

Figure 3. Wet Film Thickness Gauge.

Figure 4. WFT Gauge Positioned in Wet Paint Film.

Figure 5. WFT Gauge Showing a Reading of 4-5 Mils.

1. Notice black paint on outer support posts and on measuring legs 1, 2, 3 and 4. No paint on measuring legs 5 and 6.

2. Wet film gauges may be purchased from:

www.elcometer.com (From home page: "Film Thickness Gauge"; then "Wet Film Thickness".) Elcometer 154 Plastic Wet Film Combs may be an inexpensive option.

Also, vendors from various coating companies often offer wet film gauges.

7.9.5 Overcoating. Most paint systems consist of more than one coat of paint. Proper steps for overcoating include the following:

a. Consult the PDS or ASTM F-718 sheet to determine the necessary "wait time" before overcoating.

b. Remember that the time before overcoating is dependent on the temperature. Generally, as the temperature increases, the time before overcoating decreases.

c. Remember - PDS (or ASTM F-718 sheet) guidance for time before overcoating is only an estimate.

d. Always check the applied coating before overcoating. If the applied coating is wet, allow more time.

e. Check the WFT using a WFT gauge (Paragraph 7.9.4 of this chapter).

7.10 QUICK REFERENCE SECTION.

7.10.1 Surface Preparation and Paint Application in Specific Areas. A summary of areas expected to be maintained by Ship's Force is shown in Table 1. Along with each area is a reference for surface preparation and the required coating system. For each area, a summary procedure is provided.

AREA	SURFACE PREP	COATING
Bilge	Paragraph 7.10.2.1	1 ct - F-150, Type IV (MIL-DTL-24441/29A) 1 ct - F-151, Type IV (MIL-DTL-24441/30A)
Sail (interior)	Paragraph 7.10.3.1	1 ct - F-150, Type IV (MIL-DTL-24441/29A) 1 ct - F-151, Type IV (MIL-DTL-24441/30A)
Non-skid (not tiled)	Paragraph 7.10.4.1.1	1 ct - primer (proprietary or F-150, Type IV) 1 ct - MIL-PRF-24667B non-skid
Non-skid (tiled)	Paragraph 7.10.4.2.1	2 cts - F-184 (MIL-DTL-24631/1C) 1 ct - F-187 (MIL-DTL-24631/7)
SHT-Topside, sail and rudder	Paragraphs 7.10.4.3.1 7.10.4.3.2	1 ct - F-187 (MIL-DTL-24631/7)
High temperature piping	Paragraph 7.10.5.1	TT-P-28G (Low VOC heat resisting aluminum)
Underway painting	Paragraph 7.10.6.3	VACTAN or UNITED 303 TRIUMPH
Miscellaneous areas of general corrosion (including high solids coatings)	Paragraph 7.10.7.1	1 ct - F-150, Type IV (MIL-DTL-24441/29A) 1 ct - F-151, Type IV (MIL-DTL-24441/30A)
Interior decks/walking surfaces	Section 7.5	1 ct - F-84 (TT-P-645B) 2 cts - MIL-PRF-24635C
Interior bulkheads/overheads	Section 7.5	1 ct - F-84 (TT-P-645B) 2 cts - F-124 (white), F-125 (pastel green), F-126 (bulkhead gray, F-131 (MIL-DTL-24607) OR 2 cts - F-25A (MIL-PRF-24596A)
Painting behind equipment (interior)	Section 7.5	2 cts - F-84 (TT-P-645B)
Exterior of motors, generators and electronic equipment	Section 7.5	1 ct - F-84 (TT-P-645B) 2 cts - F-111 (MIL-DTL-15090D)

Table 1. Summary of Areas for Touch-Up Painting by Ship's Force.

7.10.2 Bilges.

7.10.2.1 Surface Preparation.

a.   Required Tools:

   (1)   Needle gun.

   (2)   Inspection mirror (for seeing hard-to-reach areas such as the backsides of beams).

   (3)   Brush and dust pan.

   (4)   Shop-Vac type vacuum cleaner.

b.   Process:

   (1)   Read and understand Section 7.3 of this chapter, "General Safety Precautions".

   (2)   Read and understand Section 7.5 of this chapter, "General Surface Preparation".

(3) Solvent clean to remove oil, grease, dirt, chemicals and water-soluble contaminants. If solvents are prohibited, use detergent and fresh water. When implementing these procedures, work sections no larger than 6 feet by 6 feet (36 square feet) should be cleaned at a time. Longitudinal and transverse structural members can be used as boundaries to define the work section. Each section should be fully cleaned and primed before starting work on the next section.

(4) Use a needle gun to remove loose paint and rust. A needle gun is most effectively used by holding it perpendicular to the surface, making 2-3 passes about 6-8 inches in length over the same path, then moving over and repeating the process until the entire area is completed. The goal is removal of all rust, loose mill scale and paint to bare metal.

(5) Feather the edges (Paragraph 7.9.3 of this chapter).

(6) Brush and vacuum loose pieces and dust.

(7) Check the surface for oil that may have been deposited during surface preparation. If necessary, solvent clean to remove oil. The presence of excess salts on the surface will cause premature coating failure. Therefore, surface conductivity measurements should be made at this point. Contact the FMA or other knowledgable personnel if help is needed. If excessive surface conductivity is measured, wash the area with fresh water and repeat Step (7).

(8) Apply paint as soon as possible (ideally, the same day) after surface preparation has been completed. Bare metal surfaces will flash rust soon after exposure to the atmosphere. If flash rusting occurs prior to coating application, repeat Steps (3)-(8).

7.10.2.2 <u>Paint Application</u>. Prior to any interior painting, Positive Pressure Unit must be activated. This will prevent solvent from damaging Motor Generators.

    a. Required Tools:

(1) Rollers.

(2) Brushes.

(3) Rags.

(4) Manufacturer's PDS or ASTM F-718 sheet for the following paints:

    (a) Formula 150, Type IV (MIL-DTL-24441, Formula 150, Type IV, green primer).

    (b) Formula 151, Type IV (MIL-DTL-24441, Formula 151, Type IV, haze gray).

(5) Manufacturer's MSDS for the following paints:

    (a) Formula 150, Type IV, Component A (MIL-DTL-24441, Formula 150, Type IV, green primer, component A).

    (b) Formula 150, Type IV, Component B (MIL-DTL-24441, Formula 150,

Type IV, green primer, component B).

(c) Formula 151, Type IV, Component A (MIL-DTL-24441, Formula 151, Type IV, haze gray, component A).

(d) Formula 151, Type IV, Component B (MIL-DTL-24441, Formula 151, Type IV, haze gray, component B).

b. Process:

(1) Read and understand Section 7.6 of this chapter, "General Mixing and Paint application".

(2) Read and understand the PDS (or ASTM F-718 sheet) and MSDS for the two paint systems to be used.

(a) F-150, Type IV, green primer and F-151.

(b) Type IV, haze gray top coat.

(3) Ensure proper ventilation is in place. Maintain ventilation through the curing of the applied coatings.

(4) Check environmental conditions. Ask for help from the FMA personnel.

(5) Surface temperature must be at least 5°F higher than the dew point.

(6) Paint must not be applied at temperatures of 35°F or lower.

(7) Relative humidity must be below 85 percent.

(8) Mix F-150, Type IV, green primer according to manufacturer's instructions. Mix ratio is 1:1 by volume. (Paragraph 7.8.3 of this chapter, Mixing and Application Procedures for the Navy Epoxy Paint System (MIL-DTL-24441)).

7.10.2.3 <u>Summary</u>. Table 2 summarizes mixing, application and re-coat parameters.

Paint	Induction Period (hours)	Mix Ratio (volume)	Pot Life (hours)	Time Before Overcoating (hours)	Time to Handle (hours)	Wet Film Thickness (mils)	Dry Film Thickness (mils)
F-150, green primer	N/A	1 : 1	6 @ 70°F	Minimim of 3 @ 40°F 3 @ 70°F @ 50% RH	Minimum of 24 @ 40°F 5 @ 70°F @ 50% RH	6-7	4-5
F-151, gray topcoat	N/A	1 : 1	6 @ 70°F	Minimim of 3 @ 40° F 3 @ 70° F @ 50% RH	Minimum of 24 @ 40°F 5 @ 70°F @ 50% RH	6-7	4-5

Table 2. Mixing, Application and Re-Coat Parameters for Bilges.

a. Apply by brush. Be certain to force coating into corners, behind beams and areas that are difficult to reach. Pay particular attention to newly installed components such as pipe hangers and clamps. (Paragraph 7.9.2 of this chapter, "Brush Application")

b. Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter).

c. Wait until the first coat is dry, a minimum of 3 hours, before overcoating. If, after 3

hours, coating is not dry, check hourly by pressing thumbnail into surface. Coating is dry when thumbnail does not penetrate.

d. When first coat is dry, apply a "stripe" coat on welds, corners and edges. The "stripe" coat should be a different color than either the first coat (green) or the topcoat (gray) to facilitate coverage. F-153, Type IV, a black coating, is a good choice. If a different color is not available, use F-151, Type IV, gray as the "stripe" coat.

e. When the "stripe" coat is adequately dry, mix F-151, Type IV, gray topcoat according to manufacturer's instructions. Mix ratio is 1:1 by volume. (Paragraph 7.8.3 of this chapter, Mixing and Application Procedures for the Navy Epoxy Paint System (MIL-DTL-24441.)

f. Apply by brush or roller if a roller can reach all areas that need paint. (Paragraph 7.9.2 of this chapter, "Brush Application"; Paragraph 7.9.3 of this chapter "Roller Application".) If F-151 was used as the "stripe" coat, pay particular attention to completely cover the "stripe" coat since there is no color difference to provide visual contrast.

g. Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter).

h. Freshly painted areas should be roped off to prevent contamination during the curing process. Allow coating to cure per the curing schedule given in the PDS (or ASTM F-718 sheet).

i. Ventilation should be in place during the curing process as it will facilitate curing and prevent build-up of hazardous vapors.

7.10.3 Sail (Interior).

7.10.3.1 Surface Preparation.

a. Required Tools:

(1) Needle gun.

(2) Long-handled paint scraper.

(3) Coarse sand paper.

(4) Inspection mirror (for seeing hard-to-reach areas such as the backsides of beams).

(5) Brush and dust pan.

(6) Shop-Vac type vacuum cleaner.

b. Process:

(1) Read and understand Section 7.5 of this chapter, "General Surface Preparation".

(2) Solvent clean to remove oil, grease, dirt, chemicals and water-soluble contaminants. If solvents are prohibited, use detergent and fresh water.

(3) Use the long-handled scraper to remove any areas of exfoliated metal. Because many areas in the sail are difficult to preserve, advanced corosion,

including exfoliation may occur. In the periscope bay, the bulkhead just forward of the bearing frame is a typical area. Exfoliation is the "delamination" of metal into layers. All exfoliated layers must be removed by scraping them off.

(4) Starting at the top of a bay and working to the bottom, use a needle gun to remove loose rust and paint. A needle gun is most effectively used by holding it 90o to the surface, making 2-3 passes about 6-8 inches in length over the same path, then moving over and repeating the process until the entire area is completed. The goal is removal of all rust, loose mill scale and paint to bare metal. In areas not accessible by needle gun, use scrapers followed by coarse sand paper. Feather the edges.

(5) When needle gunning and sanding are complete, brush and vacuum loose pieces and dust from the area. Be sure to get "shelves" and "throughs" and other "collection points".

(6) Check the surface for oil that may have been deposited during surface preparation. If necessary, solvent clean to remove oil.

(7) The presence of excess salts on the surface will cause premature coating failure. Therefore, surface conductivity measurements should be made at this point (Paragraph 7.5.8 of this chapter) if the area is exposed to seawater. Contact the FMA or other knowledgable personnel if help is needed. If excessive surface conductivity is measured, wash the area with fresh water and repeat the step.

(8) Apply paint as soon as possible (ideally, the same day) after surface preparation has been completed. Bare metal surfaces will flash rust soon after exposure to the atmosphere. If flash rusting occurs prior to coating application, repeat Steps (4)-(8).

7.10.3.2 Paint Application.

a. Required Tools:

(1) Rollers.

(2) Brushes.

(3) Rags.

(4) WFT gauge.

(5) Manufacturer's PDS or ASTM F-718 sheet for the following paints:

(a) Formula 150, Type IV (MIL-DTL-24441, Formula 150, Type IV, green primer).

(b) Formula 151, Type IV (MIL-DTL-24441, Formula 151, Type IV, haze gray).

(6) Manufacturer's MSDS for the following paints:

(a) Formula 150, Type IV, Component A (MIL-DTL-24441, Formula 150,

Type IV, green primer, component A).

(b)   Formula 150, Type IV, Component B (MIL-DTL-24441, Formula 150, Type IV, green primer, component B).

(c)   Formula 151, Type IV, Component A (MIL-DTL-24441, Formula 151, Type IV, haze gray, component A).

(d)   Formula 151, Type IV, Component B (MIL-DTL-24441, Formula 151, Type IV, haze gray, component B).

b.   Process:

(1)   Read and understand Section 7.6 of this chapter, "General Mixing and Paint Application".

(2)   Read and understand the PDS (or ASTM F-718 sheet) and MSDS for the two paint systems to be used.

(a)   F-150, Type IV, green primer.

(b)   F-151, Type IV, haze gray top coat.

(3)   Check environmental conditions. Ask for help from the FMA personnel.

(a)   Surface temperature must be at least 5°F higher than the dew point.

(b)   Paint must not be applied at temperatures of 35°F or lower.

(c)   Relative humidity must be below 85 percent.

(4)   Mix F-150, Type IV, green primer according to manufacturer's instructions. Mix ratio is 1:1 by volume. (Paragraph 7.8.4 of this chapter, Mixing and Application Procedures for the Navy Epoxy Paint System (MIL-DTL-24441)).

c.   Summary.

(1)   Table 3 summarizes mixing, application and overcoat parameters.

Paint	Induction Period (hours)	Mix Ratio (volume)	Pot Life (hours)	Time Before Overcoating (hours)	Time to Handle (hours)	Wet Film Thickness (mils)	Dry Film Thickness (mils)
F-150, green primer	N/A	1 : 1	6 @ 70ºF	Minimim of 3 @ 40ºF 3 @ 70ºF @ 50% RH	Minimum of 24 @ 40ºF 5 @ 70ºF @ 50% RH	6-7	4-5
F-151, gray topcoat	N/A	1 : 1	6 @ 70ºF	Minimim of 3 @ 40ºF 3 @ 70ºF @ 50% RH	Minimum of 24 @ 40ºF 5 @ 70ºF @ 50% RH	6-7	4-5

Table 3. Mixing, Application and Overcoat Parameters for Sail (Interior).

(2)   Apply by brush. Be certain to force coating into corners, behind beams and areas that are difficult to reach. (Paragraph 7.9.2 of this chapter, "Brush Application".)

(3)   Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter). Wait

until the first coat is dry, a minimum of 3 hours, before overcoating. If, after 3 hours, coating is not dry, check hourly until coating is dry. REMEMBER - PDS (or ASTM F-718 sheet) and Table 3 guidance for overcoating interval is an estimate. You must be able to walk on the first coat without damaging it.

(4)   When first coat is dry, apply a "stripe" coat on welds, corners and edges. The "stripe" coat should be a different color than either the first coat (green) or the topcoat (gray) to facilitate coverage. F-153, Type IV, a black coating, is a good choice. If a different color is not available, use F-151, Type IV, gray as the "stripe" coat.

(5)   When the "stripe" coat is adequately dry, mix F-151, Type IV, gray topcoat according to manufacturer's instructions. Mix ratio is 1:1 by volume. (Paragraph 7.8.3 of this chapter, Mixing and Application Procedures for the Navy Epoxy Paint System (MIL-DTL-24441)).

(6)   Apply by brush or roller (if a roller can reach all areas that need paint). (Paragraph 7.9.2 of this chapter, "Brush Application"; Section 7.9.3 of this chapter "Roller Application".) If F-151 was used as the "stripe" coat, pay particular attention to completely cover the "stripe" coat since there is no color difference to provide visual contrast.

(7)   Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter). Freshly painted areas should be roped off to prevent contamination during the curing process.

(8)   Allow coating to cure per the curing schedule given in the PDS (or ASTM F-718 sheet). Ventilation should be in place during the curing process as it will facilitate curing and prevent build-up of hazardous vapors.

7.10.4 Non-Skid Areas.

7.10.4.1 Areas That Are Not Tiled With Special Hull Treatment. Non-skid paints are not to be applied to hatch covers, submarine rescue seating surfaces, safety tracks, life line sockets, deck fittings and gear, faying surfaces of hatches, contact or bearing surfaces, and approximately 1 inch around the periphery of hatches, cleats and access covers.

7.10.4.1.1 Surface Preparation.

a.   Required Tools:

(1)   Dull putty knife.

(2)   Needle gun.

(3)   Brush and dust pan.

(4)   Shop-Vac type vacuum cleaner.

b.   Process:

(1)   Read and understand Section 7.5 of this chapter, "General Surface Preparation".

(2)   When a coating failure is detected, the area must be probed with a dull putty

knife or similar instrument, to determine the extent of failure. Once the failure area is identified, the area to be repaired must extend slightly (at least 3 inches) outside the perimeter of the failing area to ensure the problem is corrected.

(3) Clean the surface by removing foreign matter such as oil, grease, dirt and other contaminants. Solvent cleaning is recommended. If solvent cleaning is not permitted, use a commercial cleaner, such as Simple Green or Spray 9. Use only clean, white, lint-free rags and change rags often.

(4) Use a needle gun to remove all loose paint and rust from the failed area. A needle gun is most effectively used by holding it 90o to the surface, making 2-3 passes about 6-8 inches in length over the same path, then moving over and repeating the process until the entire area is completed. The goal is removal of all rust, loose mill scale and paint to bare metal.

(5) Feather the edges.

(6) When needle gunning and sanding are complete, brush and vacuum loose pieces and dust from the area. Again, clean the surface. Solvent cleaning is recommended. If solvent cleaning is not permitted, use a commercial cleaner, such as Simple Green or Spray 9. Use only clean, white, lint-free rags and change rags often.

(7) The presence of excess salts on the surface can cause premature coating failure. Therefore, surface conductivity measurements should be made at this point. Contact the FMA personnel if help is needed.

(8) Apply paint as soon as possible (ideally, the same day) after surface preparation has been completed.

7.10.4.1.2 Paint Application.

a. Required Tools:

(1) Rollers.

(2) Brushes.

(3) Rags.

(4) WFT gauge.

(5) Manufacturer's PDS or ASTM F-718 sheet for the MIL-C-24667 non-skid paint system.

(6) Manufacturer's MSDS for the MIL-C-24667 non-skid paint system.

b. Process:

NOTE: THE USE OF F-150 (MIL-DTL-24441) PRIMER IS PROHIBITED UNLESS A NON-SKID SYSTEM HAS BEEN QUALIFIED WITH A SPECIFIC MANUFACTURER'S F-150 AS A PRIMER.

(1) Read and understand the PDS (or ASTM F-718 sheet) and MSDS for the non-skid paint systems. Most non-skid systems require a primer system. If a primer is required, check with the manufacturer to determine if MIL-DTL-

24441, Formula 150, Type IV, green primer is authorized. The qualified products list of the specification being used must be consulted to determine if a particular Formula 150 can be used as a primer. FMA personnel can provide this information.

(2)   Check environmental conditions. Ask for help from the FMA personnel.

(a)   Surface temperature must be at least 5°F higher than the dew point.

(b)   Paint must not be applied at temperatures of 50°F or lower.

(c)   Relative humidity must be below 85 percent.

(3)   Mix the primer according to manufacturer's instructions. Be sure to check for an induction period. If an induction period is required, mix for one minute after induction. If F-150 is authorized and is being used as a primer, see Paragraph 7.8.3 of this chapter (Mixing and Application Procedures for the Navy Epoxy Paint System (MIL-DTL-24441)).

(4)   Apply primer by brush or roller. (Paragraphs 7.9.2, "Brush Application" and 7.9.3 "Roller Application" of this chapter.)

(5)   Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter).

(6)   Wait until the primer coat is dry before mixing the MIL-C-24667 non-skid coating system. Thoroughly mix the base material of the non-skid using the type of mixer specified in the manufacturer's ASTM F-718 sheets. Make sure that all materials which may have settled during storage (pigments, fillers, aggregate) are lifted from the bottom of the container and are uniformly mixed. Slowly pour the contents of the can of converter (also called hardener, accelerator or curing agent) into the base material. Scrape the bottom of the base material can. Mix converter and base material for 3 to 5 minutes or until uniform color and appearance. Scrape the bottom of the can and mix again for 3 to 5 minutes. If an induction period is required, stir again for one minute after the induction period. Thinning non-skid is strictly prohibited.

(7)   Apply by roller or trowel. If a a roller is used, roll across (not along) welds. Cross-rolling must extend 3 to 6 inches on each side of the weld. If troweling, consult the manufacturer's PDS (or ASTM F-718 sheet) for recommended trowel size.

(8)   Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter).

(9)   Freshly painted areas should be roped off to prevent contamination during the curing process.

(10)   Allow coating to cure per the curing schedule given in the PDS (or ASTM F-718 sheet).

(11)   Ventilation should be in place during the curing process as it will facilitate curing and prevent build-up of hazardous vapors.

7.10.4.2 Special Hull Treatment Tiled Areas (Non-Skid). Non-skid paints are not to be applied to hatch covers, submarine rescue seating surfaces, safety tracks, life line sockets, deck fittings

and gear, faying surfaces of hatches, contact or bearing surfaces and approximately one inch around the periphery of hatches, cleats and access covers.

7.10.4.2.1 Surface Preparation.

    a.   Required Tools:

        (1)   80-100 grit aluminum oxide paper.

        (2)   Shop-Vac type vacuum cleaner.

        (3)   Manufacturer's MSDS for PF-145 HP solvent.

    b.   Process:

        (1)   Read and understand Section 7.3 of this chapter, "General Safety Precautions".

        (2)   Read and understand Section 7.5 of this chapter, "General Surface Preparation".

        (3)   Clean the surface of any grease, oil, salt or other residue with a detergent solution and rinse with fresh water.

CAUTION: THE COVERPLY OF THE TILES CONTAINS APPROXIMATELY 10% BY WEIGHT LEAD OXIDE, AN ADDITIVE USED TO CONTROL THE RATE OF WATER ABSORPTION BY THE TILES. WHENEVER SANDING OR GRINDING TILE SURFACES, BE CERTAIN TO WEAR PROPER PPE.

        (4)   Hand sand the surface using 80-100 grit aluminum oxide paper to roughen the surface of the tiles for better adhesion. Be sure to remove all old paint in the touch-up area.

        (5)   Vacuum up dust.

        (6)   Clean surface of remaining dust by wiping with PF-145 HP solvent poured directly onto a clean rag. Do not dip the rag into the solvent. Change rags frequently.

        (7)   Apply paint as soon as possible (ideally, the same day) after surface preparation has been completed.

7.10.4.2.2 Paint Application.

    a.   Required Tools:

        (1)   Short nap rollers.

        (2)   Brushes.

        (3)   Rags.

        (4)   Manufacturer's PDS or ASTM F-718 sheet for MIL-A-22262 abrasive grit material.

        (5)   Manufacturer's PDS or ASTM F-718 sheet for the following paints:

            (a)   Formula 184 (black flexible epoxy).

(b)   Formula 187 (black polyurethane camouflage).

(6)   Manufacturer's MSDS for the following paints:

(a)   Formula 184, Component A (black camouflage epoxy).

(b)   Formula 184, Component B (black camouflage epoxy).

(c)   Formula 187, Component A (black polyurethane camouflage).

(d)   Formula 187, Component B (black polyurethane camouflage).

b.   Process:

(1)   Read and understand Section 7.8 of this chapter, "General Mixing and Paint application".

(2)   Read and understand the PDS (or ASTM F-718 sheet) and MSDS for the Formula 184 and Formula 187 paint systems.

(3)   Check environmental conditions. Ask for help from the FMA personnel.

(a)   Surface temperature must be at least 5°F higher than the dew point.

(b)   Paint must not be applied at temperatures of 50°F or lower.

(c)   Relative humidity must be below 75 percent.

CAUTION: MIXING SHOULD BE PERFORMED AT A TEMPERATURE OF 50⁰ F OR ABOVE.

(4)   Thoroughly mix the A and B components of Formula 184 (black epoxy) in their individual containers by hand stirring. Mix the A and B components together in a 1:1 ratio by volume.

c.   Summary.

(1)   Table 4 summarizes mixing, application and overcoat parameters.

Paint	Induction Period (minutes)	Mix Ratio (volume)	Pot Life (hours)	Time Before Overcoating (hours)	Time to Handle (hours)	Wet Film Thickness (mils)	Dry Film Thickness (mils)
F-184, black epoxy camouflage	30 @ 70-90°F 45 @ 55-70°F	1 : 1 (Mix at 50 °F or above)	2 (maximum)	6 hours (minimum) - 6 months	24 (maximum)	8 - 9	4 -5
F-187, black polyurethane camouflage	None	4 : 1 (Mix at 50o or above)	1 (minimum)	18 hours - 7 days	18 (maximum)	4-5	3

Table 4. Mixing, Application and Overcoat Parameters for Non-Skid Areas.

(2)   Apply the F-184 paint in a smooth uniform layer using a paint brush or roller. (Paragraphs 7.9.2, "Brush Application" and 7.9.3 "Roller Application" of this chapter.) Due to difficulty in removing old paint from depressed tile seam areas, "stripe" these areas with a wide brush prior to roller application.

(3)   Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter). WFT

should be 8-9 mils.

(4)   While the epoxy paint is still wet, sprinkle the abrasive grit material onto the freshly painted film to achieve a uniform roughness over the entire area.

(5)   When the first coat is dry, apply a second coat of Formula 184 black epoxy paint.

(6)   When the second coat of Formula 184 black epoxy is dried, a sealer coat of Formula 187 polyurethane paint must be applied.

(7)   Mix the A and B components of the Formula 187 black polyurethane paint together in a 4:1 ratio by volume. Mix entire gallon of A with entire quart of B. The mixture should be thoroughly blended for two minutes after which it can be used immediately. (There is no induction time for the polyurethane paint.)

(8)   Due to difficulty in removing old paint from depressed tile seam areas, "stripe" these areas with a wide brush prior to roller application.

(9)   Apply the F-187 paint in a smooth uniform layer using a paint brush or roller. (Paragraphs 7.9.2, "Brush Application" and 7.9.3 "Roller Application" of this chapter.)

(10)   Allow 24 hours for paint to cure before permitting foot traffic. Freshly painted areas should be roped off to prevent contamination of the coating.

(11)   Paint should cure for a minimum of 5 days prior to submerging.

7.10.4.3 Special Hull Treatement Tiles - Topside, Sail and Rudder. Due to poor performance of epoxy camouflage paint (Formula 184, old DTRC 2844-1118 formula) when exposed to sunlight, Formula 187, a non-fading polyurethane camouflage paint is used in areas exposed to sunlight, i.e., topside, sail and rudder. This paint is expected to retain its black color for at least two years. It is therefore NOT recommended to recoat the urethane camouflage for at least two years after application. Within the first two years, only cleaning is recommended. References (g), (h) and (i) clearly identify the potential lead hazard associated with Special Hull Treatment (SHT) work and outlines procedures necessary to mitigate this hazard when preparing exterior submarine surfaces for repainting.

7.10.4.3.1 Cleaning of Formula 187 Urethane Camouflage Coating.

a.   Required Tools: "Greenie pads".

b.   Process:

(1)   Apply fresh water from firehose or other source to dirty SHT surfaces.

(2)   Lightly scour the surface with a damp "Greenie Pad" or other similar material to loosen dirt and debris.

(3)   Hose down surface with fresh water to restore original black color.

NOTE: AFTER TWO YEARS OF SERVICE OR SIGNIFICANT MECHANICAL DAMAGE, FORMULA 187 MAY BE TOUCHED UP.

7.10.4.3.2 Surface Preparation.

a. Required Tools:

    (1)   80-100 grit aluminum oxide paper.

    (2)   Shop-Vac type vacuum cleaner.

    (3)   Manufacturer's MSDS for PF-145 HP solvent.

b. Process:

    (1)   Read and understand Section 7.3 of this chapter, "General Safety Precautions".

    (2)   Read and understand Section 7.5 of this chapter, "General Surface Preparation".

    (3)   Clean the surface of any grease, oil, salt or other residue with a detergent solution and rinse with fresh water.

    (4)   Per reference (c), Ship's Force should only remove paint when required to accomplish preservation of corroded surfaces or when bare metal is necessary for an inspection or welding. SHT tiles on 688 Class submarines contain 10 percent lead by weight. The generation of airborne SHT dust may have an adverse effect on worker health and contaminate the surrounding environment. In the case where removal of SHT coverply paint is authorized, special work controls must be followed to ensure appropriate worker protection and prevent environmental contamination.

    (5)   Hand sand the surface using 80-100 grit aluminum oxide paper to roughen the surface for adhesion. Polyurethane will not adhere to itself unless the previous coat has been sanded.

    (6)   Vacuum up dust.

    (7)   Clean surface of remaining dust by wiping with PF-145 HP solvent poured directly onto a clean rag. Do not dip the rag into the solvent. Change rags frequently.

    (8)   Apply paint as soon as possible (ideally, the same day) after surface preparation has been completed.

7.10.4.3.3 <u>Paint Application</u>.

a. Required Tools:

    (1)   Short nap rollers.

    (2)   Brushes.

    (3)   Rags.

    (4)   Manufacturer's PDS or ASTM F-718 sheet for Formula 187, (black polyurethane camouflage).

    (5)   Manufacturer's MSDS for the following paints:

        (a)   Formula 187, Component A (black polyurethane camouflage).

        (b)   Formula 187, Component B (black polyurethane camouflage).

b.   Process:

(1)   Read and understand Section 7.6 of this chapter, "General Mixing and Paint Application".

(2)   Read and understand the PDS (or ASTM F-718 sheet) and MSDS for the F-187 paint system.

(3)   Check environmental conditions. Ask for help from the FMA personnel.

(a)   Surface temperature must be at least 5°F higher than the dew point.

(b)   Paint must not be applied at temperatures of 50°F or lower.

(c)   Relative humidity must be below 75 percent.

c.   Summary.

(1)   Table 5 summarizes mixing, application and overcoat parameters.

Paint	Induction Period (hours)	Mix Ratio (volume)	Pot Life (hours)	Time Before Overcoating (hours)	Time to Handle (hours)	Wet Film Thickness (mils)	Dry Film Thickness (mils)
F-187, black polyurethane camouflage	None	4 : 1 (Mix at 50°F or above)	At least 1	18 hours - 7 days	At least 2	4-5	3

Table 5. Mixing, Application and Overcoat Parameters for Special Hull Treatment Tiles.

CAUTION: MIXING SHOULD BE PERFORMED AT A TEMPERATURE OF 50°F OR ABOVE.

(2)   Thoroughly mix the A and B components in their individual containers by hand stirring. Mix the A and B components together in a 4:1 ratio by volume. Mix entire gallon of A with entire quart of B. The mixture should be thoroughly blended for two minutes after which it can be used immediately. (There is no induction time for the polyurethane paint.)

(3)   Due to difficulty in removing old paint from depressed tile seam areas, "stripe" these areas with a wide brush prior to roller application.

(4)   Apply the F-187 paint in a smooth uniform layer using a paint brush or roller. (Paragraphs 7.9.2, "Brush Application" and 7.9.3 "Roller Application" of this chapter.)

(5)   Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter). WFT should be 4-5 mils.

(6)   Allow 24 hours for paint to cure before permitting foot traffic. Freshly painted areas should be roped off to prevent contamination of the coating. Paint should cure for a minimum of 5 days prior to submerging.

7.10.5 High Temperature Piping (and Components Near the 12k Evaporator).

a.   To minimize corrosion of carbon steel piping and other components in the vicinity of the 12k evaporator it is important to reduce the accumulation of salt on the surfaces

and ensure the heat-resistant paint is applied at the recommended film thickness.

b.   When paint repairs are conducted on high temperature piping or other components in the vicinity of the 12k evaporator, the evaporator MUST NOT BE OPERATING (cool).

7.10.5.1 Surface Preparation.

a.   Required Tools:

(1)   180 grit sand paper.

(2)   Shop-Vac type vacuum cleaner.

(3)   Manufacturer's MSDS for mineral spirits, TT-T-291.

b.   Process:

(1)   Read and understand Section 7.5 of this chapter, "General Surface Preparation".

(2)   Wash the area to be painted with deionized water. This step removes excess salt.

(3)   Clean with an approved solvent (mineral spirits, TT-T-291, NSN 8010-00-558-7026) to remove oil and grease.

(4)   Remove any loosely adherent paint and rust with a wire brush.

(5)   Lightly abrade with 180-grit sandpaper. Take care to minimize the amount of steel removed. Ensure any residual dust from sanding is removed.

(6)   Wash the area again with deionized water.

(7)   Dry the area and check surface for surface salt concentration. FMA personnel are trained in the measurement of surface salt contamination. If required, consult FMA personnel for help. If the salt concentration limit is exceeded, wash the area again with fresh water. Pay particular attention to crevices, pits and welds. Dry affected area and measure soluble salt level again to verify that salt concentration is below the maximum level. Repeat this step until soluble salt levels are acceptable.

(8)   Apply paint immediately after the surface has been prepared to prevent re-contamination.

7.10.5.2 Paint Application.

NOTE: PRIOR TO ANY INTERIOR PAINTING, POSITIVE PRESSURE UNIT MUST BE ACTIVATED. THIS WILL PREVENT SOLVENT FROM DAMAGING MOTOR GENERATORS.

a.   Required Tools:

(1)   Rollers.

(2)   Brushes.

(3)   Rags.

(4)   WFT gauge.

(5)   Manufacturer's PDS or ASTM F-718 sheet for TT-P-28G (Low VOC heat resisting aluminum).

(6)   Manufacturer's MSDS for TT-P-28G (Low VOC heat resisting aluminum).

CAUTION: HEAT RESISTANT PAINT IS EXTREMELY FLAMMABLE AND SHOULD NOT BE APPLIED AT TEMPERATURES ABOVE 85°F.

b.   Process:

(1)   Read and understand Section 7.3 of this chapter, "General Safety Precautions".

(2)   Read and understand Section 7.6 of this chapter, "General Mixing and Paint application".

(3)   Read and understand the PDS (or ASTM F-718 sheet) and MSDS for the TT-P-28G paint systems.

(4)   Check environmental conditions. Ask for help from the FMA personnel.

(a)   Surface temperature must be at least 5°F higher than the dew point.

(b)   Paint must not be applied at temperatures of 50°F or lower.

(c)   Relative humidity must be below 85 percent.

c.   Summary.

(1)   Table 6 summarizes mixing, application and overcoat parameters.

Paint	Induction Period (hours)	Mix Ratio (volume)	Pot Life (hours)	Time Before Overcoating (hours)	Time to Handle (hours)	Wet Film Thickness (mils)	Dry Film Thickness (mils)
TT-P-28G	N/A	N/A	N/A	1 @ 400°F	7 minutes @ 400°F	2	0.7-1.0

Table 6. Mixing, Application and Overcoat Parameters for High Temperature Piping.

(2)   Apply two thin coats of TT-P-28G at a WFT of 2.0 mils per coat. During application (brushing), use a WFT gauge to ensure the film thickness is not exceeded. If the paint is too thick, it will delaminate (pop off) when the system comes up to temperature.

(3)   Freshly painted areas should be roped off to prevent contamination during the curing process. This paint does not fully cure until it is heated. Plan painting when all other work in the area is complete to minimize damage to the coating.

7.10.6 Underway Painting - Rust Converters.

7.10.6.1 Maintenance During Operational Cycle. Preservation maintenance performed during the operational cycle should only be performed to arrest and prevent corrosion problems. The two rust converters listed here are approved for use on non-nuclear surfaces with NAVSEA-approved epoxy (MIL-DTL-24441 and MIL-DTL-23236) and enamel (Formula 111) paints.

Rust Converter Paint	Vendor
VACTAN	RAYCO Services, Inc. 2512 Broad Bay Road Virginia Beach, VA 23451 (757) 481-0373
UNITED 303 TRIUMPH	United Laboratories 320 37th Avenue St. Charles, IL 60174 (800) 323-2594

7.10.6.2 Restricted Use. These rust converters are approved under the Submarine Atmosphere Control Program in the LIMITED usage category and may be used with the following restrictions:

a. Rust converters authorized for use on reactor compartment components which are governed by the Reactor Propulsion Plant Schedules are provided by separate correspondence.

b. Rust converters are approved for use on all classes of submarines.

c. Rust converters may be applied to fasteners that are permitted to be painted.

d. Rust converters are water-based products and should not be used on wetted surfaces or on surfaces of continuous immersion.

e. Rust converters are used for touch-up not to exceed 10 square feet of surface area per day.

f. Rust converters are to be applied by brush.

g. VACTAN should not be applied to surfaces that experience a service temperature greater than 149°F.

h. TRIUMPH can be used for temperatures up to 200°F.

i. The minimum temperature during application of TRIUMPH is 38°F; of VACTAN is 50°F.

j. The maximum quantity to be stored on board while underway is 2 gallons.

7.10.6.3 Surface Preparation.

a. Required Tools:

(1) Needle gun.

(2) Inspection mirror (for seeing hard-to-reach areas such as the backsides of beams).

b. Process:

(1) Read and understand Section 7.3 of this chapter, "General Safety Precautions".

(2) Read and understand Section 7.5 of this chapter, "General Surface Preparation".

(3) Remove loose rust, scale and other contaminants using power and hand tool cleaning methods.

    (4)   Detergent wash the area to remove all oil and grease followed by a fresh water wash and rinse to remove any residual detergent and soluble salts.

    (5)   Allow surface to dry prior to applying rust converter.

7.10.6.4 <u>Paint Application</u>.

    a.   Required Tools:

        (1)   Brushes.

        (2)   Rags.

        (3)   Manufacturer's PDS or ASTM F-718 sheet for VACTAN or TRIUMPH.

        (4)   Manufacturer's MSDS for VACTAN or TRIUMPH.

    b.   Process:

        (1)   Water-based rust converters must be applied on a dry surface by brush only while underway in a closed ship environment.

        (2)   Two coats of the rust converter should be applied according to manufacturer's directions.

        (3)   Freshly painted areas should be roped off to prevent contamination during the curing process.

7.10.6.5 <u>Overcoating Upon Return To Port</u>. Upon return to port, intact properly adhering rust converters must be overcoated with two coats of paint (either epoxy (MIL-DTL-24441, Type IV) or enamel (Formula 111), depending on the area. The following procedure must be followed:

    a.   Read and understand Section 7.5 of this chapter, "General Surface Preparation".

    b.   Use detergents to remove as much oil and grease as possible followed by a fresh water wash and rinse to remove any residual detergent and soluble salts.

    c.   Allow surface to dry.

    d.   Sand surface to be overcoated using 80 grit paper to provide adequate surface profile for paint adhesion.

    e.   Wipe surface and vacuum after sanding to remove any loose paint, dirt or dust.

    f.   Read and understand Section 7.3 of this chapter, "General Safety Precautions".

    g.   Read and understand Section 7.6 of this chapter, "General Mixing and Paint application".

    h.   Read and understand the PDS (or ASTM F-718 sheet) and MSDS for either epoxy (MIL-DTL-24441, Type IV) or enamel (Formula 111) paint systems.

    i.   Apply two coats of paint (either epoxy (MIL-DTL-24441, Type IV) or enamel (Formula 111), depending on the surface being painted. The final coat should be the same color as the surrounding area to maintain color uniformity. The combination of rust converter and specified overcoat paint system is considered permanent.

7.10.7 <u>Touch-Up of Miscellaneous Areas of General Corrosion Including New High Solids Coatings</u>.

7.10.7.1 <u>Surface Preparation</u>.

a. Required Tools:

   (1) Needle gun.

   (2) Inspection mirror (for seeing hard-to-reach areas such as the backsides of beams).

   (3) Brush and dust pan.

   (4) Shop-Vac type vacuum cleaner.

b. Process:

   (1) Read and understand Section 7.5 of this chapter, "General Surface Preparation".

   (2) Solvent clean to remove oil, grease, dirt, chemicals and water-soluble contaminants. If solvents are prohibited, use detergent and fresh water.

   (3) Use a needle gun to remove loose paint and rust. A needle gun is most effectively used by holding it 90° to the surface, making 2-3 passes about 6-8 inches in length over the same path, then moving over and repeating the process until the entire area is completed. The goal is removal of all rust, loose mill scale and paint to bare metal.

   (4) Feather the edges.

   (5) When needle gunning and sanding are complete, brush and vacuum loose pieces and dust.

   (6) Check the surface for oil that may have been deposited during surface preparation. If necessary, solvent clean to remove oil.

   (7) The presence of excess salts on the surface will cause premature coating failure. Therefore surface conductivity measurements should be made at this point. Contact the FMA or other knowledgable personnel if help is needed. If excessive surface conductivity is measured, wash the area with fresh water and repeat Step (7).

   (8) Apply paint as soon as possible (ideally, the same day) after surface preparation has been completed. Bare metal surfaces will flash rust soon after exposure to the atmosphere. If flash rusting occurs prior to coating application, repeat Steps (3)-(8).

7.10.7.2 <u>Paint Application</u>.

a. Required Tools:

   (1) Rollers.

   (2) Brushes.

   (3) Rags.

   (4) Manufacturer's PDS or ASTM F-718 sheet for the following paints:

(a)   Formula 150, Type IV (MIL-DTL-24441, Formula 150, Type IV, green primer).

(b)   Formula 151, Type IV (MIL-DTL-24441, Formula 151, Type IV, haze gray).

(5)   Manufacturer's MSDS for the following paints:

(a)   Formula 150, Type IV, Component A (MIL-DTL-24441, Formula 150, Type IV, green primer, component A).

(b)   Formula 150, Type IV, Component B (MIL-DTL-24441, Formula 150, Type IV, green primer, component B).

(c)   Formula 151, Type IV, Component A (MIL-DTL-24441, Formula 151, Type IV, haze gray, component A).

(d)   Formula 151, Type IV, Component B (MIL-DTL-24441, Formula 151, Type IV, haze gray, component B).

b.   Process:

(1)   Read and understand Section 7.6 of this chapter, "General Mixing and Paint Application".

(2)   Read and understand the PDS (or ASTM F-718 sheet) and MSDS for the two paint systems to be used.

(a)   F-150, Type IV, green primer.

(b)   F-151, Type IV, haze gray top coat.

(3)   Check environmental conditions. Ask for help from the FMA personnel.

(a)   Surface temperature must be at least 5°F higher than the dew point.

(b)   Paint must not be applied at temperatures of 35°F or lower.

(c)   Relative humidity must be below 85 percent.

(4)   Mix F-150, Type IV, green primer according to manufacturer's instructions. Mix ratio is 1:1 by volume. (Paragraph 7.8.3 of this chapter, Mixing and Application Procedures for the Navy Epoxy Paint System (MIL-DTL-24441).

c.   Summary.

(1)   Table 7 summarizes mixing, application and re-coat parameters.

Paint	Induction Period (hours)	Mix Ratio (volume)	Pot Life (hours)	Time Before Overcoating (hours)	Time to Handle (hours)	Wet Film Thickness (mils)	Dry Film Thickness (mils)
F-150, green primer	N/A	1 : 1	6 @ 70°F	Minimim of 3 @ 40°F 3 @ 70°F @ 50% RH	Minimum of 24 @ 40°F 5 @ 70°F @ 50% RH	6-7	4-5
F-151, gray topcoat	N/A	1 : 1	6 @ 70°F	Minimim of 3 @ 40° F 3 @ 70°F @ 50% RH	Minimum of 24 @ 40°F 5 @ 70°F @ 50% RH	6-7	4-5

Table 7. Mixing, Application and Re-Coat Parameters for Touch-Up of Miscellaneous Areas.

(2)   Apply by brush. Be certain to force coating into corners, behind beams and areas that are difficult to reach. Pay particular attention to newly installed components such as pipe hangers and clamps. (Paragraph 7.9.2 of this chapter, "Brush Application".)

(3)   Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter).

(4)   Wait until the first coat is dry, a minimum of 3 hours, before overcoating. If, after 3 hours, coating is not dry, check hourly until coating is dry. REMEMBER - PDS (or ASTM F-718 sheet) and Table 7 guidance for overcoating interval is an estimate. You must be able to walk on the first coat without damaging it.

(5)   When first coat is dry, apply a "stripe" coat on welds, corners and edges. The "stripe" coat should be a different color than either the first coat (green) or the topcoat (gray) to facilitate coverage. F-153, Type IV, a black coating, is a good choice. If a different color is not available, use F-151, Type IV, gray as the "stripe" coat.

(6)   When the "stripe" coat is adequately dry, mix F-151, Type IV, gray topcoat according to manufacturer's instructions. Mix ratio is 1:1 by volume. (Paragraph 7.8.3 of this chapter, Mixing and Application Procedures for the Navy Epoxy Paint System (MIL-DTL-24441.)

(7)   Apply by brush or roller (if a roller can reach all areas that need paint). (Paragraphs 7.9.2, "Brush Application" and 7.9.3 "Roller Application" of this chapter.) If F-151 was used as the "stripe" coat, pay particular attention to completely cover the "stripe" coat since there is no color difference to provide visual contrast.

(8)   Check WFT to assure proper thickness (Paragraph 7.9.4 of this chapter).

(9)   Freshly painted areas should be roped off to prevent contamination during the curing process.

(10)   Allow coatings to cure per the curing schedule given in the PDS (or ASTM F-718 sheet).

(11)   Ventilation should be in place during the curing process as it will facilitate curing and prevent build-up of hazardous vapors.

APPENDIX A

SUBMARINE PAINT GUIDE

REFERENCES.

(a)	OPNAVINST 5100.19 - NAVOSH Program Manual for Forces Afloat, Chapter D12, Painting and Preservation
(b)	Naval Ships Technical Manual (NSTM), Chapter 631 - Preservation of Ships in Service - General
(c)	Hazardous Material User's Guide (HMUG), Group 12 - Paint Materials

1. SCOPE. This information is intended for use by Ship's Force when preparing, handling and applying paint to interior submarine surfaces.

NOTE: BE SURE TO FOLLOW THE GENERAL SAFETY PRECAUTIONS SPECIFIED IN REFERENCE (a) OF THIS APPENDIX AND THE DETAILED PROCEDURES AND PRECAUTIONS SPECIFIED IN REFERENCE (b) OF THIS APPENDIX.

2. SURFACE PREPARATION.

a. Inadequate surface preparation is the leading cause of premature exterior paint failures. Paint performance depends on a properly prepared surface, the benefits of which include:

   (1) Improved adhesion (less blistering, flaking or peeling).

   (2) Longer service life.

   (3) Resistance to corrosion.

b. More information on surface preparation for specific substrates and a list of relevant specifications and standards are available at: https://www.nstcenter.biz/, https://www.nace.org/, and https://www.sspc.org along with technical references (a) and (c).

CAUTION: AVOID MIXING PAINT PRODUCTS IN AN ENCLOSED COMPARTMENT WITHOUT ADEQUATE VENTILATION. PER OPNAVINST 5090.1C PARAGRAPH 22-4.3.2.11E, THE USE OF PAINT THINNER IS PROHIBITED. REFERENCE (c) OF THIS APPENDIX PROVIDES A HAZARDOUS MATERIAL USER'S GUIDE.

3. PAINT MIXING. There are numerous considerations for effective paint mixing:

a. Always mix paints and their solvents in a designated compartment or mixing room before boarding the submarine.

b. Prior to mixing paint, read and understand the information in the manufacturer's Product Data Sheet (PDS).

c. Thoroughly mix each component of multiple component paint before combining.

d. Mix in Navy epoxy paint components at a 1:1 ratio by volume (MIL-PRF-24441).

e.   Thoroughly mix paints until free of lumps, cakes and sediments.

f.   MIL-DTL-24441, Type IV does not require induction, and may be used immediately.

4. PAINT APPLICATION.

a.   Apply paints under the following environmental conditions:

(1)   Surface temperature at least 5°F higher than the dew point.

(2)   Temperature greater than 35°F.

(3)   Relative humidity below 85%.

b.   Other recommendations for proper paint application include:

(1)   Apply paint as soon as possible following surface preparation. Two minutes of stirring or agitating is required at 4-hour intervals during the application process.

(2)   To visually facilitate complete coverage, apply different colors of the same paint when successive coats are used.

(3)   Use a "tack coat" of Formula 150 when painting over a fully cured epoxy paint film. The coat should be applied to a DFT of 1 mil (2 mils WFT).

(4)   Paint trim, doors or similar areas after major surfaces (e.g., bulkheads) are completed.

(5)   If more than seven days elapse before overcoating, the surface should be cleaned, rinsed and wiped dry. This should be followed by either: (1) a tack coat (1 to 2 wet mils) of the last coat applied, or (2) a tack coat of Formula 150 to the hard epoxy coat. Allow to dry approximately four hours before application of the next full coat of the system.

(6)   If more than 30 days elapse before overcoating, clean and roughen the aged topcoat before new paint application.

5. SAFETY CONCERNS. Painting is an inherently dangerous activity. Remember to always be aware of potential hazards in the area, heed warning signs, and to follow safety guidelines and procedures.

a.   Do not store paints and solvents onboard the submarine.

b.   Activate the positive pressure unit prior to any interior painting.

c.   Terminate all internal painting with oil based paints 5 days prior to sealing the ship. Terminate painting with latex or water based paint 3 days prior to sealing.

d.   Consult the Submarine Material Control List (SMCL) for additional restrictions at: https://smcl.dt.navy.mil

6. VOLUME ESTIMATION. Use Table 1 to estimate the volume of paint required to cover a given surface area. For example: 10.0 pints of MIL-PRF-24441 Epoxy topcoat is needed to cover 280 square feet of surface area.

Surface Area in Square Feet	Pints of Paint Required			
	MIL-PRF-24441 Primer	MIL-PRF-24441 Epoxy Topcoat	MIL-PRF-24635 Enamel Topcoat	TPD-24607 Enamel Topcoat
20	0.5	0.7	0.3	0.3
40	1.1	1.4	0.6	0.6
60	1.6	2.1	0.9	0.9
80	2.1	2.9	1.2	1.1
100	2.6	3.6	1.4	1.4
120	3.2	4.3	1.7	1.7
140	3.7	5.0	2.0	2.0
160	4.2	5.7	2.3	2.3
180	4.7	6.4	2.6	2.6
200	5.3	7.1	2.9	2.9
220	5.8	7.9	3.2	3.1
240	6.3	8.6	3.5	3.4
260	6.8	9.3	3.8	3.7
280	7.4	10.0	4.1	4.0
300	7.9	10.7	4.3	4.3
320	8.4	11.4	4.6	4.6
340	8.9	12.1	4.9	4.9
360	9.5	12.9	5.2	5.1
380	10.0	13.6	5.5	5.4
400	10.5	14.3	5.8	5.7
420	11.1	15.0	6.1	6.0
440	11.6	15.7	6.4	6.3
460	12.1	16.4	6.7	6.6
480	12.6	17.1	7.0	6.9
500	13.2	17.9	7.2	7.1

Table 1

7. <u>COMMON PAINTING TERMS</u>.

   a.   Pot Life - The length of time that a catalyzed resin system retains a viscosity low enough to be used. Also known as working life or usable life.

   b.   Relative Humidity - The amount of water in the air compared with how much the air can hold at the current temperature.

   c.   Induction Time - The waiting period required between the time a two-part paint is mixed and the time it can be used. Also known as sweat-in.

   d.   Dew Point - The temperature at which moisture will begin to condense out of the air.

   e.   Wet Film Thickness (WFT) - Paint thickness of a wet coating (immediately after application). Measured in mils or thousandths of an inch.

   f.   Dry Film Thickness (DFT) - Paint thickness of a cured (dried) coating. Measured in mils or thousandths of an inch.

g.   Tack Stage - The point where a slight impression remains when the paint is pressed lightly with a fingertip.

h.   Tack coat - A thin layer of paint applied when painting over fully cured epoxy paint.

i.   Feathering - The process of making a tapered edge between the edges of intact paint and an area that has been mechanically cleaned to allow for proper adhesion of the paint to all surfaces.

APPENDIX B

COATING INSPECTION REPORT FORM

USS _____ DATE _____

Inspection Area Name or Number: _____

_____

Inspector: _____

Location *	Percent General Corrosion	Structural Steel Defects (Pitting, Corrosion)? (Yes or No)	Percent Blistering	Notes

* NOTE: Identify frame and location in relation to ship's centerline or general location within the tank or space.

APPENDIX C

SHIPBOARD POWER CLEANING TOOLS

Vendor	Description	Type Category
Honsa Ergonomic Technologies Inc.	Pneumatic Chipping Hammers: HTC-93-1-H	Chipping Hammer
Tool Crib of the North	DW997K-2: 1/2" Extreme Drill/Driver/Hammerdrill Kit	Drill
Tool Crib of the North	DW4PAK-2K 18V Extreme contractor's Combo Package: 1/2" drill/hammerdrill, 5 3/8" Trim Saw, Recip. Saw, Floodlight, 2 Batteries, charger, & Case	Drill/Recip & Trim Saw
DESCO Manufacturing Co., Inc.	Rt Angle Sander Kit w/Dust Collector Outlet, 7" (151.217)	Grinder
DESCO Manufacturing Co., Inc.	Rt Angle Sander Kit w/Dust Collector Outlet, 4.5" (150.217)	Grinder
DESCO Manufacturing Co., Inc.	Rt Angle Sander Kit w/Dust Collector Outlet, 4" (150.317)	Grinder
DESCO Manufacturing Co., Inc.	VersaTool (170.181)	Grinder/Polisher
DESCO Manufacturing Co., Inc.	Model GD1010 - Navy HEPA Vac System (305.014)	HEPA Vacuum
DESCO Manufacturing Co., Inc.	5" Tile Stripper (180.029)	Long Handle Scaler
McMaster-Carr Supply Company	Screwdriver-Handle Flat-Blade Scraper Offset, 9/16" Blade Width, 8-1/16" Overall Length (3645A4)	Misc. Hand Tool
McMaster-Carr Supply Company	Ceramic-Blade Scraper Plastic Handle, 6-3/4" Overall Length (35685A65)	Misc. Hand Tool
McMaster-Carr Supply Company	3"W X 4-3/4"L Chisel-Edge Bent-Blade Scraper (3668A25)	Misc. Hand Tool
McMaster-Carr Supply Company	Curved Handle Brush W/Stainless Steel Bristles, 4 X 19 Rows (7187T8)	Misc. Hand Tool
McMaster-Carr Supply Company	Stainless Steel Laced Scratch Brush 7 X 4 Rows, 11/16" Trim Length, 8-3/8" Overall Length (7251T97)	Misc. Hand Tool
McMaster-Carr Supply Company	Scaling Hammer 1 lb Head, 12-1/4" Overall Length (5933A11)	Misc. Hand Tool
DESCO Manufacturing Co., Inc.	Needle Scaler System - Model 24 (130.2246)	Needle Scaler (Gun)
Northern Tool & Equipment	1350 PSI Electric Pressure Washer (157421-NET)	Pressure Washer
DESCO Manufacturing Co., Inc.	Mini-Flushplate System (100.216)	Rotary Scaler (2.25" Mini Deck Crawler)
DESCO Manufacturing Co., Inc.	FX-Flushplate System (110.216)	Rotary Scaler (4.25" Mini Deck Crawler)
EDCO Equipment Company, Inc.	EDCO Pro-Scaler, Model PS-GD-2563	Tight-Area Tool
Imperial Tool Company	Straight Geared Die Grinder, .3 HP, 5000 RPM, DOTCO #10S1093A-01	Tight-Area Tool
Imperial Tool Company	90 Degree Die Grinder, .3 HP, 12000 RPM, DOTCO # 10S1200B-36	Tight-Area Tool

Vendor	Description	Type Category
Imperial Tool Company	Extended Head 90 Degree Die Grinder, .3 HP, 12000 RPM, DOTCO # 10S1290B-36	Tight-Area Tool
D. L. Thurrott Co., Inc.	Bilge Pump, Wilden Pump, Model M1/PT/TF/TF/KT	Tight-Area Tool, Bilge Pump
McMaster-Carr Supply Company	Mini Tank Air-Powered Wet/Dry Vacuum 6 Gallon Tank, 110 Cfm, 116" Water Lift (6433T73)	Wet/Dry Vacuum
Sears Power and Hand Tools	Craftsman 2 Gal 1.5 HP Portable Wet/Dry Vacuum (17711)	Wet/Dry Vacuum

APPENDIX C

VOLUME VI

CHAPTER 8

**MINIATURE/MICROMINIATURE (2M), MODULE TEST AND REPAIR (MTR),
AND FIBER OPTIC TEST AND REPAIR (FOTR) PROGRAMS**

REFERENCES.

(a)   NAVSUP P-485 - Afloat Supply Procedures
(b)   NAVSEAINST 4790.17 - Fleet Test and Repair of Shipboard Electronic Equipment
(c)   NAVSEA SE004-AK-TRS-010/2M Marine Corps TM 5895-45/1B - Standard Maintenance Practices 2M Electronic Assembly Repair
(d)   NAVSEA S9086-PF-STM-010 - Technical Manual Operation, Maintenance, and Repair Chapter 408 Fiber Optic Cable Topology
(e)   MIL-STD-2042 – Fiber Optic Cable Topology Installation Standard Methods for Surface Ships and Submarines
(f)   COMNAVAIRLANTINST 4790.42/COMNAVAIRPACINST 4790.54 - CV/CVN Intermediate Maintenance Activity (IMA) Module Test and Repair Facility (MTRF)
(g)   NAVSEA TE000-AA-MAN-010/2M - Certification Manual for Miniature/Microminiature Electronics Module Test and Repair/Fiber Optic Test and Repair (2M/MTR/FOTR) Program
(h)   NAVPERS 18068 - Manual of Navy Enlisted Manpower and Personnel Classification and Occupational Standards
(i)   MIL-HDBK-263 - Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment
(j)   COMNAVAIRLANTINST 4790.34 - Electrostatic Discharge (ESD) Control Program
(k)   NAVSUP P-484 - Supply Afloat Fleet and Field Packaging Procedures
(l)   OPNAVINST 5100.19 - Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
(m)   OPNAVINST 4700.7 - Maintenance Policy for U.S. Navy Ships
(n)   NAVSUP P-488 - COSAL Use and Maintenance Manual

LISTING OF APPENDICES.

A   2M Repair Process
B   Sample MTRF Quarterly Report Message (Naval Air Force Only)

8.1 PURPOSE. To issue policy, guidelines and procedures for the management of the Miniature/Microminiature (2M) Electronic Repair Program, Module Test and Repair (MTR) Program and Fiber Optic Test and Repair (FOTR) Program.

8.1.1 Scope. This chapter applies to all activities engaged in the repair of electronic equipment, assemblies, subassemblies, and modules. This chapter also applies to all activities engaged in the repair of fiber optic cables and components. This chapter does not apply to electronic equipment under the cognizance of Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) or the Strategic Systems Project Office.

8.1.2 Policy. All failed Circuit Card Assemblies (CCA) and Electronic Modules (EM) must be screened for 2M and MTR using Automated Test Equipment (ATE), General Purpose Electronic Test Equipment (GPETE), and test bed installations. CCAs and EMs may be certified Ready For Issue (RFI) per reference (a). All failed fiber optic links are candidates for screening and repair using GPETE and approved repair equipment per reference (b).

8.1.3 Background. The 2M and MTR Programs, established by reference (b), supports the test and repair of electronic equipment at the Fleet level. Reference (c) describes 2M and MTR capabilities including the performance of high quality repairs on CCAs and EMs. The 2M and MTR Work Center (WC) repair capability includes training, tools, techniques, technical documentation and certification. The Fiber Optic Test and Repair Program, established by reference (b), supports the test and repair of fiber optic cabling and components at the Fleet Level. References (d) and (e) describe fiber optic repair capabilities. This fiber optic capability includes training, tools, methods, technical documentation and certification.

8.2 RESPONSIBILITIES.

8.2.1 Fleet Commander. Fleet Commanders must operationally administer and promote optimum use of the 2M and MTR Programs per reference (b) (e.g. Electronic Repair, Module Test and Repair, Fiber Optic Test and Repair Programs.)

8.2.2 Type Commander or Immediate Superior In Command. Type Commanders (TYCOM) or Immediate Superiors in Command must:

   a.   Coordinate and manage the 2M, MTR and FOTR programs.

   b.   Monitor the effectiveness of the 2M Program and provide recommendations concerning 2M, MTR and FOTR equipment, tools and training.

   c.   Execute progressive repair procedures.

   d.   Coordinate logistic support, outfitting requirements and deployment priorities for 2M, MTR and FOTR stations and associated test equipment.

   e.   Monitor 2M, MTR and FOTR certification status and direct corrective actions as required.

   f.   Monitor and enforce the utilization of Module Test and Repair Tracking System (MTRTS) only per MTRTS Business Rules.pdf.

8.2.3 Commanding Officer or Officer In Charge. Commanding Officers or Officers In Charge must:

   a.   Establish a 2M, MTR and FOTR Programs under the cognizance of the Electronics Material Officer (EMO), Combat Systems Maintenance Officer (CSMO) or cognizant Department Head. For Fleet Maintenance Activities (FMA), utilize the Electronics Repair (or cognizant) Officer as the overall coordinator.

   b.   Maintain certified 2M, MTR or FOTR stations and technicians.

   c.   Screen and repair all CCAs and EMs using the progressive repair process. Submit CCAs and EMs beyond Ship's Force repair capability to the FMA.

   d.   Maintain 2M, MTR and FOTR WC. Ensure MTRTS is used to maintain the ship's 2M and MTR screening efficiency, performance, production and quarterly production

or performance reports are submitted. Ensure Fiber Optic maintenance actions are documented in MTRTS supporting utilization statistics.

8.2.4 <u>Miniature/Microminiature Repair Program Coordinator or Module Test and Repair Facility Coordinator</u>. The 2M or MTRF Coordinator (EMO or cognizant repair officer) must:

a. Coordinate and monitor the effectiveness of the 2M Work Center (WC) and the repair program.

b. Provide adequate space with environmental controls to support the 2M WC using the guidance of references (c), (f) and (g).

c. Submit additional or new 2M and test equipment requirements to the TYCOM Representative, providing complete justification (e.g., workload, documented man-hours, or added capabilities with the addition of new equipment).

d. Ensure adequate numbers of 2M and MTR trained and technically qualified personnel support the WC.

e. Ensure 2M and MTR personnel and station requirements are met per references (g) and (h).

f. Ensure 2M and MTR WC personnel are formally trained in the operation and maintenance of all ATE and 2M and MTR equipment.

g. Maintain an updated library of test routines and test documentation for other installed ATE, per TYCOM outfitting requirements. Develop and submit test routines to Naval Undersea Warfare Center, Fleet Engineering Office for CCAs and EMs.

h. Ensure all 2M repair actions are documented per Volume VI, chapter 19 of this manual.

i. Ensure the Electrostatic Discharge (ESD) procedures of references (i) and (j) are implemented within the 2M and MTR WCs to provide adequate protection for ESD sensitive CCAs and EMs.

j. Coordinate with supply to ensure all CCAs and EMs meet the packaging requirements of per reference (k).

k. Ensure all CCAs and EMs certified RFI are processed as discussed in Section 8.4 of this chapter.

l. Maintain a complete inventory of 2M, MTR and ATE, materials and consumables.

m. Ensure compliance with all applicable safety procedures per reference (l).

n. Ensure that the MTR Tracking System is used to record all maintenance actions and produces required production reports.

o. Ensure the MTRTS Business Rules are used to properly document all screening attempts. Refer to the latest MTR Test Routine ROM for the MTRTS Business Rules.pdf.

8.2.5 <u>Fiber Optic Test and Repair Program Coordinator</u>. The FOTR Coordinator (EMO or cognizant repair officer) must:

a. Coordinate and monitor the effectiveness of the FOTR Work Center (WC) and the repair program.

b. Provide adequate space with environmental controls to support the FOTR WC using the guidance of references (d) and (e).

c. Submit additional or new FOTR equipment requirements to the TYCOM Representative, providing complete justification (e.g., workload, documented man-hours, or added capabilities with addition of new equipment).

d. Ensure adequate numbers, per FLTMPS requirements of FO trained and technically qualified personnel support the WC.

e. Ensure FO personnel and station requirements meet the criteria of references (g) and (h).

f. Ensure all FO repair actions are documented per this manual Volume VI, chapter 19.

g. Maintain a complete inventory of FO materials and consumables.

h. Ensure compliance with all applicable safety procedures in accordance with reference (l).

i. Ensure that the MTR Tracking System is used to record all FO maintenance actions and produces required production reports.

8.2.6 <u>Commander, Navy Regional Maintenance Center</u>. The Commander, Navy Regional Maintenance Center (CNRMC) routinely must maintain qualified 2M, MTR and FOTR Fleet Coordinators at Mid-Atlantic Regional Maintenance Center (MARMC), Southwest Regional Maintenance Center (SWRMC). Fleet Coordinators are responsible for administering 2M, MTR and FOTR Program Inspections and Certifications in their respective geographical areas. Appointment of 2M, MTR and FOTR Fleet Coordinators will be coordinated with, and authorized by, the NAVSEA 2M, MTR and FOTR Program Manager.

8.2.6.1 <u>Regional Maintenance Center</u>. The RMC 2M and MTR Inspection and Certification Branch (MARMC, SERMC, SWRMC, FDRMC Rota, Pearl Harbor, Yokosuka, Sasebo and Everett) shall, per reference (g):

a. Maintain a certified laboratory for the purposes of recertifying technicians where 2M, MTR and FOTR Inspectors are assigned.

b. Maintain certified 2M, MTR and FOTR Inspectors.

c. Inspect and certify all 2M, MTR and FOTR facilities and technicians per reference (g) and report inspection results to the commanding officer and TYCOM.

d. Inspectors shall attend the 2M and MTR Inspector and Instructor training workshop each year. Master 2M and MTR inspectors (Atlantic and Pacific Fleet Coordinators) shall attend all the Inspector and Instructor training workshops due to their additional responsibilities related to subordinate Inspector site review certifications.

8.2.7 <u>NAVSEA 2M and MTR Program Manager</u>. The NAVSEA 2M and MTR program manager shall assure the 2M and MTR In Service Engineering Certification Agents are civilian government employees to support inherently government functions per references (b) and (m).

8.3 AUTHORIZED MINIATURE/MICROMINIATURE OUTFITTING. Authorized 2M and MTR outfitting is identified in reference (b). Authorized FOTR outfitting is identified in reference (e).

8.4 MINIATURE/MICROMINIATURE PERSONNEL AND STATION REQUIREMENTS. Conduct 2M and MTR technician recertification and issue operator proficiency cards to qualified 2M and MTR technicians. References (g) and (k) provide certification criteria for all 2M and MTR stations and technicians. References (d) and (e) provide certification criteria for all FOTR equipment and technicians.

8.5 PROGRESSIVE REPAIR PROCESS. The progressive repair process is the sequential attempt to test and repair CCAs and EMs. Reference (m) requires repairs at the lowest possible level. Reference (a) describes Repairables Management for Depot Level Repairables (DLR) and Field Level Repairables (FLR). 2M repair technicians will screen and attempt to repair all CCAs and EMs within their training and capability, regardless of cognizance or the Source Maintenance and Recoverability code.

8.5.1 Repair Process. The 2M repair process, illustrated in Appendix A and defined in reference (m).

8.5.2 Ship's Force Process. An activity's repair capability and the type of 2M station may differ depending upon TYCOM outfitting. Such differences include the type of 2M station (miniature/microminiature) and outfitting of test capability. These factors plus 2M technicians' training or certification dictate Ship's Force ability to screen and repair CCAs and EMs. Regardless of these differences, an attempt shall be made to repair all CCAs and EMs prior to their forwarding to the FMA.

    a.   The 2M Work Centers must be designated as "CSE3" for surface ships with the exception of the LSD Class as "OE03" and LHA and LHD Classes as "CE03", "CS54" for Aircraft Carriers, and "NE02" for SSBN and SSGN Class submarines. All 2M, MTR and FOTR work will be documented using these WCs. Final action codes will use "7 series" for 2M and "9 series" for FOTR maintenance actions per volume VI, chapter 19 of this manual.

    b.   Submit Beyond Capability Maintenance to the FMA using an OPNAV 4790/2K or MJC-OXCA-C028. The WC responsible for the system will forward the CCA and EM to the FMA if the CCA and EM repair is beyond the capability of the 2M WC.

    c.   Supply Officers have different responsibilities for DLRs or FLRs per references (a) and (n).

        (1)   DLRs. Carcass tracking procedures are delineated in local command instructions and will identify supply or maintenance personnel responsibilities for tracking CCAs and EMs either at the Ship's Force 2M WC or the FMA WC. Supply Officers are authorized to delay stock issue, replenishment and non-RFI turn-in for up to 72 hours pending testing and repair. Aircraft Carrier WC CS54 MTRF will use the Progressive Repair Program with the MTR Tracking System to support Supply or MTRF interaction.

        (2)   FLRs. Disposal of FLRs can be accomplished by either Ship's Force or the FMA.

8.5.3 <u>Fleet Maintenance Activity Process</u>. FMAs have additional 2M repair and ATE capabilities exceeding the Ship's Force level. The FMA will conduct repairs to CCAs/EMs that is beyond the maintenance capability of the submitting activity using the appropriate documentation.

a. CASREP driven OPNAV 4790/2Ks will be accepted by the FMA on the same day the job is submitted and worked to support a 24-hour turn-around.

b. Non-CASREP driven OPNAV 4790/2Ks will be screened to support activities and worked to support a 72-hour time limit or deadline date.

c. If the FMA is unable to repair the CCA and EM, it is condemned according to Repairables Management procedures per the requirements of reference (a).

8.5.4 <u>Certification of Miniature/Microminiature Repaired Assets as Ready for Issue</u>. Reference (a) describes the definition and certification criteria for RFI items. Repaired CCAs and EMs will meet the following basic RFI requirements:

a. Packaging and preservation.

(1) Repaired items from the 2M WC or MTRF will be packaged to meet the minimum standards of reference (a).

(2) A repair-unit identification label must be affixed to the body of each repaired unit per reference (a). The label must specify the command or activity performing the repair, the date repaired and the name of the 2M technician.

b. ESD protection. ESD sensitive CCAs and EMs will be handled, prepared and packaged per references (i). Ensure all CCAs and EMs are packaged for shipment per reference (k).

8.5.5 <u>Miniature/Microminiature Module Test and Repair Piece Parts</u>. The MTR In-Service Engineering Agent (ISEA) creates, manages and assigns 2M and MTR piece part Allowance Parts Lists (APL) that are custom tailored for each ship class and shore facility having 2M and MTR repair capability. These APLs supplement existing equipment APLs that support the repair of electronics to the component level. It is encouraged that a part needed for 2M repair be ordered against the applicable equipment APL when possible (order a part for 2M repair against a 2M and MTR piece part APL only when the part is not listed on the equipment APL).

a. 2M and MTR piece part APLs:

(1) Contains the piece parts needed to support 2M repairs to all electronics covered by MTR test routines and other electronics commonly repaired in the 2M and MTR WC.

(2) Lists the piece parts that are supported with an active National Stock Number (NSN) by the Federal Catalog System and parts such as resistors, relays, diodes, capacitors, transistors and integrated circuit chips are included. Parts without an NSN that have documented or expected high demand will also be provisioned and included in the APL to obtain an NSN to facilitate repairs.

(3)   The piece parts are supply coded as Storeroom Inventory (SRI) and are maintained by the supply department. Every part consumed during a 2M repair must be reordered on a one-for-one basis as the usage is reported and is eligible for demand-based stocking.

b.   Baseline and Augmented strategies are used to determine range and depth of parts support:

(1)   Baseline items are coded with an Allowance Note Code (ANC) of one "1" to ensure that 100% of the listed piece parts are stocked onboard regardless of the inventory presently on hand or past usage. These piece parts are identified as maintenance critical items using data obtained from the Maintenance and Material Management (3-M) System and the MTRTS. The use of ANC coding ensures that parts critical to the repair of electronics are always available.

(2)   Augmented items are included on 2M and MTR piece part APLs to ensure that sufficient piece parts are authorized to support increases in 2M and MTR repairs that are associated with the release of new MTR test routines to the fleet and as determined by feedback from the fleet. These parts include at minimum, all piece parts having an active NSN that appear in the latest MTR Test Routines (DVD AKA "Gold Disk" release and are applicable to a ship class and maintenance capability). The allowancing for these piece parts is computed using applicable Fleet Logistics Support Improvement Program (FLSIP) computations.

c.   The piece parts that are needed for a 2M and MTR repair, but not listed in a 2M and MTR piece part APL, should be reported by submitting a Fleet Coordinated Shipboard Allowance List Feedback Report.

d.   The Fleet Readiness Action Team assists fleet 2M and MTR technicians in identifying and obtaining materials not readily available. Determine interchangeability and source of supply of non-DOD stocked items. Attempt to find alternate sources for CASREP or work stoppages when required materials are not in stock or have a long lead-time for delivery. The Fleet Readiness Action Team will make maximum use of 2M and MTR materials obtained from decommissioned ships in this effort.

8.5.6 Fiber Optic Repair Piece Parts. Piece parts required for fiber optic repairs have formalized APLs for shipboard approved fiber optic repair consumables. These APLs contain unique high usage piece parts such as connectors, termini, epoxy and polishing papers determined from Fleet-wide demand data and TYCOM recommendations. Parts needed for a FO repair not listed in the APLs should be reported by Fleet Coordinated Shipboard Allowance List Feedback Report in accordance with reference (n).

a.   Intermediate-Level Baseline APL. The Intermediate-Level Baseline APL is supply coded Operating Space Item. FO piece parts listed in this APL are required for Intermediate-Level repair items.

b.   Organizational-Level Baseline APL. The Organizational-Level Baseline APL is supply coded Storeroom Item and contains an Allowance Note Code to ensure that

100% of the listed FO piece parts are stocked on board regardless of stocks presently on hand or past usage.

8.6 <u>CVN MINIATURE/MICROMINIATURE GUIDANCE (NAVAL AIR FORCE ONLY)</u>.

a. The mission of the MTRF WC CS54 must be to enhance the parent Aircraft Carrier and Battle Group units' Combat Systems readiness through onboard I-Level electronics repair of CCAs and EMs.

b. Aircraft Carrier Combat Systems Material Officers will issue amplifying procedures by message for Battle Group units to request MTRF WC assistance.

c. Each MTRF must provide Commander, Naval Air Force Atlantic (COMNAVAIRLANT) or Commander, Naval Air Force Pacific (COMNAVAIRPAC) a quarterly summary report of MTRF accomplishments, by message or Naval Telegram, due by the 15th day of the month following the end of each quarter. A sample format is provided in Appendix B of this chapter.

8.7 <u>SUBMARINE MINIATURE/MICROMINIATURE GUIDANCE (SUBMARINE FORCE ONLY)</u>.

8.7.1 <u>Module Screening and Repair Activity</u>. The Module Screening and Repair Activity (MSRA) has been developed to support various submarine systems. MSRAs are located at the Naval Submarine Support Facility New London, CT and Submarine Base Pearl Harbor, HI. MSRAs maintain ATE and special purpose test equipment in support of functional testing and RFI capability.

8.7.2 <u>OHIO Class Organizational Repair Capability</u>.

a. OHIO CLASS SSBNs and SSGNs outfitted with 2M MTR capabilities are to maintain two trained and certified technicians that have completed the AN/USM-674 Operators Training (CIN: A-100-0076) and Miniature Electronic Repair Training (CIN: A-100-0072) for each Blue-Gold crew. Designate one of these technicians from each crew as the 2M MTR Program Coordinator. Responsibilities are cited in paragraph 8.2.4 of this chapter.

b. Per 2M MTR Certification requirements of reference (g), 2M MTR technicians must complete re-certification requirements every 18 months per reference (g). Site reviews must be conducted every 18 months. Site reviews and personnel re-certifications are conducted by certified 2M MTR Inspectors.

c. Additional 2M and MTR program management responsibilities are cited in sections 8.2 of this chapter.

d. Submit Module Test and Repair Tracking System Reports (backup file) to NUWCDET Norfolk after completion of each patrol or crew turnover (2mtrdata@navy.mil).

e. For submarines that possess the organic electronics repair capability (2M), utilize work center NE02.

8.7.3 <u>Reports</u>. FMAs must utilize the appropriate turn-in repairable tracking system to generate a quarterly Mandatory Turn-in Repairable Summary Package, with option (1) of the MTRF

accomplishments, forwarded to the TYCOM (N42). This summary package is due by the 15th day of the month following the end of each quarter.

APPENDIX A

2M REPAIR PROCESS

```
WC
Requirement
(4790-2K)
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Store Room Items (SRI)? #1 — NO → Direct Turn Over (DTO) Requisition Submitted

Ship's Force 2M WC

Store Room Items (SRI)? #1 — YES

Supply Issues SRI, Sets Remain In Place, Suspends Reorder

Item Available? — NO

Item Available? — YES

Repaired? #1 — YES → SRI? #2

SRI? #2 — NO

Repaired? #1 — NO → Submit to FMA

SRI? #2 — YES

WC Closes 2K for SRI

WC Exchange SRI with Repaired Item

WC Submits 2K for Failed Item → 2M Repairable? — YES

2M Repairable? — NO

Repaired #2 — YES

Repaired #2 — NO

SRI Packaged and returned to Supply Storeroom

Non-RFI Item Turned-In. DTO Reqn Submitted

WC Closes 2K

APPENDIX B

SAMPLE 2M AND MTRF QUARTERLY REPORT MESSAGE
(Naval Air Force Only)

USS (SHIP'S NAME AND HULL NO.)//
TO TYCOM//(COMNAVAIRLANT OR COMNAVAIRPAC AS APPROPRIATE)
COMNAVAIRLANT NORFOLK VA
COMNAVAIRPAC SAN DIEGO CA
INFO COMUSFLTFORCOM NORFOLK VA
COMPACFLT PEARL HARBOR HI
COMNAVSEASYSCOM WASHINGTON DC
PEO CARRIERS WASHINGTON DC
NAVSURFWARCENDIV CRANE IN
NAVUNSEAWARCEN DET FEO NORFOLK VA
BT
UNCLAS
//N04790//
PASS TO OFFICE CODES:
TO COMNAVAIRFOR SAN DIEGO CA//N41/N43/N435//
COMNAVAIRLANT NORFOLK VA//N41/N431/N435//
COMNAVAIRPAC SAN DIEGO CA//N41/N431/N435//
INFO COMUSFLTFORCOM NORFOLK VA//N41/N43//
COMPACFLT PEARL HARBOR HI//N41/N43//
COMNAVSEASYSCOM WASHINGTON DC//04//
NAVSURFWARCENDIV CRANE IN//GXST//
NAVUNSEAWARCEN DET FEO NORFOLK VA//2525//
MSGID/GENADMIN/USS (SHIP'S NAME AND HULL NO.)//
SUBJ/(CS54) 2M-MTR-FOTR WORK CENTER PROGRESSIVE REPAIR SUMMARY
REPORT//
REF/A/DOC/CNAL_CNAP/09DEC2013//
AMPN/COMNAVAIRLANTINST 4790.42A MINIATURE/MICROMINIATURE
ELECTRONICS
REPAIR - MODULE TEST AND REPAIR (2M/MTR) WORK CENTER//
POC//NAME/RANK/DIVO/-/TEL://
RMKS/1. CS54 2M/MTR/FOTR WORKCENTER SUMMARY REPORT: 01MAR19 TO
31MAR19:

	OWN UIC	OTHER UIC	TOTAL
A. REPAIRS SUBMITTED:	(QTY)	(QTY)	(QTY)
B. REPAIRS STARTED:	(QTY)	(QTY)	(QTY)
C. REPAIRS NOT STARTED:	(QTY)	(QTY)	(QTY)
D. REPAIRS IN PROGRESS			
TROUBLESHOOTING:	(QTY)	(QTY)	(QTY)
AWAITING PARTS (AWP):	(QTY)	(QTY)	(QTY)
E. REPAIRS CLOSED/REPAIRED:	(QTY)	(QTY)	(QTY)
F. REPAIRS CLOSED/NOT REPAIRED			

CANCELLED:	(QTY)	(QTY)	(QTY)
REJECTED:	(QTY)	(QTY)	(QTY)
G. CASREPS AVERTED/CORRECTED:	(QTY)	(QTY)	(QTY)
H. TESTED, NO FAULT EVIDENT (NFE):	(QTY)	(QTY)	(QTY)
I. REPAIRS DOCUMENTED IN 3M:	(QTY)	(QTY)	(QTY)

J. TYPE OF 2M REPAIR

MINIATURE:	(QTY)	(QTY)	(QTY)
MICROMINIATURE:	(QTY)	(QTY)	(QTY)
SURFACE MOUNT TECH (SMT):	(QTY)	(QTY)	(QTY)

K. COST AVOIDANCE SUMMARY:

TOTAL MODULE COST:	$(AMOUNT)	$(AMOUNT)	$(AMOUNT)
TOTAL PIECE PARTS COST:	$(AMOUNT)	$(AMOUNT)	$(AMOUNT)
TOTAL ESTIMATED SAVINGS:	$(AMOUNT)	$(AMOUNT)	$(AMOUNT)

L. PRIMARY DIAGNOSTIC EQUIPMENT:

NOMENCLATURE	COMPLETED	CANCELLED	REJECTED
VISUAL INSPECT/NO TMDE RQD	(QTY)	(QTY)	(QTY)
FIBER OPTIC	(QTY)	(QTY)	(QTY)
AN/USM-674PROTRACK	(QTY)	(QTY)	(QTY)
VARIOUS GPETE	(QTY)	(QTY)	(QTY)
MULTIMETER	(QTY)	(QTY)	(QTY)

M. DEPT/DIV SUPPORT:
N. COMMENTS:

**NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
AND CURRENT PLAD UTILIZED.**

VOLUME VI

CHAPTER 9

METROLOGY AND CALIBRATION PROGRAM

REFERENCES.

(a)	<u>OPNAVINST 3960.16</u> - Navy Test, Measurement and Diagnostic Equipment (TMDE), Automatic Test Systems (ATS), and Metrology and Calibration (METCAL)
(b)	<u>COMNAVAIRFORINST 4790.2</u> - Naval Aviation Maintenance Program
(c)	<u>OPNAVINST 4700.7</u> - Maintenance Policy for U.S. Naval Ships
(d)	<u>OPNAVINST 4000.57</u> - Logistic Support of the TRIDENT and POSEIDON Fleet Ballistic Missile (FBM) Systems
(e)	<u>NAVSEAINST 4734.1</u> - NAVSEA Test, Measurement, and Diagnostic Equipment (TMDE) and Calibration Programs
(f)	<u>NAVSEA ST700-AA-LST-010/NAVAIR 17-35NCA-1</u> - Navy Calibration Activity (NCA) List
(g)	<u>NAVSEA OD 45845/NAVAIR 17-35MTL-1</u> - Metrology Requirements List (METRL)
(h)	<u>NAVSEA ST000-AG-IDX-010</u> - Test, Measurement and Diagnostic Equipment Index (TMDEI) CD-ROM Version
(i)	<u>NAVSEA ST700-AM-GYD-010/METCAL</u> - METCAL Calibration Laboratory Requirements and Certification Guide
(j)	<u>NAVAIR 17-35QAL-15</u> - Naval Aircraft Carrier and Amphibious Assault Ships Metrology and Calibration (METCAL) Program Manual
(k)	<u>OPNAV 43P6</u> - MEASURE Users Manual
(l)	<u>NAVSEAINST 4790.8/OPNAVINST 4790.4</u> - Ships' Maintenance and Material Management (3-M) Manual
(m)	<u>NAVSUP Publication 485</u> - Afloat Supply Procedures
(n)	<u>COMNAVSEASYSCOM WASHINGTON DC 03004Z FEB 09</u> - SISCAL Policy Guidance - Level 2 Calibrations
(o)	<u>NAVSEA S0400-AD-URM-010/TUM</u> - Tag-Out Users Manual
(p)	<u>NAVSEAINST C9210.4</u> - Changes, Repairs and Maintenance to Nuclear Powered Ships

9.1 <u>PURPOSE</u>. To issue policy and assign responsibility for the management of the Navy Test, Measurement and Diagnostic Equipment (TMDE) which includes the associated Metrology and Calibration (METCAL) program, per reference (a).

9.1.1 <u>Scope</u>. This instruction applies to all Navy commands whose maintenance policy and practices fall under the cognizance of references (b), (c) and (d) and Fleet shore activities such as Fleet Area Control and Surveillance Facilities. Excluded are calibration activities and equipment under the technical cognizance of the Radiation Detection, Indication and Computation program.

9.1.2 <u>Policy</u>. The Chief of Naval Operations (CNO), Office of the Chief of Naval Operations (OPNAV) N4, sets policy to ensure all TMDE used for quantitative measurements are maintained and calibrated at the lowest practical level. Specific CNO policy is stated in reference (a).

NOTE: **TMDE IS GENERAL PURPOSE ELECTRONIC TEST EQUIPMENT (GPETE), SPECIAL PURPOSE ELECTRONIC TEST EQUIPMENT (SPETE), SUPPORT EQUIPMENT, CALIBRATION STANDARDS AND INSTALLED INSTRUMENTATION THAT SUPPORT HULL, MECHANICAL AND ELECTRICAL (HM&E), WEAPONS SYSTEMS, ETC.**

9.2 <u>RESPONSIBILITIES</u>.

9.2.1 <u>Fleet Commanders</u>.

a. Operationally administer the TMDE and METCAL programs per reference (a).

b. Ensure that TMDE calibration and repair is performed at the lowest level practical using certified laboratories and trained technicians.

c. Calibrate all TMDE within the capability of the Regional Calibration Centers (RCC), Type Commander (TYCOM) and shipboard calibration activities.

d. Assign a Fleet Representative to the TAMS Executive Board.

e. Chair Fleet TMDE - METCAL Working Groups. Commander, Atlantic Fleet chair Test and Monitoring Systems (TAMS) Executive Board Fleet Support Standing Committee.

f. Establish the Shipboard Instrumentation System Calibration (SISCAL) program per reference (e) as required.

g. Provide funding for calibration and repair of TMDE including calibration standards, except for:

   (1) Naval Air Systems Command (NAVAIR) will fund for fleet aviation TMDE calibration and repair.

   (2) Strategic Systems Programs (SSP) will fund for TRIDENT TMDE calibration and repair.

h. Evaluate Regional Maintenance Center (RMC) and RCC and coordinate with Naval Sea Systems Command (NAVSEA) for standards to support new capabilities.

i. Provide funding for audit and certification of Fleet Navy calibration laboratories and Field Calibration Activities (FCA).

9.2.2 <u>Type Commander</u>.

a. Assign a METCAL Manager to administer TMDE and METCAL program requirements per references (a) and (b). Serve as a voting member to the Fleet TMDE - METCAL Working Group.

b. Review Fleet Forces Allowance Change Requests and forward to the TMDE Allowance Manager. TMDE Allowance Managers are TYCOM for aviation activities, SSP for TRIDENT activities and NAVSEA 04 for all remaining activities.

c. Redistribute excess TMDE. Aviation activities and TRIDENT activities will follow the guidance of NAVAIR and SSP respectively in redistributing TMDE. The Atlantic and Pacific Fleets will use the Consolidated TMDE Readiness Assessment (CTRA) Program.

d. Provide properly trained personnel to authorized calibration activities for the repair and calibration of assigned TMDE. Manage assigned calibration standards and calibration laboratories and FCAs per reference (a) and the guidance provided by the appropriate Systems Command (SYSCOM). Coordinate with the appropriate SYSCOM during pre-commissioning to verify if Establishment of Field Calibration Activity Request has been submitted and approved per reference (a).

e. Perform Quality Assurance reviews of laboratories and ensure compliance with this instruction and appropriate SYSCOM instructions.

f. Budget and manage funds to support calibration overflow for calibration support beyond the capability of RMC, RCC, TYCOM and shipboard calibration activities.

g. Ensure that Regional Loan Pools (RLP) are established in RMC and RCC.

h. Coordinate with NAVSEA 09 for Sub-Category (SCAT) assignments and Ship's Portable Electrical and Electronic Test Equipment Requirements List (SPETERL) revisions.

i. Assist Fleet Commander representatives in managing the Fleet TMDE and METCAL programs.

j. Assist platforms with their Departure From Specification (DFS) requests and coordinate approval of DFSs that require NAVSEA Technical Warrant Holder (TWH) approvals.

9.2.3 <u>NAVSEA Technical Authority</u>.

a. The NAVSEA METCAL TWH is the Technical Authority for all equipment and systems under the NAVSEA technical cognizance.

b. Naval Surface Warfare Center (NSWC) Corona Division is the TWH's Engineering Agent (EA) for metrology and calibration. NSWC Corona performs acceptance tests for new equipment for induction into the METCAL program, sets and modifies calibration intervals for non-installed TMDE and publishes metrology-associated documents such as the Naval Calibration Activity List and the Metrology Requirements List (references (f) and (g)) following SYSCOM directives. NSWC Corona may be contacted by telephone or message for resolution of urgent technical problems related to calibration standards or Instrument Calibration Procedures.

c. Naval Surface Warfare Center, Philadelphia Division, (NSWCPD) is the TWH's EA for all shipboard installed instrumentation. NSWCPD determines shipboard instrumentation calibration workload (cal "YES" or "NO") by applying the principles of Reliability-Centered Maintenance, sets and modifies calibration intervals for shipboard instrumentation and systems, develops and validates associated calibration procedures and publishes related calibration documentation such as ship-specific Calibration Requirements Lists (CRL), calibration procedures that are issued via the Planned Maintenance System (PMS) (Maintenance Requirement Cards (MRC)), and System Calibration Procedures (SCP) following NAVSEA directives (see paragraph 9.7 of this chapter). NSWCPD may be contacted by telephone or message for resolution of urgent technical problems related to calibration of shipboard instrumentation, calibration PMS or SCPs.

d.   Naval Air Warfare Center, China Lake is the TWH EA for TMDE, prepares specifications for new TMDE and makes technical recommendations to the TMDE Program Manager on what instruments are listed in the TMDE Index. Seal Beach Detachment may be contacted by telephone or message for resolution of urgent technical problems related to all Navy TMDE.

9.2.4 Immediate Superior In Command.

a.   Monitor calibration readiness status within their respective organizations, especially ships in a pre-deployment status. Forward requests for assistance to the TYCOM METCAL Manager.

b.   Monitor the effectiveness of Shipboard Gage Calibration Program (SGCP) FCAs.

c.   Ensure that ships with FCAs extend their service to other ships in company, as appropriate, to reduce cost and turn-around time of calibration.

d.   Ensure that each ship with an FCA has all the necessary standards, documentation and trained personnel to maintain current certification.

e.   Coordinate resolution of calibration problems found by the TYCOM designated support activity for assigned ships.

f.   (Submarine Force only) Support and participate in the TYCOM's CTRA process. Ensure corrective actions resulting from the conduct of a CTRA are completed for activities under the Immediate Superior In Command's (ISIC) cognizance.

9.2.5 Commanding Officers All Forces.

a.   The Commanding Officer has the overall responsibility for METROLOGY and the Calibration Program under their cognizance and will maintain a high degree of calibration readiness. Calibration Readiness Goal for all forces is 85%.

b.   Appoint in writing, a calibration coordinator and test equipment manager responsible for all matters related to the calibration of ship's TMDE. Separate coordinators may be appointed for electronic and mechanical equipment.

9.2.6 Commanding Officers Naval Air Force. Naval Air Force activities must also follow the detailed procedures outlined in reference (j) for TMDE management and for operation of the consolidated FCA.

9.2.7 Regional Maintenance Center Metrology and Calibration Coordinators.

a.   Coordinate and schedule off-ship calibration or repair services for ships within their geographic area of responsibility. Specific lack of capability is the only justification for off-ship calibration.

b.   Maintain close liaison with the RMC and RCC shipboard calibration coordinators, ISIC and TYCOM to prevent or resolve calibration scheduling and readiness problems.

c.   Review ship's calibration work requests to ensure that TMDE within the calibration capability of the ship's FCA are not sent to a higher-level calibration laboratory.

d.   Contact all deploying ships that have not delivered a pre-deployment calibration work package at least 45 days before deployment to determine ship's requirements.

e.   Notify TYCOM METCAL Managers, as applicable, of all changes in RMC or RCC calibration capability.

f.   Assist RMC or RCC calibration laboratories in obtaining calibration or repair services for laboratory standards.

g.   Identify TMDE calibration requirements beyond the technical capability of the RMC or RCC. Coordinate with TYCOM METCAL Managers for scheduling of TMDE overflowed to an approved calibration laboratory.

9.2.8 <u>Regional Maintenance Center and Regional Calibration Center</u>.

a.   Calibrate and repair TMDE including calibration standards assigned by the RMC METCAL Coordinators. Document all calibration actions using the METBENCH Calibration Management System (MCMS), Metrology Automated System for Uniform Recall and Reporting (MEASURE) or the TYCOM directed data collection method.

b.   Ensure that electronic TMDE submitted by the Fleet is standard test equipment listed in reference (h). Contact the submitting activity and the TYCOM METCAL Manager when non-standard TMDE is submitted for calibration. Non-standard TMDE will not be calibrated or repaired unless approved by the TYCOM.

c.   Ensure all laboratory standards are properly calibrated at the lowest appropriate level. Notify the TYCOM METCAL Manager of any lost or reduced laboratory capability.

d.   Ensure all TMDE repaired by the RMC or RCC are completely recalibrated before being returned to service. Calibration of a repaired instrument will serve as Quality Assurance of an accomplished repair.

e.   Prepare and submit Calibration Problem Reports to NSWC Corona for assistance or guidance concerning calibration problems encountered during operation of the calibration laboratory.

f.   Refer to Section 9.5 of this chapter for replacing malfunctioning calibration standards certified by a repair facility to be Beyond Economical Repair (BER), (i.e., having a repair cost in excess of 50% of the replacement cost).

9.3 <u>CALIBRATION MANAGEMENT</u>.

9.3.1 <u>Shipboard Gage Calibration Program Field Calibration Activity</u>. The SGCP provides onboard calibration capability for TMDE in the measurement areas of high and low temperature, pressure, vacuum, and torque (selected ship classes only).

a.   Maintain SGCP certification per the requirements of reference (i).

b.   Ship's Force is responsible for the calibration of all instrumentation within their SGCP FCA capability. Certified FCA technicians are the only authorized personnel to accomplish calibration using SGCP calibration standards (not applicable to CVN, LHA or LHD). SGCP calibration standards allowance quantities are listed in the SPETERL per reference (i).

c. Use the TYCOMs' approved formal recall system (e.g. MCMS. MEASURE, SKED) for scheduling, planning, monitoring and reporting the ship's calibration status. The SGCP Calibration Coordinator or SGCP technicians are responsible for adding the calibration data into the TYCOM directed recall program. Submarine activities using the PMS program of record (SKED) to schedule, track, document and report accomplishment of "O" level calibrations will employ the PMS rules for establishing the accomplishment periodicity. Ideally, the accomplishment of the test instrument's calibration will be performed on the day initially scheduled in SKED. This date should match the due date located on the test instrument's calibration label. The test instrument is out of calibration when the due date listed on the calibration label is exceeded.

d. Ensure all calibration is conducted at the lowest level of calibration feasible. Accomplishment of calibrations beyond SF capabilities should be coordinated with the TYCOM, Regional Calibration Facility and/or RMC Calibration Coordinator.

e. All components being calibrated using a SGCP calibration standard (i.e. PPC, 3604, 3605, etc.) must have a NAVY METCAL calibration sticker affixed. SGCP technicians are responsible for placing the appropriate METCAL label on the installed instruments.

f. The SGCP Calibration Coordinator is responsible for ensuring that the CRL data is aligned with ship's configuration and ensuring that instrumentation identified in the TYCOM calibration recall inventory matches CRL data: system, nomenclature, periodicity, etc. The CRL should be validated annually. Recommended changes (e.g. adds, deletes etc.) must be forwarded to the EA via MCMS, Technical Manual (TM) Feedback, or a PMS TFBR to correct the hull specific CRL

g. Ensure the CRL is used as a technical authority guidance to determine calibration requirements for all installed instruments. The calibration requirement determines whether an installed instrument is either critical or non-critical. Critical instruments are defined as instrumentation that monitors a parameter which is required to be within a specified operating range, or limits, to minimize hazards to human safety or failure of a mission essential equipment or system. These instruments are calibrated at a specific frequency (e.g., 12, 18, 24 or 36 months etc.). All other instruments are classified as non-critical, No Calibration Required (NCR).

h. Non-critical instrumentation will have an NCR METCAL label attached. When a NCR instrument's reliability is suspect, it will be sight compared with a critical instrument or a SGCP standard. When a NCR instrument is repaired or replaced, it will be installed and sight compared with a critical instrument or SGCP standard. If a primary instrument is out of commission, a NCR instrument which is secondary to the primary instrument out of commission may be calibrated to facilitate the validation of system parameters when approval by higher authority has been granted to deviate from the original test procedure.

i. Individual measurement chain components that are designated as NCR in the CRL such as remote temperature detectors, thermocouples, magnetic pickups, etc., do not require comparison prior to being installed in a system.

j.   System calibrations (e.g. a transducer and associated panel meter) in the same measurement chain being calibrated simultaneously) accomplished by ship's force will utilize a "Special Calibration" (black lettering, yellow background) label annotated to reflect system calibration and the components tested. The Special Calibration sticker is to be located on the "readout component". When the "readout component" is a flat panel display, PLC interface display, laptop or similar display method, apply the label to the instrument vice the "readout component". In cases where a component such as a transducer provides input to an alarm or shutdown function but no indication or parameter measurement (i.e., air compressor high pressure shutdown); apply the calibration sticker to the transducer. This requirement is not applicable to Level 2 system calibrations performed by SISCAL teams. SICAL teams use "System Calibrated" labels (black lettering, orange background) to indicate that the measurement chain (e.g. sensor, signal conditioner and display) is within the applicable tolerance on all parameters and there are no qualifying conditions for use.

k.   Maintain liaison with the RMC METCAL Coordinator to ensure TMDE scheduled for off-ship calibration is delivered and returned according to the agreed upon schedule.

l.   Use the RLP for maintenance requirements while the ship's test equipment is being calibrated or as indicated in the SPETERL (borrow from Regional Loan Pool).

m.   Ensure all TMDE has a current calibration sticker, reference (i).

n.   Maintain TMDE allowances in the SPETERL. Advise the TYCOM METCAL Manager and contact the CTRA center to fill deficiencies prior to submitting requisitions for replacement test equipment through the supply system.

o.   Use only standard test equipment listed in reference (h). Inform the TYCOM METCAL Manager of system maintenance requirements that are not supported by standard test equipment. SPETE that is approved per reference (e) is authorized for designated systems only. SPETE will not be used as general-purpose test equipment.

p.   Ensure TMDE is submitted for calibration prior to the calibration due date, with all accessories, power cords and technical manuals required to complete calibration.

q.   Submit pre-deployment calibration requirements to the RMC METCAL Coordinator at least 60 days prior to deployment. Conduct an inventory of all SPETE to confirm material condition and calibration due dates.

r.   (Submarine Forces Only) Interval changes affecting test instruments that are calibrated at the Organizational Level (Ship's Force/Calibration Activity 1) must be implemented upon notification from higher authority. Notification includes but is not limited to Technical Feedback Responses (TFBR), PMS Force Revisions, etc. Documenting the interval change includes updating the TYCOM directed recall program, if not accomplished automatically, as well as re-stickering the instruments affected with the new calibration due date. Ship's Force is not authorized to re-sticker test instruments calibrated at the Intermediate or Depot level (Calibration Activity 3).

9.3.2 <u>Calibration Accounting</u>. TMDE calibration actions are recorded in the TYCOM directed Calibration Recall Program. Surface force ships use one of the three different programs: MEASURE (LHA and LHD), MCMS, or the TYCOM Calibration Recall Program (TCR).

a. Measure implementation and operation guidance, reference (k).

b. MCMS supports surface force ships and provides shipboard personnel with the capability to update inventory files using LAN access. MCMS also provides the capability to generate reports and upload data to the master server through distance support. Readiness information and inventory status is readily available to Ship's Force and TYCOM METCAL Managers.

c. TCR program (Excel file) is used on those ships that do not yet have MCMS installed. The file provides inventory information to track calibration status.

9.3.3 <u>Shipboard Calibration Recall Inventories for MEASURE, TCR, and MCMS</u>.

a. MEASURE and TCR.

(1) "S" inventory: All installed instrumentation identified in the CRL and mechanical TMDE that is not SCAT coded (i.e., torque wrenches, micrometers, etc.).

(2) "E" inventory: All portable test equipment including electronic and mechanical SCAT coded test equipment that appears in the SPETERL.

b. MCMS.

(1) "S" inventory: All installed instrumentation identified as CAL=Y in the CRL. (All installed instruments i.e., both Cal = Y or N are in the "CRL" tab.)

(2) "E" inventory: All portable test equipment including electronic and mechanical SCAT coded test equipment that appears in the SPETERL

(3) "P" inventory: All mechanical TMDE that is not SCAT coded (i.e., torque wrenches, micrometers, etc.).

9.4 <u>REGIONAL LOAN POOLS</u>. RLPs are established at the RMC or RCC to alleviate shipboard maintenance support shortfalls caused by a lack of shipboard GPETE due to calibration or repair requirements.

a. RLPs include a wide variety of calibrated, Ready For Issue items stocked in sufficient quantity to ensure continuous availability.

b. GPETE from the RLPs may be checked out for a specific purpose (i.e., repair of the AN/SPS-73 Radar, PMS of the AN/WSC-3, etc.) or to satisfy a temporary requirement for special purpose items not normally included in the ship's allowance. Pool items are intended as short-term substitutes for unavailable shipboard items. Pool items may be checked out for ten working days; however, the RMC METCAL Coordinator may authorize an extension of the ten-day limit on a case basis.

c. All GPETE returned to the RLP must be inspected by representatives of the lending RMC or RCC and the borrowing command. The original inventory receipt is checked to see if the GPETE has been damaged or is missing accessories provided at the time of the loan. GPETE lost, damaged beyond repair or destroyed must be surveyed by the borrowing command using procedures established in reference (m). A copy of the completed survey report must be forwarded to the appropriate TYCOM METCAL Manager.

9.5 REPLACEMENT OF GENERAL PURPOSE ELECTRONIC TEST EQUIPMENT OR CALIBRATION STANDARDS.

9.5.1 Depot Level Repairables. GPETE or Calibration Standards (CAL STD) (7Z Cog), certified by a RMC or RCC or a higher-level activity as BER will be turned into the Naval Supply System. (Note: NAVAIR CAL STDs will not fall under these instructions.) For BER NAVAIR CALSTDs, RMC or RCC and Customer activities are required to contact TYCOM METCAL manager.

   a.   The RMC or RCC certifying the GPETE or CAL STD as BER may turn the defective unit in to the Navy Supply System for the customer activity, provided the customer has given the RMC or RCC a requisition number under which a replacement will be ordered. If the RMC or RCC turns the defective GPETE or CAL STD in to the Naval Supply System, all turn-in data must be given to the customer to assist in any future carcass tracking follow-up investigations by the Naval Supply System.

   b.   The customer activity may accept return of the defective GPETE or CAL STD from the RMC or RCC and initiate turn-in and replacement procedures through the normal Navy Supply System process.

   c.   Depot Level Repairable GPETE or CAL STD will not be processed for survey by a RMC or RCC.

9.5.2 Navy Stock Funded. GPETE (1H or 9N Cog), certified by an RMC or RCC or a higher-level authority as BER will be processed for survey.

   a.   The RMC or RCC certifying the GPETE or CAL STD that is BER must notify the customer of a requirement to survey the defective GPETE or CAL STD. The customer is responsible for initiating a survey action and requisitioning a replacement item through normal Operating Target funded supply channels.

   b.   The RMC or RCC certifying the GPETE or CAL STD as BER may retain the carcass for cannibalization of repair parts provided the customer has acknowledged that the survey process has been initiated and has provided a copy of the survey document to the RMC or RCC.

9.6 TEST MEASUREMENT DIAGNOSTIC EQUIPMENT MANAGEMENT.

9.6.1 Ship's Portable Electronic Test Equipment Requirements List. The SPETERL is the allowance document for all GPETE, SPETE and FCA calibration standards. Test equipment and FCA calibration standards allowance requirements (quantity and type) are computed on an individual ship's entire configuration of installed electrical and electronic equipment, with due consideration for function, quantity, usage and location of prime equipment. The Allowance Change Request form, NAVSUP 1220-2, is used to request an increase or decrease in the SPETERL allowance.

9.6.2 Test Measurement Diagnostic Equipment Index. Reference (h) is the primary source for determining test equipment uses and requirements. Consult reference (h) to determine the preferred model of test equipment needed to fill a specific deficiency. Test equipment deficiencies fall into two categories, initial outfitting and replacement.

9.6.3 <u>Sub-Category Code</u>. Defines a family of test and measurements parameters. Test equipment within the SCAT code is prioritized per reference (m), with the lowest priority number assigned to the TMDE currently being procured to fill outstanding deficiencies. SCAT codes are the basis for identifying TMDE on MRCs.

9.6.4 <u>Ship's Configuration and Logistics Support Information System Index</u>. The primary test equipment inventory document for ships. The Ship's Configuration and Logistics Support Information System (SCLSIS) Index must be kept current by the submission of completed OPNAV 4790/CK forms.

9.6.5 <u>Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment</u>.

9.6.5.1 <u>Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment Program</u>. The CTRA Program is a joint fleet program that improves fleet and shore command non-Aviation TMDE readiness. The CTRA Program also includes the receipt, staging and redistribution of Fleet excess electronic test equipment, mechanical test equipment and calibration standards used to replace equipment that is missing or BER.

9.6.5.2 <u>Type Commander Metrology and Calibration Program Managers</u>. TYCOM METCAL Program Managers are responsible for the following:

a.   Scheduling a CTRA during ship Fleet Readiness Training Plan or Integrated Logistics Overhaul and every 18 to 24 months for shore commands.

b.   Budget for the CTRA program as necessary.

c.   Develop and issue CTRA schedule as required.

d.   Maintain excess test equipment and calibration standards at CTRA staging area for redistribution to fleet activities.

9.6.5.2.1 <u>Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment Review Process</u>.

a.   Brief ship's department heads, division officers and technicians.

b.   Conduct training for TMDE management and the calibration recall software.

c.   Review SPETERL and electronic (E) TMDE inventory with the ship's Combat Systems Test Equipment manager. Review will include: Configuration verification of prime systems and Fleet Supplemental Test Equipment Requirements, verification of shipboard TMDE inventory and revisions to the TYCOM approved calibration recall system inventory, prime system and test equipment updates to Navy configuration database (if during Integrated Logistics Overhaul availability), identification of SPETERL allowance changes based on actual configuration, listing of inoperable items and coordination of repair of items that fill deficiencies, removal of excess equipment from the ship and filling of deficient equipment from CTRA staging assets. Deficient initial outfitting items will be coordinated through NAVSEA.

d.   Review Mechanical "S" inventory with the SGCP Coordinator using the CRL to determine calibration requirements (TCR and MEASURE ships only). Mechanical test equipment will be listed on this mechanical inventory. Use the CRL to validate the recall inventory (TCR and MEASURE ships only).

e.   (Submarine Force only) Prior to the completion of a CTRA, coordinate the delivery of identified excess test equipment to the designated CTRA facility.

f.   Provide the results of the assessment to the ship.

9.6.5.2.2 <u>Consolidated TMDE Readiness Assessment Test, Measurement and Diagnostic Equipment Redistribution</u>. The CTRA Center manages the redistribution of Fleet TMDE to fill allowance deficiencies or replace equipment that is missing or BER. Excess TMDE and decommissioned ships' assets are received and made available for redistribution to FLEET activities. Fleet activities are required to forward all excess TMDE to the CTRA Center and to utilize the CTRA Center for the initial requests to fill replacement or deficient SCAT coded TMDE.

9.6.5.2.3 <u>Completion and Corrective Action Reporting (Submarines only)</u>. Commanding Officer, Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity issue a CTRA Completion Report, via the parent ISIC with TYCOM on copy, outlining corrective actions to be taken by the assessed command as a result of the CTRA. The assessed command will issue a corrective action letter within 90 days of receipt of the CTRA Completion Report to the parent ISIC and to the TYCOM.

9.7 <u>SHIPBOARD INSTRUMENTATION AND SYSTEM CALIBRATION</u>. The SISCAL Program, which includes SGCP, is responsible for the calibration and maintenance support for installed instrumentation and machinery control system calibration requirements per reference (e). Installed instrumentation calibration support parameters are documented in the ship specific CRL:

a.   Calibration Activity. Defines responsibility for calibration of shipboard installed instrumentation for the following three calibration activities.

(1)   Calibration Activity 1 (Level 1). Shipboard FCA is responsible for calibrating stand-alone instrumentation (i.e., gages, thermometers and switches). Instruments are typically calibrated onboard (in place or onsite) by the certified SGCP technicians using PMS MIP 9802 calibration procedures per the hull specific CRL. On submarines, shipboard FCA also perform transducer calibrations (system calibration) using H coded calibration cards in the PMS deck.

(2)   Calibration Activity 2 (Level 2). (Applicable to Surface Force ships, aircraft carriers and Landing Craft Air Cushion (LCAC)) SISCAL teams perform calibration support for machinery control system components (i.e., pressure transducers, temperature transducers, signal conditioners, display devices, meters, etc.). Except during yard or industrial periods when testing is mandated, these components are not calibrated as individual items. Instead, the entire measurement chain is calibrated as a single entity using Navy approved calibration standards and SCPs. Only SISCAL teams are authorized to use SCPs. Level 2 calibrations are performed onboard (in place or onsite) by SISCAL teams certified by the SISCAL EA, SSES 953. These teams are:

(a)   Surface Ships and aircraft carriers - NSWCPD, NAVSHIPYD and IMF Pearl Harbor and NAVSHIPREPFAC Japan. These teams will be augmented by RMC I-Level Production.

(b) Landing Craft Air Cushion (LCAC) - certified SISCAL teams at Assault Craft Units.

(3) Calibration Activity 3 (Level 3). RCC calibrates those instruments which require the use of unique calibration standards or facilities.

b. SISCAL Team Scheduling. (Not applicable to Sub platforms) SISCAL scheduling begins approximately six months before expiration date and is coordinated between the Port Engineer, CVN Maintenance Manager or SHIPSUP and the SISCAL scheduler. The SISCAL team workload is the Calibration Activity 2 instruments listed in the ship's CRL and is accomplished only by the NAVSEA authorized calibration agents listed in sub-paragraph a. SISCAL visits are scheduled for both triennial SISCALs and subsequent return visits (call-back). If a ship is in an industrial environment, then reference (n) applies until SISCAL effort can commence within the six months postindustrial availability period.

c. SISCAL Dashboard. A bi-weekly document issued by the SISCAL EA via e-mail to all SISCAL stakeholders provides the following:

(1) Triennial SISCAL visit scheduled on or before the calibration due date.

(2) SISCAL Report. A SISCAL report is provided to the ship after the triennial SISCAL visit. The report identifies the results of the calibration effort and includes a listing of all instruments that were not calibrated during the visit. Instruments that were not calibrated are listed under the following categories:

(a) Rejected (broken or out of tolerance).

(b) Previously rejected (PRE_REJ), left over from last SISCAL.

(c) Not Installed (NI), instrument missing.

(d) Not Done Due to Ship Operations (NDSO).

(e) Not Done at Ship's Request (NDSR).

(f) Not Done Due to Shipyard (NDSY).

(g) Could Not Be Isolated (CNI).

(h) Equipment Out Of Commission (OOC).

(i) Not On Site Capable (NOSC), No Procedure (NOPRO) or No Calibration Standard (NS). NSWCPD will coordinate with NAVSEA Program Offices to resolve.

(3) Call-back SISCAL visit. Listed as either a SISCAL call-back or SISCAL II. SISCAL II is used when more than 100 instruments require calibration. Visit is requested by ship, SHIPSUP or Port Engineer or CVN Maintenance Manager via OPNAV 4790/2K or AWR. Call-back requests citing multiple instruments are preferred to maximize SISCAL manpower availability and minimize cost. Non-specific requests (e.g., calibrate various instruments) should be avoided since the task breadth (quantity of instruments) and scope (type of instruments) cannot be readily determined. The 2K also identifies the

deferred maintenance for the instrumentation in the Current Ships Maintenance Project (CSMP).

d.   Departure From Specification (DFS). DFS messages are requests for temporary departures and are submitted per Volume V, Part I, Chapter 8 of this manual.

   (1)   A DFS for deferring SISCAL could be submitted for the following reasons:

   (a)   Extending the periodicity of the ship's SISCAL requirement. TYCOM approves DFS up to six months. DFS in excess of six months requires NAVSEA 04RM concurrence.

   (b)   Extending the periodicity for individual Level 2 and 3 instruments with expired calibration due dates or replaced while away from homeport or calibration facility.

   (c)   Level 2 instruments that were not calibrated during SISCAL due to lack of a calibration procedure or calibration standard.

   (d)   Other shipboard SISCAL DFS requests will be evaluated on a case-by-case basis.

   (2)   DFS requests will not be approved for the following:

   (a)   Instrumentation within the calibration capability of the SGCP FCA.

   (b)   Instrumentation not calibrated during a SISCAL visit due to an out of commission or rejected status.

e.   Shipboard Level 1 calibration workload beyond shipboard FCA capability or capacity must be submitted to their respective TYCOM or RMC calibration coordinator for scheduling and accomplishment. When contracted out to a Commercial Calibration Activity (CCA) or Commercial Service Provider (CSP) or an Original Equipment Manufacturer (OEM), the CCA, CSP or OEM calibrating such instruments must meet the NAVSEA METCAL TWH guidance for certification, accreditation, traceability and Test Accuracy Ratio, Test Uncertainty Ratio or Probability of False Accept. Commercial activities must provide the results of all calibrations performed by them and must use periodicities listed in the CRL for installed instruments. Commercial activities must also provide calibration event data to Ship's Force and TYCOM in a Microsoft Excel format for easy entry into the TYCOM Calibration Recall Program. Entries in the calibration events file must not be abbreviated. For existing, permanently installed instruments, the calibration events file data set must include the nomenclature, CRL reference number, condition received (i.e., In Tolerance (IT) or Out of Tolerance (OOT)), date calibrated, date due, procedure used, calibration standard used, servicing lab code and service label applied (i.e., calibrated, special calibration, rejected, etc., per reference (i)).

9.7.1 Calibration Requirements List. The CRL is the technical authority document for installed calibration requirements and includes data pertinent to each instrument (e.g., nomenclature, system, periodicity, calibration activity, etc.).

a.   The CRL is the specific primary technical authority guidance for shipboard installed instrumentation. CRLs are uploaded and maintained in the MCMS. For those ships that do not have MCMS, a CD-ROM will be distributed.

b.   CRL Validation. Ship's Force, TYCOM, or both, validate the CRL to identify any gaps or required modifications for their platform's unique configuration. Submit TM Feedback for CVNs, Technical Feedback Reports for submarines and MCMS feedback for surface ships for conflicts in nomenclature, function, range, location or calibration requirement. SISCAL teams are responsible for validating Level 2 instruments on surface ships and LCACs, LHA, LHDs and CVNs.

   (1)   (Surface and CVNs) An editable TM Feedback can be downloaded from Navy Forms Online web site at https://forms.documentservices.dla.mil/order/ and submitted hardcopy or completed online from the Navy Enterprise Service Desk (NESD) web site at https://nesd-dwp.onbmc.mil.

   (2)   (Submarine) TFBRs are submitted via normal PMS process outline in chapter 19-5 section 19-5.4.13 of this volume.

c.   For Calibration Recall and Inventory Systems other than MCMS, Ship's Force should match CRL data to the METCAL Automated Information System or Calibration Recall and Inventory System inventory and submit changes to the MEASURE Operational Control Center if the CRL and METCAL Automated Information System do not have matching data elements. Refer to the CRL CD-ROM Users Guide.

d.   The CRL is the technical authority document for all shipboard instrumentation calibration requirements. To preclude continuous and duplicative review of TM Feedbacks, inspecting activities are to coordinate directly with NAVSEA METCAL TWH, regarding any instrument believed to be critical but indicates No Calibration Required in the CRL. **Ship's Force must not calibrate these instruments unless specifically approved by NAVSEA METCAL TWH.**

e.   Broken or inoperative Level 2 installed instruments identified as CAL=Y in the CRL that are replaced during deployment must be calibrated prior to use. Broken or inoperative Level 2 instruments replaced during deployment must be calibrated as stand-alone instruments if they cannot be system calibrated prior to use. If unable to calibrate due to lack of Calibration Standard, qualified personnel or calibration procedure, submit a DFS per paragraph 9.7d. of this chapter and use an "Out-of-Cal" label per reference (o). Extreme care should be exercised when using "Out-of-Cal" instruments.

9.7.2 Calibration Interval. Since calibration intervals are identified in different technical documents, use the following order of precedence for determining and assigning the proper calibration interval:

a.   Reactor Plant Manual.

b.   PMS documentation.

c.   CRL.

d. Reference (g) of this chapter. Unless superseded by PMS, the generic calibration intervals for all other instruments found in Section 2 of reference (g) will be used.

e. System or equipment technical manuals.

9.7.2.1 <u>Switch Settings</u>. Switch settings must be following the applicable values listed in the CRL-MCMS for surface ships, Air Capable Ships and PMS system MRCs for submarines. If there is "To Be Determined" or no value listed, consult the applicable equipment technical manual and submit TM Feedback, Technical Feedback Report or MCMS feedback to get the documentation updated. Provide CRL Reference Number, setting used and the reference document used to derive the setting.

9.7.3 <u>Markings for Test, Measurement and Diagnostic Equipment</u>.

a. Installed Instrumentation. All instrumentation will have easily read serial numbers and be clearly labeled with current calibration labels per NAVAIR 17-35-TR8 except the Level 1 instruments that are calibrated by CCAs, CSPs or OEMs meeting the requirements of 9.7e. of this chapter will be affixed with their own labels showing their unique identifiers instead of the Navy METCAL labels. If the instrument does not have a serial number inscribed by the manufacturer, Ship's Force must inscribe a ship-generated serial number in a clearly visible location. Attached tags are acceptable for instruments without space for inscribing a serial number. Serial number should include Hull Number plus CRL reference number (i.e., DDG5100025).

b. Serial Numbers for TMDE other than Installed Instrumentation. All TMDE will have easily read serial numbers and be clearly labeled with current calibration labels per NAVAIR 17-35-TR8 except TMDE that is calibrated by CCAs, CSPs or OEMs meeting the requirements of 9.7e. of this chapter will be affixed with their own labels showing their unique identifiers instead of the Navy METCAL labels. If the TMDE item does not have a serial number inscribed by the manufacturer, Ship's Force must inscribe a ship-generated serial number in a clearly visible location. Attached tags are acceptable for TMDE without space for inscribing a serial number. Serial number should include Hull Number, plus Work Center, plus four-digit sequential number starting with 0001 (i.e., DDG51OE010001). The new serial number should be annotated in the TYCOM Calibration Program, either by the SGCP FCA for mechanical instrumentation or the Test Equipment Petty Officer for electronic test equipment.

c. The "Out-of-Cal" label listed in reference (o) is not a METCAL label but rather an operational label used to make watch standers aware of abnormalities that require additional attention. Please refer to reference (o) for proper use of the label. Extreme care should be exercised when using "Out-of-Cal" instruments.

9.7.4 <u>SISCAL System Level Calibration Guidance for Ship Conversion Navy Platforms and Platforms in CNO or other Maintenance Availabilities</u>.

a. The purpose of this section is to address the calibration of shipboard installed instrumentation requiring system calibration (Level 2) for new construction ships, ships in availability or overhaul and ships in their Fleet Response Training Plan (FRTP). This section does not apply to systems or instruments that are calibrated using the reactor plant manual guidance.

b.   For Ship Conversion Navy (SCN) platforms, the CRL is issued within 90 days of delivery and a baseline SISCAL team visit should occur as soon as practicable but must be completed within six months of Post Shake-Down Availability or availability completion. Prior to system or equipment acceptance testing and turnover to the Navy, the SCN program managers must ensure that all installed instrumentation requiring Level 2 calibration has been verified or tested by the shipyard or repair activity to ensure that they meet manufacturer's performance specification.

c.   For COMNAVSURFOR and COMNAVAIRFOR FRTP platforms, no changes have been made to the current Level 2 calibration requirements for ships in their FRTP cycle. Ships must submit a work request via 2-kilo or AWR as needed to maintain current periodicity requirements.

d.   Any work package authorizing modernization (i.e., accomplishment of a Ship Change Document outside of a scheduled availability), must include a requirement for calibration of Level 1 components as stand-alone individual items before turnover to the Navy and is the responsibility of the sponsor of the specific modernization item. These components must have valid calibration labels per NAVAIR 17-35-TR8 or calibration labels from CCA, CSP or OEM that meet NAVSEA METCAL TWH requirements. In addition, work packages that modify or install either complete or partial "measurement or signal chains" consisting of individual components (e.g., sensors, signal conditioners, displays) must also include a requirement for a Level 2 (system-level) calibration by a NSWCPD certified SISCAL team after completion of system acceptance testing by the Navy. All installed instrumentation requiring Level 2 calibration should be verified or tested by the shipyard or repair activity to ensure that they meet manufacturer's performance specification. The Level 2 calibration must be completed at the end of the maintenance availability. Should this requirement not be identified in existing planned and budgeted modernization efforts, it should be handled individually with sponsor. Work packages which only replace individual measurement chain components that are designated as NCR in the CRL such as Remote Temperature Detectors, thermocouples, magnetic pickups, etc., would not require Level 2 system calibration.

e.   To mitigate warranty and contractual issues on ships in industrial availabilities (i.e., maintenance availabilities or SCN overhauls), the NAVSEA Metrology and Calibration TWH has authorized a six month temporary DFS for system calibration of systems designated as Level 2 per the ship's CRL. To facilitate equipment testing and acceptance by the Navy during the industrial period, the following actions should be taken:

    (1)   Systems requiring system level calibration which are not affected by the availability or overhaul must be calibrated prior to start of the availability or overhaul to ensure that such systems are not in overdue status upon completion of the yard period.

    (2)   Systems or equipment that are added or modified with either complete or partial "measurement or signal chains" consisting of individual components (e.g., sensors, signal conditioners, displays) must include a requirement for the components to be verified or tested by shipyard or repair activity to ensure that

they meet manufacturer's performance specification before system or equipment acceptance testing and turnover to the Navy. Note that while the TWH has authorized a DFS for system level calibration during the industrial period, the DFS must be approved by the TYCOM per Volume V, Part I, Chapter 8 of this manual.

      (3)   Validity of all calibration labels must be verified during start-up maintenance.

      (4)   The Level 2 system calibrations must be scheduled and completed at the end of the maintenance availability.

    f.   It should be recognized that individually calibrated components, which are part of a measurement chain requiring system calibration, may not adequately represent the measurement accuracy normally provided by the system calibration process. Therefore, care should be exercised when using systems under temporary departure from system level calibration requirements.

    g.   Inspection teams, assessment organizations and training groups must not require ships coming out of an availability, overhaul or new construction to have Level 2 calibrations completed prior to the ship's first post maintenance period SISCAL visit unless the 6-month period has passed.

9.8 LHA AND LHD CLASS SHIP METROLOGY AND CALIBRATION PROGRAM.

9.8.1 Purpose. To establish the consolidated METCAL program for LHA and LHD class ships. This guidance implements policy and responsibility for the management of TMDE onboard these ship classes. The CNO METCAL policy is published in reference (a).

9.8.2 Background. LHA and LHD class ships have formerly operated three distinct calibration programs: AIMD FCA for aviation Support Equipment; Combat Systems Electronic FCA supporting GPETE and SPETE for the ship's non-aviation electronic or electrical and weapons systems; and the Engineering SGCP for installed instrumentation associated with HM&E systems. This guidance establishes and describes a consolidation of the three programs into a single program for shipboard calibration support. For the purpose of this section, TMDE are considered to be all shipboard GPETE, SPETE, Support Equipment, calibration standards and the installed instrumentation that support HM&E systems.

9.8.3 Discussion. The forces afloat METCAL program for LHA and LHD class ships is intended to improve force readiness and self-sustainability through the consolidation of the three existing, separate calibration programs laboratories into a single management entity under the management of the AIMD Officer. This guidance preserves the positive aspects of all previous calibration programs and results in a more efficient use of personnel, a conservation of physical space and a reduction of expenditures for calibration standards.

9.8.4 Scope. This guidance is directive in nature and may be cited as authority for actions as the need dictates. Reference (j) is a parallel effort onboard aircraft carriers, and may be used as an authoritative reference for overlapping procedures and responsibilities. Reference (k) provides MEASURE documentation procedures. Reference (g) remains the authoritative reference document for all general procedural issues relating to calibration. Reference (b) addresses CNO concepts, policies, organizations, maintenance support procedures and organizational or

intermediate maintenance. In the event the contents of this guidance or reference (j) conflict with any directive issued by higher authority, the latter must prevail.

9.8.5 <u>Applicability</u>. This guidance is applicable for all calibration performed by LHA and LHD class Ship's Force personnel, with the exception of technical matters pertaining to Radiation Detection, Indication and Computation equipment, which are the responsibility of Commander, Naval Sea Systems Deputy for Logistics (SEA 04). Nothing in this directive detracts from these responsibilities.

9.8.6 <u>Action</u>.

a.   Commanding Officers must have the overall responsibility for maintaining a high degree of calibration readiness for all TMDE.

b.   AIMD Officers must:

(1)   Be the shipboard METCAL program manager.

(2)   Be the consolidated FCA manager.

(3)   Provide calibration, per the intervals and procedures of reference (g), except as noted in paragraph 9.7 of this chapter, where the CRL takes precedence for SISCAL instrumentation calibration intervals and procedures. Provide repair services for all qualifying shipboard TMDE per reference (j).

(4)   Maintain custody of, and be accountable for, all shipboard standards for calibration of TMDE.

(5)   Use MEASURE to plan, schedule, monitor and document the calibration of all TMDE per reference (k).

(6)   Staff the shipboard FCA with qualified calibration technicians and provide training to maintain their proficiency.

(7)   Ensure all approved calibration standards are available to support the authorized workload.

(8)   Ensure all documentation required to support calibration is current and available to personnel operating the FCA.

(9)   Produce appropriate documentation or document the repair requirement and record repair accomplishment into MEASURE and the aviation Maintenance and Material Management system.

(10)   Calibrate all TMDE within the capability of the onboard FCA. Calibration standards have first priority for calibration, with all other priorities based on mission requirements determined in coordination with affected department heads.

(11)   Schedule required calibration and repair requirements beyond the capability of the shipboard FCA to another calibration laboratory. Calibration of NAVAIR Standards and Support Equipment beyond the capability of the FCA must be authorized and scheduled per reference (b).

(12)   Coordinate the calibration of TMDE that is beyond FCA capability with external resources based on accessibility and cost effectiveness. Five general categories of external resources are available to the FCA. The resources, in order of precedence to be used, are:

(a)   Ashore AIMDs and RCCs.

(b)   System Command sponsored Navy Calibration Laboratories.

(c)   Navy depot level activities.

(d)   Other Department of Defense calibration laboratories approved for use by TYCOM.

(e)   Navy Certified commercial calibration laboratories.

(13)   Coordinate all TMDE repairs with outside resources. The precedence (based on cost effectiveness) for selecting the outside resource for repairs is:

(a)   AIMD and RCC.

(b)   COMNAVAIRSYSCOM Depot Level Rework Program for Support Equipment and Items (Individual Material Readiness List).

(c)   Naval shipyards and ship repair facilities.

(d)   Designated Overhaul Points listed in the Master Repairable Item List.

(e)   Naval Systems Command field activities.

(f)   Navy Certified commercial repair facilities.

NOTE: REPAIR OF NAVAIR STANDARDS AND SUPPORT EQUIPMENT BEYOND THE CAPABILITY OF THE FCA MUST BE AUTHORIZED AND SCHEDULED PER REFERENCE (b).

(14)   Submit only operational TMDE for off-ship calibration. All functions and ranges to be calibrated must be operating and usable unless special calibration is requested. Verify all necessary accessories, power cords, and technical manuals, as required to complete the calibration, are included with the instruments at the time of calibration.

(15)   Request TYCOM authorization (COMNAVAIRFORCE) for repair of NAVAIR assigned calibration standards per the NAVAIR METCAL Scheduling Letter, NAVAIR Ltr 13640 Ser 3.9.2/series. Contact information for COMNAVAIRFORCE:

Phone -   Commercial (757) 445-4434, DSN 565-4434
Fax -   Commercial (757) 444-1690, DSN 564-1690
Message - COMNAVAIRFORCE SAN DIEGO CA//N421Q/N421QC//

(16)   Coordinate with Commander, Regional Support Center METCAL manager for SISCAL scheduling. AIMD is authorized to calibrate all instrumentation within the capability of the FCA except instruments requiring SCPs per the CRL. SCPs will be performed by SISCAL teams. Ensure SISCAL

instrumentation is calibrated at the periodicity with the procedure listed in the CRL.

(17)   Ensure the FCA provides support under the Strike Force Intermediate Maintenance Activity concept.

c.   Engineer Officers must:

(1)   Report all TMDE which require calibration to the AIMD Officer for inclusion in the ship's calibration recall schedule upon request.

(2)   Deliver portable TMDE for calibration to the FCA per the AIMD managed calibration recall schedule.

(3)   Coordinate in-place calibration requirements for non-portable TMDE with the AIMD Officer.

(4)   Ensure only operational TMDE are submitted for calibration. All functions and ranges to be calibrated must be operating and usable unless special calibration is requested. Verify all necessary accessories, power cords, and technical manuals, as required to complete the calibration, are included with the instruments at the time of submission.

(5)   Notify the AIMD Officer and, when applicable, the Combat Systems Officer, of any TMDE inventory changes, TMDE configuration changes, CRL changes that may affect the calibration recall schedule or require additional calibration procedures or standards.

(6)   Maintain the allowance quantities of authorized TMDE.

(7)   Report the inventory and configuration of all TMDE supporting HM&E systems and combat support systems using the SCLSIS.

(8)   Maintain a ship specific CRL or Critical Instruments List for ship HM&E systems and combat support systems.

(9)   Submit all TMDE repair requirements to the AIMD Officer. A formal repair request, such as a Visual Information Display System/Maintenance Action Form (VIDS/MAF) or an OPNAV 4790/2K, is not required for repair by the shipboard FCA. MEASURE METER cards will be provided by the ship's calibration laboratory.

d.   Air Officers must:

(1)   Report all TMDE eligible for calibration to the AIMD Officer for inclusion in the ship's calibration recall schedule.

(2)   Deliver portable TMDE for calibration to the FCA per the AIMD managed calibration recall schedule.

(3)   Ensure only operational TMDE are submitted for calibration. All functions and ranges to be calibrated must be operating and usable unless special calibration is requested. Verify all necessary accessories, power cords, and technical manuals, as required to complete the calibration, are included with the instruments at the time of submission.

(4)   Coordinate in-place calibration requirements for non-portable TMDE with the AIMD Officer.

(5)   Notify the AIMD Officer and, when applicable, the Combat Systems Officer, of any TMDE inventory changes, TMDE configuration changes that may affect the calibration recall schedule, in-place calibration requirements or require additional calibration procedures or calibration standards.

(6)   Maintain the allowance quantities of authorized TMDE.

(7)   Submit all TMDE repair requirements to the AIMD Officer. A formal repair request, such as a VIDS/MAF or an OPNAV 4790/2K, is not required for repair by the shipboard FCA. MEASURE meter cards will be provided by the ship's calibration laboratory.

e.   Combat Systems Officers must:

(1)   Report all portable and installed GPETE or SPETE eligible for calibration to the AIMD Officer for inclusion in the ship's calibration recall schedule.

(2)   Deliver portable TMDE for calibration to the FCA per the AIMD managed calibration recall schedule.

(3)   Ensure only operational TMDE are submitted for calibration. All functions and ranges to be calibrated must be operating and usable unless special calibration is requested. Verify all necessary accessories, power cords, and technical manuals, as required to complete the calibration, are included with the instruments at the time of submission.

(4)   Notify the AIMD Officer of any TMDE inventory changes, TMDE configuration changes that may affect the calibration recall schedule or require for additional calibration procedures or calibration standards.

(5)   Maintain GPETE and SPETE inventories in quantities allowed in the SPETERL. Include funding procurement of TMDE when assets are not available through CTRA programs.

(6)   Report the inventory and configuration of all TMDE supporting combat systems using SCLSIS.

(7)   Submit all TMDE repair requirements to the AIMD Officer. A formal repair request, such as VIDS/MAF or an OPNAV 4790/2K, is not required for repair by the shipboard FCA.

9.9 NUCLEAR PROPULSION CALIBRATION REQUIREMENTS. Nuclear propulsion plant gages, meters, thermometers and other instruments in those reactor plant systems specified by reference (p) must be calibrated following the requirements of the applicable Reactor Plant Manual. Other nuclear-powered ship's system calibration must be performed per the requirements of reference (a).

VOLUME VI

CHAPTER 10

MOTOR GASOLINE HANDLING AND STORAGE

REFERENCES.

(a) NAVSEA S9086-SP-STM-010 - NSTM Chapter 542 (Gasoline and JP-5 Fuel Systems)
(b) COMNAVAIRLANT/COMNAVAIRPACINST 3400.4 - Air Department Standard Operating Procedures
(c) NAVSEA S9086-WK-STM-010 - NSTM Chapter 670 (Stowage, Handling and Disposal of Hazardous General Use Consumables)
(d) OPNAVINST 5100.19 - Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
(e) COMNAVSURFPAC/COMNAVSURFLANTINST 4020.1 - Motor Gasoline Certification Program for L-Class, MCM-Class and T-ESB-Class Ships
(f) COMNAVSURFPAC/COMNAVSURFLANTINST 4020.2 - Standard Operating Procedures for Motor Gasoline and Jettison Systems on Commander Naval Surface Force U.S. Pacific Fleet/Commander Naval Surface Force Atlantic Ships
(g) Aviation Fuels Operational Sequencing System/Engineering Operational Sequencing System
(h) 49 CFR - Code of Federal Regulations Title 49 - Transportation
(i) 46 CFR - Code of Federal Regulations Title 46 - Shipping
(j) NAVSEA S9086-S3-STM-010 – NSTM Chapter 593 (Pollution Control)
(k) CID A-A-59592 - Commercial Item Description – Can, Fuel, Military
(l) UL 30 - Underwriters Laboratories 30 – Standard for Metal Shipping Can
(m) MIL-D-23119 - Collapsible Rubberized Fabric Drums
(n) NAVSEA S9086-S3-STM-010 – NSTM Chapter 555 V1 (Surface Ship Firefighting)

10.1 PURPOSE. To provide guidance and safety requirements for the storage, handling and loading of Motor Gasoline (MOGAS) aboard ship. In view of the special hazards involved in the handling of MOGAS, Commanding Officers must ensure strict compliance with all MOGAS handling safety instructions, Aviation Fuel Operational Sequencing System (as applicable), references (a) through (f) and this chapter. The Commanding Officer's approval must be obtained prior to any MOGAS operation. The Aviation Fuels Officer, or other officer as may be directed by the Commanding Officer, must be directly responsible for the planning of all MOGAS operations (i.e., loading, off-loading or transfer of gasoline, etc.), including the training of all MOGAS operation and handling personnel. Any deviation from the safety precautions and procedures of reference (a) or this chapter must have the approval of the appropriate Type Commander. Additionally, the Commanding Officer may specify any additional safety precautions to be taken as the situation dictates.

10.2 CHARACTERISTICS.

a. Gasoline is a highly volatile liquid that gives off vapors under all environmental conditions. This vapor, when combined with air in the proper proportion

(approximately 1.4 to 7.6 percent by volume), forms an explosive mixture that can be set off by any ignition source such as a slight spark or flame. If liquid gasoline is present, the violent explosion will be followed by fire.

b. Air, at ordinary atmospheric temperature, can absorb as much as 28 percent gasoline vapor. Gasoline vapors are three to five times heavier than air, and when released, will tend to sink to the lowest level of a compartment. Liquid gasoline will expand 0.7 percent for each ten-degree increase in temperature.

10.3 <u>PERSONNEL HAZARDS</u>. Gasoline and gasoline vapors are extremely toxic; breathing air that is rich in gasoline vapor can and has caused unconsciousness and in some cases death. Gasoline vapors, even in concentrations of less than 1.0 percent, may cause nausea and headaches if inhaled for any length of time. Strong concentrations of gasoline vapors produce an excited state leading to unconsciousness. Gasoline saturated clothing will cause irritation and severe burns to the skin and will ignite if exposed to a source of ignition. Gasoline splashed in the eyes can cause blindness. Severe physical and mental complications may result from inhalation or body absorption. Ship's personnel must be instructed in the characteristics of MOGAS and the necessary precautions to prevent personnel injury by exposure to MOGAS or its vapor.

10.4 <u>STORAGE AND HANDLING</u>.

10.4.1 <u>Drum and Bladders Conditions</u>. Ships capable of carrying MOGAS in jettison racks or lockers, and ships that receive temporary installation of MOGAS jettison rack or locker systems, will maintain them in one of the following conditions at all times.

a. Only Naval Sea Systems Command (NAVSEA) approved storage containers as specified in reference (a) and reference (c) shall be used. All MOGAS containers shall be inspected by ship personnel prior to storage in the MOGAS storage area. Any container that shows signs of wear, leakage, or weeping of fuel will be rejected.

b. Empty bladders may be stacked on top of each other and stored in the MOGAS storage locker. Empty MOGAS containers contain enough residual gasoline liquid and vapors to support ignition or explosion. They will be treated with the same precautions as full containers.

c. All fueling equipment (hand-driven pumps, hoses, faucets, etc.) should be stored on the MOGAS sponson or Air Department equipment locker.

d. When in port, ensure the jettison rack(s) and jettison locker(s) are rendered safe (insert locking pins and stanchion).

e. Reference (c) and reference (g) if assigned contain guidance on the handling of MOGAS and shall be reviewed by personnel prior to all MOGAS operations. All equipment used in these operations shall be kept clean and in good condition and shall be inspected frequently per Planned Maintenance System and current directives

f. Fifty-five gallon stainless steel drums, approved bladders and cans will be used to store MOGAS per reference (a), reference (h), section 172.101, and reference (i), section 147.45.

g.   Inspect drums to be filled. Drums must be in good condition and have no structural damage. The drum cap must be intact with good gaskets and treads. Replace gaskets or caps if damaged.

h.   Inspect drum vents and faucets. Vents and faucets must be in good working order.

i.   Verify all portable bladders have been tested and inspected. Inspect all cans or unit to be fueled. Reject any condition not suitable for MOGAS stowage or in poor condition.

10.4.2   Loading or Off-loading and Transferring

a.   References (f), and (g) provide amplifying responsibilities and assigned actions for the safe and efficient on-load or off-load of 55-gallon drums of MOGAS from transport truck or to base Hazardous Material truck at the pier.

b.   USS (*SHIP)* will on-load or off-load 55-gallon drums of MOGAS from transport truck or to base Hazardous Material truck on the pier, via Monorail chain fall system to or from MOGAS Storage Platform to or from on the specific date and time identified. The Division will be responsible for planning and coordinating the ship's MOGAS (on-load and off-load) evolution at the pier reference (f).

c.   The ship's Officer in Charge will be responsible for proposing a primary and alternate on-loading or off-loading plan and loading dates consistent with the ship's availability by naval message directly to the appropriate manger identified for the ships homeport region.

d.   Smoking lamp and all hot work shall cease during this evolution. Ship will on-load or off-load MOGAS only between sunrise and sunset.

f.   The Ships Fire party must be on station prior to the truck entering the pier and remain on station until the truck has departing the pier, Aqueous Film Forming Foam hoses must be manned at all times during on-load or off-load.

g.   Upon notification that a MOGAS evolution will occur, all personnel involved shall become thoroughly familiar with the evolution through training and indoctrination.

h.   Conduct a safety brief on the specific date and time identified on USS (*SHIP)* using reference (f) for all participating members delineated. Brief, mitigate, and implement controls for the hazards specified in the risk assessment.

i.   Give a minimum of 24 hours notification to the Naval Base Environmental Department, Base Port Operations, and Base Fire Marshall of the ship's plan to transfer MOGAS.

j.   Ensure effective communication via handheld radios is established between personnel stationed at the pier and MOGAS storage platform.

k.   Use of non-ferrous (spark-proof) tools.

l.   The Base Fire Marshal must be notified and ensure that all firefighting equipment is in position, the truck is grounded to the ship and to the water prior to the hose being placed on the ship.

m. Most MOGAS inventory requirements are controlled by the Landing Force Operating Reserve Material. They will make necessary arrangements for the delivery, pickup or crane assistance of the MOGAS. The ship will be responsible for requesting, by message, an on-load or off-load date and time, and an alternate date and time, for the evolution to commence. This message information will be provided to the local Naval Base Commander.

n. In the event of a MOGAS spill, precautionary measures shall be taken to minimize the danger of a fuel spill by blocking the scupper, assuring the availability of adequate manpower, and having sufficient containment and cleanup equipment, such as the Navy oil spill control kit per reference (j).

10.4.3 Safe Handling of Motor Gasoline.

a. Do not allow drums to be staged unattended outside the dedicated MOGAS storage area

b. Do not allow MOGAS to set staged in hangar bay, sponson, mission deck, or elevator for more time than absolutely necessary. Overnight would be unacceptable.

c. Hold frequent firefighting drills, with particular emphasis on the MOGAS jettison system.

d. Immediately clean up any spilled or leaked gasoline and dispose of any rags or other cleanup material per ship's instructions.

e. Gasoline must not be used for cleaning purposes under any circumstances.

f. Conduct frequent inspections to ensure system integrity and tightness.

10.4.4 Containerized Motor Gasoline. Gasoline shall be stowed in portable containers aboard ship in a manner in which they may be jettisoned overboard in the event of an emergency. Portable containers may be stowed on a rack, ramp, or grated deck, where when the release mechanism is actuated, the containers are jettisoned overboard. Both automatic and manual actuation means are required. Smaller containers, such as 6 or 18 gallon bladders may be stowed in a locker. Similarly, when actuated for release, the containers are jettisoned overboard from the locker. Gasoline stowage shall be located on the weather deck only, except where approved by NAVSEA in accordance with reference (a).

10.4.5 Portable Containers. Approved portable containers are identified in references (a) and (c), but are provided here:

a. Metal or safety cans per reference (k) or reference (l).

b. Fifty-five gallon stainless steel drums per reference (h), section 172.101, and reference (i), section 147.45.

c. Collapsible rubberized fabric drums (bladders) per reference (m) or specifically approved by NAVSEA.

d. Rigid portable fuel containers per reference (k).

10.4.6 Firefighting and Safety Requirements. Ensure all personnel involved in the operation or movement of MOGAS are trained and briefed. During an on-load or off-load evolution station the fire parties per references (g) and (n).

10.5 <u>MOTOR GASOLINE ASSESSMENT PROGRAM</u>. The MOGAS Assessment Program has been established to assist Ship's Force personnel in the operation and maintenance of the installed MOGAS systems. This program requires an assessment to be conducted on each MOGAS equipped ship annually, prior to on-load or off-load of MOGAS evolutions, and prior to an industrial or fleet maintenance availability.

    a.   To certify ship's personnel in the operation and maintenance of the installed MOGAS system or jettison rack or locker systems. This program calls for an assessment visit to all ships with a MOGAS jettison system by representatives of RMC Code 200, and the applicable ISIC prior to pier-side loading or off-loading of MOGAS. Request for certification or assessment will be coordinated with each ISIC, to ensure optimum scheduling of the certification or assessment. Certification remains in effect for 12 months providing the term be not in conflict with the following mandatory certification inspection requirements.

        (1)   After completion of any significant alteration or modifications.

        (2)   Following overhaul or extended shipyard availability where MOGAS systems were worked on.

        (3)   Upon request from the respective ships through each applicable ISIC.

    b.   The MOGAS Assessment Program must be conducted by the ISIC, and will consist of the following elements:

        (1)   Conducting required assessments, and providing assessment reports to the appropriate Type Commander and Fleet Commander.

        (2)   Taking corrective action on minor discrepancies and providing guidance for repairs of major discrepancies.

        (3)   Providing on the job training for operators and maintenance personnel, as requested.

        (4)   Reviewing and validating the Coordinated Shipboard Allowance List, Aviation Fuel Operational Sequencing System, Planned Maintenance System, Personnel Qualification Standard and the associated technical manuals.

        (5)   Providing assistance during MOGAS on-load or off-load evolutions, as requested.

        (6)   Performing assist visits when requested by the ship.

    c.   LPD 17 Class MOGAS Assessment and Certification should be conducted per reference (e).

VOLUME VI

CHAPTER 11

**MAINTENANCE, REPAIR AND OVERHAUL OF
SERVICE CRAFT, LANDING CRAFT AND SMALL BOATS**

REFERENCES.

    (a)   OPNAVINST 4780.6 - Policy for Administering Service Craft and Boats in the U.S. Navy

    (b)   OPNAVNOTE 4780 - Service Craft and Boats Accounting Report (SABAR)

    (c)   NAVSEA S9086-TX-STM-010 - NSTM Chapter 583 (Boats and Small Craft)

    (d)   NWP 1-03.1 - Naval Warfare Publications Operational Report

    (e)   NAVSEA S9086-HB-STM-010 - NSTM Chapter 233 (Diesel Engines)

11.1 PURPOSE. To provide guidance and assign responsibilities for the maintenance and repair of service craft, landing craft and small boats.

    a.   Personnel assigned to individual ships, service craft or responsible shore based activities must perform all landing craft, service craft and boat maintenance within their capabilities.

    b.   Landing craft, small boats and service craft must be maintained with the same care that naval ships receive. This is particularly true for boats which also serve as ready lifeboats.

    c.   (Submarine Force only) If there is no Unit Identification Code (UIC) assigned to the craft, the parent command's UIC and a unique Work Center will be used for Current Ship's Maintenance Project control and any related OPNAV 4790/2K (see Chapter 19, Appendix E of this volume).

11.2 MATERIAL READINESS.

    a.   Regular periodic inspections of landing craft, small boats and service craft must be conducted by the command to which the craft is assigned (referred to hereafter as the "parent command"). Use Fleet Maintenance Activity (FMA) facilities to conduct the required periodic inspections, whenever possible. The results of these inspections will determine the need for repairing a craft or boat. Submit overhaul and major maintenance items (i.e., engine overhauls and hull repairs beyond the ability of the parent command) to the appropriate Type Commander (TYCOM), no later than 15 January for the current and following two years. The requests for maintenance must cite the boat or craft hull number and the fiscal year quarter in which the overhaul or major maintenance availability is desired. Any significant changes to previously submitted maintenance requests must be discussed in detail (i.e., material condition of the craft affected by the change, operational commitments requiring changes, etc.).

    b.   To conserve repair funds and assets, and to maintain craft and boats in a satisfactory state of material readiness, Commanding Officers of ships and shore activities must set up a training program for all personnel connected with the operation and maintenance of craft and boats. Pride of ownership should be instilled in boat crews and assigned

unit personnel. Use available personnel and funds to the fullest extent possible before requesting help from the FMA to perform routine or emergent repairs.

c.   Active service craft are inspected by the Service Craft Material Inspection Board, per reference (a), to support industrial availability planning. Deficiencies identified by the Service Craft Material Inspection Board must be entered in the Current Ship's Maintenance Project prior to the Work Definition Conference. Service craft parent commands must ensure reference (b) accurately reflects the current status of requested availabilities.

d.   TYCOMs will aid parent commands with landing craft, small boat and service craft industrial availabilities by:

(1)   Scheduling availabilities.

(2)   Establishing overhaul cycles including, budgeting, scheduling, and funding per the requirements of reference (b).

11.3 MAINTENANCE OF LANDING CRAFT AND SMALL BOATS ASSIGNED TO AFLOAT UNITS.

a.   Commanding Officers are urged to take full advantage of the FMA facilities for Ship's Force upkeep and repair of their landing craft and boats. A limited quantity of hand and power tools and air compressors are available at the FMA for Ship's Force use. Ships may borrow these tools by sending a properly prepared work request (OPNAV 4790/2K) directly to the FMA, Regional Support Group (RSG) or Regional Maintenance Center (RMC). Depending on the workload, assist teams from the FMA, RSG or RMC may be available to assist with the inspection of boats and craft. COMNAVSURFLANT and COMNAVSURFPAC ships and units must obtain tools from the FMA per the requirements of Chapter 30 of this volume.

b.   Ship personnel desiring to make use of FMA, RSG or RMC facilities should send a work request (OPNAV 4790/2K) to the FMA, RSG or RMC requesting crane services to handle the craft or boat and stowage space for accomplishing the work. Limited repair material not normally available onboard ship may be obtained from the FMA, RSG or RMC by including required items in the work request.

c.   If long usage or extensive damage to any boat or landing craft is such that repairs by Ship's Force cannot keep a boat or craft in a proper state of readiness, a work request (OPNAV 4790/2K) must be submitted to the FMA, RSG or RMC via the TYCOM or Immediate Superior In Command (if assigned). The work request must show the following additional information in Section IV of the OPNAV 4790/2K:

(1)   Boat or landing craft registry number.

(2)   Complete description of the work requested.

d.   The FMA, RSG or RMC will accept such requests, provided that:

(1)   The ship is not scheduled for a routine Chief of Naval Operations (CNO) Maintenance Availability in the immediate future.

(2)   The repairs are beyond the capacity or capability of Ship's Force to accomplish.

(3)   Enough time in advance of the ship's next scheduled operation is allowed for the FMA to perform the repairs and return the boat or landing craft to the ship before departure.

e.   When a boat or landing craft is badly damaged, a statement of the circumstances surrounding the damage must be submitted with the request for repairs.

f.   Before delivery of a boat or landing craft to the FMA for repairs, Ship's Force must accomplish the following:

(1)   Remove all items of outfitting and all portable parts invoiced with the hull, including compass, tools, batteries, and portable lights.

(2)   Drain and clean the bilges of dirt, diesel fuel, and oil. When it is not possible to deliver the boat or landing craft in this condition, the repair activity will be notified in advance so that arrangements can be made for gas free inspections.

g.   Reference (c) provides details for transfer, receipt, disposal and survey of boats and landing craft. Replacement boats or landing craft are normally available from Naval Sea Systems Command (NAVSEA), via the TYCOM, upon receipt of a valid Boat Inspection Report per reference (c).

h.   If the FMA cannot accomplish the requested boat or landing craft repairs, the Commanding Officer of the FMA will advise the ship to request an availability from the TYCOM.

11.4 LANDING CRAFT AND SMALL BOAT REPAIRS DURING CHIEF OF NAVAL OPERATIONS MAINTENANCE AVAILABILITY.

a.   Hull repairs affecting strength and watertight integrity beyond the capability of Ship's Force are considered urgent items. Ship's Force must ensure that the required repairs are included in the work package for screening at the Work Definition Conference.

b.   Boats and landing craft which do not require work by an industrial activity should normally accompany the ship during the availability. Stowage areas can usually be made available at the industrial facility for accomplishment of Ship's Force work. Commanding Officers should not overlook the facilities available at FMAs for accomplishment of this work while the ship is undergoing a CNO Maintenance Availability.

c.   Tests of landing craft and boat lifting gear must be accomplished during the ship's CNO Maintenance Availability per reference (c) and Volume IV, Chapter 13 of this manual.

11.5 MAINTENANCE OF SERVICE CRAFT, LANDING CRAFT AND SMALL BOATS ASSIGNED TO SHORE ACTIVITIES, GROUP AND SQUADRON COMMANDERS.

11.5.1 Unit Level Maintenance.

a.   Maintenance and repair of craft and boats within the capability of the parent command should be budgeted, scheduled, and accomplished to maintain a high state of material

readiness. Commands and activities must appoint a Maintenance Officer as a sole point of contact for all matters relating to boat and craft maintenance. The Maintenance Officer must be capable of making maintenance decisions based on engineering and operational parameters and should actively participate in the planning and execution of all maintenance actions affecting the parent command.

b. Annual budget proposals submitted by the parent commands to their TYCOM must address anticipated funding requirements to maintain the material condition of all assigned boats and craft, the accomplishment of approved modifications and modernization work (within the parent command's capability), and must discuss in detail how these funds will be applied to specific craft or boats.

c. Request for changes to boat or craft inventories, resulting from mission requirement changes, must be assessed in terms of maintenance capabilities and budget constraints. Approval of such changes may require the TYCOM to adjust the unit's Operating Target allocation for maintenance. The impact on maintenance support for changes in inventory must be assessed for each unit by the TYCOM before instituting changes.

11.5.2 Fleet Maintenance Activity Level or Contractor Assist Maintenance.

a. Repairs to craft and boats which are beyond the capabilities of the parent command, must be documented on work requests (OPNAV 4790/2K) and submitted to the cognizant FMA, RSG or RMC for accomplishment. Repair funds for craft and boats are budgeted for FMA activities, on a quarterly basis, by the TYCOM. Individual craft and boat work packages will be screened by the TYCOM to ensure accomplishment within allocated funding.

b. Work requests which are screened as beyond the capability of the FMA will be submitted to the TYCOM for screening to an industrial activity. Industrial repairs are normally programmed for accomplishment during scheduled craft or boat overhauls or other availabilities, unless the repairs are of an emergent nature and have been documented with a Casualty Report per reference (d). FMAs, RSGs or RMCs will accept emergent work requests, to clear Casualty Reports, on a case basis with TYCOM approval.

c. Shore based commands which have craft or boat repairs being accomplished by industrial activities retain the responsibility for these repairs. The parent command is responsible for maintaining liaison with the industrial activity and keeping the TYCOM informed, via the RSG, RMC or Immediate Superior In Command, of problems or potential problems.

11.5.3 Overhaul of Service, Landing Craft and Small Boats.

a. A four to five-year overhaul cycle has been established by the CNO for self-propelled service craft, high value boats and landing craft (e.g., SLWTs, service craft and LCUs). For other craft and boats, the necessity for overhaul is determined by usage and material condition and will generally be conducted every four to five years or as required by reference (a).

b. Service, landing craft and boats undergo CNO Maintenance Availabilities to accomplish major maintenance and modernization items which, in the judgment of the

TYCOM, are beyond the unit or FMA capability. All high value boats, landing craft and service craft receive complete and thorough availabilities within the available funding. The primary goal is to accomplish all outstanding repairs and major maintenance items to ensure reliable operations during the craft's projected operational cycle.

c. There are basically two distinct types of availabilities applicable to boats and service or landing craft:

(1) Supervisor of Shipbuilding administered industrial availabilities using a work package consisting of OPNAV 4790/2Ks.

(2) CNO Maintenance Availabilities administered through the Naval Supply Center (contracting agency) by the FMA, RSG or RMC for smaller craft or boats with less extensive maintenance and repair packages.

d. After the Work Definition Conference, and before the contracting authority (Supervisor of Shipbuilding or Naval Supply Center) issues the Invitation for Bids to potential bidders, the TYCOM and parent command will review the copies of the bid specifications for accuracy and completeness. The parent command must complete the review quickly and report any discrepancies to the TYCOM. The TYCOM will resolve any discrepancies in the bid specifications with the contracting authority before the Invitation for Bids is released.

e. Post-repair trials for craft and boats are conducted, as applicable, per Volume II, Part I, Chapter 3 of this manual.

11.6 RESPONSIBILITIES. For both types of industrial availabilities identified in paragraph 11.4.3.c of this chapter, the following responsibilities are assigned:

11.6.1 Type Commander.

a. Coordinate all aspects of the advance planning.

b. Authorize all new industrial work items.

c. Authorize all growth in an existing industrial work item.

d. Provide funding to accomplish all authorized work.

e. Monitor and approve all changes in established milestones (internal milestones, used by the industrial activity to monitor schedule progress, are not subject to TYCOM approval).

f. Direct appropriate action when the quality or completeness of the industrial activity work is in question.

11.6.2 Immediate Superior In Command. (if not assigned, these functions will revert to the TYCOM)

a. Review overhaul progress reports.

b. Review Ship's Force and FMA concurrent work.

c. Ensure pertinent directives are followed concerning the safety of personnel and equipment.

d.   Attend sea trial and overhaul completion review conferences.

e.   Assist in all aspects of the planning and monitoring of industrial availabilities.

11.6.3 Commanding Officers of Parent Commands.

a.   Coordinate all planning aspects of craft or boat overhauls with the TYCOM and Immediate Superior In Command (where assigned).

b.   Prepare and submit overhaul progress reports per Volume II, Part I, Chapter 3 of this manual.

c.   Ensure enough trained personnel are assigned to on-site monitoring of craft or boats while in an industrial availability.

d.   Fulfill all responsibilities for safety of craft and personnel.

11.7 REPAIR AND OVERHAUL OF SMALL BOAT ENGINES.

a.   Boat and craft custodians must repair and maintain engines on a continuing basis using their Operating Target. Replacement parts must be obtained through the Navy Stock system, when available, to prevent the potential for using erroneous parts and to simplify stocking of parts.

b.   Craft and boat engine overhaul intervals are determined by engine operating hours as specified in reference (e) or, for engines over 400 Brake Horsepower, by trend analysis.

c.   Boat Alterations are issued for the replacement of engines no longer supported by the supply system. Direct questions concerning the status of obsolete engines to NAVSEA (PMS 325) or the TYCOM.

d.   All spare boat engines or engines being turned in for replacement must be preserved per reference (e) and stored in an enclosed protective compartment.

11.8 BOAT ALTERATIONS.

a.   Submit Boat Alteration requests to NAVSEA, (PMS 325) via the chain of command.

b.   The accomplishment and funding of approved Boat Alteration must be managed by the TYCOM.

11.9 OPERATION OF SMALL BOAT ENGINES. The operation and maintenance of all diesel engines on boats and craft must be per reference (e).

VOLUME VI
CHAPTER 12
DEGAUSSING

REFERENCES.

(a) OPNAVINST S8950.2 - Electromagnetic and Acoustic Signature Control for Mine Warfare
(b) NAVSEA S9086-QN-STM-010 - NSTM Chapter 475 (Magnetic Silencing)
(c) NAVSEA S9475-AC-PRO-010 - Degaussing Forms, Records and Reporting Procedures
(d) NAVSEA S5475-AL-PRO-010 - Principles and Procedures for Magnetic Treatment of Ships
(e) SSPINST 8950.2 - Procedure for Fleet Ballistic Missile (FBM)/Strategic Weapons System (SWS) Components During Flash-Deperm Treatment of an SSBN

12.1 PURPOSE. To provide magnetic silencing and deperming requirements, and the check ranging and reporting procedures defined by reference (a). Reference (b) provides the basic principles and background of degaussing.

12.2 DEGAUSSING DEFINITIONS.

12.2.1 Check Ranging. The action of a ship making reciprocal range runs over an instrumented array at a Magnetic Silencing Facility (MSF), for purposes of measuring the ship's degaussed magnetic signature. Check ranging is the principle method to determine the effectiveness and reliability of degaussing systems. A satisfactory check range is two range runs on reciprocal headings within a six-week period which are determined to satisfy the requirements of reference (a) while ship's degaussing equipment (if installed) is operating properly and all required on-board information has been provided. Underwater Electromagnetic Measurement Systems for check ranging are available at the following locations:

San Diego, CA	Norfolk, VA
Pearl Harbor, HI	Mayport, FL
Yokosuka, Japan	New London, CT
Kings Bay, GA	Souda Bay, Greece

12.2.2 Degaussing Folder. The Degaussing Folder (NAVSEA 8950/1) is an official ship log which contains all information needed by degaussing authorities. It contains instructions for operation of the degaussing system, degaussing charts, values for current and turn settings, installation forms, compass compensation forms and a log section which documents all pertinent details of magnetic treatment and of actions taken related to the ship's degaussing system. The degaussing folder is issued to a ship by the MSF that renders the initial magnetic treatment and system calibration. Reference (c) provides the detailed requirements for maintaining the degaussing folder.

12.2.3 Degaussing System. A shipboard system which reduces the residual permanent and induced magnetic signature of the ship, and is the ship's primary passive mine countermeasure

system. Different combinations of degaussing coils, types of controls and power supplies comprise a degaussing system.

12.2.4 <u>Degaussing System Calibration</u>. The process whereby the ship's magnetic signature is measured, analyzed and ship-specific signature compensating coil settings are developed and provided to the ship.

12.2.5 <u>Deperming</u>. Deperming is typically performed as part of the ship's degaussing system calibration, as specified in reference (a). It is the magnetic treatment of a ship's hull to minimize permanent magnetism and is also performed to place the ship's permanent magnetization into a standard condition such that it is approximately the same as the other ships in the class. The deperming needs of operational ships are established by check ranging.

12.2.6 <u>Magnetic Compass Compensation</u>. Magnetic field from a ship's degaussing system can interfere with a ship's magnetic compass heading and make the system useless for navigation. Per reference (b), a compensating coil is set up around the magnetic compass to neutralize the effect of degaussing coil field in the vicinity of the compass. Magnetic compasses that use fluxgate technology have a degaussing compensation system that does not rely on compensation coils.

12.3 <u>SURFACE SHIPS AND SUBMARINES WITH DEGAUSSING SYSTEMS</u>.

   a.   Reference (a) mandates check ranging for all surface ships and submarines with degaussing systems. To meet minimum requirements, a satisfactory check range is required every six or twelve months depending on the type of system installed. Normally, ships are automatically ranged by degaussing facilities (listed in paragraph 12.2.1 of this Chapter) as they transit channels between the hours of 0800-1600 weekdays only. If ranging is required outside of typical hours or on weekends, arrangements must be made with the MSF. In addition to periodicity requirements, check ranging must be performed:

   (1)   After new construction.

   (2)   Before and after a major dry-docking availability.

   (3)   After a major shock to the hull from a nearby explosion.

   (4)   After grounding or collision.

   (5)   As feasible, before entering mined waters.

   (6)   Before issuing a Casualty Corrected of any Casualty Report degaussing equipment.

   (7)   At every opportunity, when entering or leaving a U.S. Navy port with ranging facilities (ranging at a non-USN range facility is not permitted without prior CNO approval). **Declining use of range facilities is not an option**.

   (8)   After a major alteration to the hull and superstructure.

   (9)   Within 90 days prior to deployment

   b.   Ships forward deployed to areas without ranging facilities are exempted from check range requirements by reference (a).

c.   When a ship which receives notification from an MSF of unsatisfactory magnetic condition and the reason for unsatisfactory signature is a degaussing equipment failure, the ship is required by reference (a) to report via Casualty Report as directed by Chapter 5 of this volume.

d.   A ship's degaussing system must be de-energized (or secured) prior to system calibration, unless degaussing coil settings approved by NAVSEA have been provided. Alternatively, if it is not feasible to secure the system, the degaussing coil power supply outputs must be set to zero Amperes. The degaussing system may temporarily be energized for testing, maintenance and other related work.

e.   Calibrated degaussing systems will be operated at all times while underway.

12.3.1 <u>Check Ranging</u>.

a.   Before check ranging, contact the range facility by voice radio. Range crossings will be considered invalid unless the range is clear of other traffic (including tugboats) before and during the crossing.

b.   Ranging facility requires the following information:

(1)   Coil Settings. Once the ship is on course, and before the ship crosses the range, inform the facility of actual ammeter currents and polarities. Ensure the meter readings are correct for both zone and polarity. Actual coil currents in effect during the crossing MUST be recorded and reported to the MSF for satisfactory check ranging.

(2)   Ships with Advanced Degaussing systems. Due to the large number of coil currents required to be reported, ships with these systems must make arrangements with the MSF to deliver this information by facsimile or other electronic methods after the crossing occurs. Current values must be recorded while ship is crossing the range on a steady heading.

(3)   Ship's Draft. Forward and aft drafts. Provide actual keel drafts, vice navigational drafts.

(4)   Ship's heading. Provide the range with the actual ship's heading. Once the course is established, maintain a steady course and constant speed between 8 to 10 knots, or as the range operator directs.

12.3.2 <u>Responsibilities</u>.

12.3.2.1 <u>Type Commander or Immediate Superior In Command</u>.

a.   Monitor the degaussing readiness of assigned ships.

b.   Ensure that ships "check range" as required by paragraph 12.3 of this chapter.

c.   The Type Commander may approve a waiver or a Departure from Specification per Volume V, Part I Chapter 8 of this manual for inability to meet check ranging or deperming requirements, or both, if necessary. The Technical Warrant Holder (NAVSEA 05P1) may be contacted if advice on impact to ship susceptibility is warranted. NAVSEA 05P1 is the Technical Warrant Holder for Surface Ship Underwater Signatures and Susceptibility.

12.3.2.2 <u>Ship Commanding Officer</u>.

   a.   Ensure ship's magnetic signature is minimized by periodic check ranging.

   b.   Maintain ship's degaussing system.

   c.   Ships unable to check range or unable to establish communications with the MSF must make comments as appropriate in the remarks section of the daily Operational Reports.

   d.   Ships with installed systems may not decline check ranging.

   e.   Submit a minor Departure From Specification per Volume V, Part I, Chapter 8 of this manual if range checking requirements of paragraph 12.3 of this chapter are not met.

12.4 <u>SUBMARINES WITHOUT INSTALLED DEGAUSSING SYSTEMS</u>. The submarine force must maintain all units in the best degaussed condition within expected areas of operation. Expected areas of operation include zones .22, .33, .44, and .55 as shown in reference (d). Operations in zone .55 will necessitate additional treatment, since presently used flashing procedures are designed to provide protection only in zones .22, .33, and .44. Normally, submarines are automatically ranged by degaussing facilities as they transit channels between the hours of 0800-1600 weekdays only. If ranging is required outside of typical hours or on weekends, arrangements must be made with the MSF. Reference (a) mandates check ranging for all submarines. To meet minimum requirements, a satisfactory check range is required at least once yearly. In addition to periodicity requirements, check ranging of submarines must be performed:

   a.   Before and after Post Shakedown Availability (following new construction).

   b.   After a CNO Maintenance Availability.

   c.   After a major shock to the hull from a nearby explosion.

   d.   After grounding or collision.

   e.   At every opportunity, when entering or leaving a U.S. Navy port with ranging facilities (ranging at a non-USN range facility is not permitted without prior CNO approval). **Declining use of range facilities is not permitted**.

NOTE: THE PRECEDING REQUIREMENTS ARE THE MINIMUM RANGING REQUIREMENTS. RANGING SHOULD BE PERFORMED AT EVERY OPPORTUNITY TO ENSURE EARLY IDENTIFICATION AND CORRECTION OF MAGNETIC SILENCING DEFICIENCIES.

12.4.1 <u>Check Ranging</u>.

   a.   Before check ranging, contact the range facility by voice radio. Range crossings will be considered invalid unless the range is clear of other traffic (including tugboats) before and during crossing.

   b.   Ranging facilities require the following information:

      (1)   Submarine's Draft. Forward and aft drafts. Provide actual keel drafts, vice navigational drafts.

(2)   Submarine's heading. Provide the range with the actual submarine's heading. Once the course is established, maintain a steady course and constant safe speed between 8 to 10 knots, or as the range operator directs.

12.4.2 Responsibilities.

12.4.2.1 Type Commander or Immediate Superior In Command.

a.   Ensure that submarines check range as required by paragraph 12.4 of this chapter.

b.   Issue waivers to check ranging and deperming requirements if necessary. The Technical Warrant Holder (NAVSEA 05P1) may be contacted if advice on impact to ship susceptibility is needed.

c.   Schedule ships with unsatisfactory magnetic signatures for flash deperming at the earliest opportunity.

12.4.2.2 Ship Commanding Officer.

a.   Ensure ship's magnetic signature is minimized by periodic check ranging.

b.   Inform the ISIC upon receipt of an unsatisfactory ranging. Submarines may not decline check ranging.

c.   Maintain the ship's Degaussing Folder.

d.   Undergo flash deperming as directed by the ISIC or TYCOM.

e.   Before flash deperming prepare ship's equipment and off-load or protect material per references (b) and (e). Additional guidance can be obtained from the MSF.

f.   Submit a minor Departure From Specification per Volume V, Part I, Chapter 8 of this manual if range checking requirements of paragraph 12.4 of this chapter are not met.

12.5 SURFACE SHIPS WITHOUT DEGAUSSING SYSTEMS.

Surface ships not equipped with a degaussing system (except LCS 2 class) are not required to check range per reference (a).

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CHAPTER 13

SURFACE SHIP CORROSION CONTROL

REFERENCES.

(a)   NAVSEA S9086-DA-STM-010 - NSTM Chapter 100, Hull Structures
(b)   NAVSEA S9086-VD-STM-010 - NSTM Chapter 631, Preservation of Ships In-Service - General
(c)   NAVSEA Technical Manual T-9630-AB-MMD-010 - Corrosion Control Assessment and Maintenance Manual (CCAMM)
(d)   COMNAVSURFORINST 3120.1 - Zone Inspections
(e)   COMNAVAIRFORINST 4790.1 - Commander Naval Air Forces Surface Maintenance and Material Management (3-M) System Manual

13.1 PURPOSE. To provide basic guidelines necessary to maintain an effective Corrosion Prevention and Control Program. Guidance for inspection, prevention and repair of corrosion on ships is contained in references (a), (b) and (c), which supersedes all previous class specific Corrosion Control Manuals distributed by Naval Sea Systems Command. In addition, this chapter requires the use of the Corrosion Control Information Management System (CCIMS) database as the repository for all inspection and maintenance data. The maintenance of coating integrity to prevent structural degradation is necessary to ensure the safe and proper operation of the ship. Maintenance of areas with severe corrosion require enhanced and targeted surveillance due to the highly corrosive conditions that can lead to higher risk of accelerated structural degradation. Reference (a) provides structural system survey and inspections criteria for surface ships and aircraft carriers. Reference (c) provides process requirements and guidance for the conduct of surveys and inspections, and the disposition of their results used to make coating and structural condition repair or replacement decisions in selected areas on Naval surface ships, craft, and aircraft carriers.

13.2 BACKGROUND. Protective coatings are the most widely used method of corrosion control and have specific applications. Therefore, the physical location and operating environment must be taken into consideration when choosing a coating system. Through the application of improved corrosion prevention and control techniques, procedures, and materials, longer lasting and more effective results can be obtained with a reduction in man-hours spent on preservation. The Department of Defense "Annual Cost of Corrosion for Navy Ships" study identified corrosion control and preservation as a high cost driver for ship life cycle maintenance. In order to reduce this life cycle maintenance cost, an accurate database of coating conditions is required to facilitate timely and appropriate maintenance decisions. The failure to identify, track, and repair a preservation system deficiency can result in coating failure and can result in damage to the structure, substantially increase repair costs and adversely impact both the seaworthiness and combat worthiness of the hull. The CCIMS database was developed to document coating conditions to assist in maintenance planning. In 2018, the carrier CCIMS database was integrated with a suite of new maintenance planning systems, and the CCIMS website inactivated. Submit carrier data using the Carrier Structural Survey and Inspection Material Condition Feedback (MCF) form to record the conditions of coatings, structures, and related

components for applicable structural systems, and those listed in reference (c). Contact the appropriate TYCOM Corrosion Control Manager to obtain a carrier MCF form. To submit data for other vessels, contact the applicable Maintenance Planning Activity. Term "CCIMS database" refers to the Maintenance Planning Activity data storage location. Contact Surface Maintenance Engineering Planning Program for access request information to the surface ship CCIMS database which resides in the Corrosion Advance Planning Suite (CAPS) for Surface Force ships.

13.3 <u>POLICY</u>.

    a.   All Level 1 and 2 corrosion control structural system surveys and inspections must be accomplished per reference (a) and (c).

        (1)   Level I Structural System Surveys are defined as scheduled inspections per the Class Maintenance Plan specific to each ship class and are focused on ship structure and foundations.

        (2)   Condition-directed Level 2 structural inspections must be conducted if warranted by deficiencies identified by a Level 1 survey. The Level 2 inspection must include, but is not limited to, thickness gauging measurements and Non-Destructive Testing as applicable to the structural condition to allow for adequate assessment.

    b.   The CCIMS database must be used to document Level 1 and Level 2 inspections for coating and structural condition used in inspections, maintenance and repairs. For Surface Force ships only, the Corrosion Assessment Data Entry Tool (CADET) will be used to enter assessment data and generate tank repair Automated Work Requests (AWR). Type Availability Screening Code One shall be used for all CADET generated AWRs.

    c.   All inspectors and surveyors must be qualified per reference (c) requirements.

    d.   Whenever a tank or void is opened for manned entry, an inspection must be performed. The inspection must be performed per reference (c). All inspection results will be entered into the CCIMS database.

    e.   For surface force ships and aircraft carriers, the CCIMS database will be used for ship maintenance availability planning.

NOTE: **ANY OUT-OF-SPECIFICATION CONDITION FOUND IS TO BE MITIGATED PER VOLUME V, PART I, CHAPTER 8 OF THIS MANUAL.**

13.4 <u>RESPONSIBILITIES</u>.

13.4.1 <u>Type Commanders</u>.

    a.   Port Engineers and Maintenance Program Managers (MPM) schedule and screen corrosion control work items to the appropriate repair activities during industrial availabilities and upkeeps with sufficient length to accommodate the work.

    b.   Port Engineers and MPMs screen tank, void and general structural inspection AWRs in Availability Work Packages to the repair activities capable of performing the inspections including in-house Type Commander resources as applicable.

c.   When tasked by Port Engineers and MPMs, inspectors and surveyors assigned by Fleet Maintenance Activity, Regional Maintenance Center (RMC) or Type Commander will perform inspections using references (a) and (c). Inspector or surveyor will ensure all inspection data is entered into CCIMS database within three working days upon completion of inspection.

d.   (Aircraft Carriers only) Provide to Ship's Force:

(1)   Self-help information on corrosion control information.

(2)   Technical assistance on setting up and updating a ship's Corrosion Prevention and Control Program.

(3)   Coordinate or provide training per reference (c) for inspection personnel assigned by the Repair Officer (Ship's Corrosion Control Officer for Aircraft Carriers).

13.4.2 <u>Fleet Maintenance Activity or Regional Maintenance Center</u>.

a.   Maintain facilities and sufficient qualified personnel to apply protective coatings.

b.   Conduct Technical Assist Visits upon request from a ship during a fleet maintenance availability, or at other times as the workload permits, to include:

(1)   Identification of shipboard topside corrosion problem areas.

(2)   Recommendations for methods and means of corrosion problem correction.

(3)   Informing Ship's Force of local industrial assets, including local Fleet Maintenance Activity, RMC, other industrial facilities (i.e., industrial activities) or Commercial Industrial Services assets.

(4)   Self-help information for Ship's Force.

(5)   Technical assistance on setting up and updating a ship's Corrosion Prevention and Control Program.

c.   Perform tank, void and general structural inspections as tasked by the Port Engineers and MPMs. Inspections on surface ships and aircraft carriers will use references (a) and (c). Inspector or surveyor will ensure all inspection data is entered into the CCIMS database within three working days upon completion of inspection.

13.4.3 <u>Surface Force Ships and Aircraft Carriers</u>.

a.   Set up an ongoing corrosion prevention and control program, including all topside structure, equipment, machinery, fixtures, combat and weapons systems, and components.

(1)   For Commander, Naval Surface Force, use reference (d) as guidance.

(2)   For Commander, Naval Air Force, use reference (e) Chapter 8 as guidance.

(3)   Additional guidance can be found in references (a), (b), Maintenance Index Page (MIP) 1500, MIP 6300 and MIP 6641.

b.   Take planned or corrective action on all potential discrepancies, and enter all significant discrepancies into the Current Ship's Maintenance Project.

c.   Ensure scheduled AWRs requesting tank, void and general structural inspections are conducted by RMC or Type Commander assigned inspectors and surveyors as required by work center Planned Maintenance System. Ensure the AWR includes requirements for cleaning and gas free services as required.

d.   (Aircraft Carriers only) Aircraft carrier Type Commanders (TYCOM) must employ Level 1 Surveyors (Coatings Inspectors) certified per the requirements of reference (c). These Certified TYCOM Level 1 Surveyors must train and assist Ship's Force with performance of Level 1 Surveys and documentation of survey findings in support of the availability planning process per reference (c). These certified TYCOM Level 1 Surveyors will also provide additional Shipboard Corrosion Assessment and Reporting training to designated Ship's Force personnel who can assist other Ship's Force personnel in areas of surface preparation, coating selection and application and Quality Control process for the preservation of spaces and equipment. The overall collection, input and management of the CCIMS database by certified Level 1 Surveyors at the TYCOM is required throughout the 32-month availability cycle to fully support Maintenance Program Managers in the life cycle management of shipboard preservation.

e.   (Aircraft Carriers only) The Repair Officer is designated as the Ship's Corrosion Control Officer and is responsible to ensure divisions outlined in reference (e) (or series) Chapter 8 have sufficient numbers of Ship's Force personnel certified as Level 1 Surveyors per reference (c) to conduct Level 1 Structural and Coating Condition Surveys. All inspection results will be entered into the CCIMS database. Departures From Specifications (DFS) must be submitted per this manual and as defined in reference (c). The Repair Office will accomplish a joint inspection with the Supervisor and the Commanding Officer's designated representative (i.e., either a qualified Ship's Force Level 1 Surveyor or TYCOM Level 1 Surveyor) upon completion, inspection and acceptance, by the contractor, of work within each compartment.

NOTE: **PEAK TANKS ARE DESIGNED AS A SEAWATER BALLASTING SYSTEM UTILIZING FIRE MAIN; HOWEVER, THE TYCOM REQUIRES THE USE OF FRESH WATER IN PEAK TANKS TO DIMINISH PREMATURE FAILURE OF THE COATING SYSTEM.**

f.   (Aircraft Carriers only) For any tanks or voids not designed to be exposed to seawater or not normally filled with seawater, Ship's Force will ensure the following:

(1)   Transfer only fresh water to these tanks and voids for the purposes of ballasting or controlling list. Report to the TYCOM which tanks or voids are filled with fresh water.

(2)   If seawater must be utilized for any reason, submit a DFS to the TYCOM for adjudication and approval.

VOLUME VI

CHAPTER 14

CANNIBALIZATION

REFERENCES.

    (a)   COMSUBLANT/COMSUBPACINST 4406.1 - Submarine Supply Procedures Manual
    (b)   NWP 1-03.1 - Naval Warfare Publication Operational Report
    (c)   OPNAVINST 4440.19F - Policies and Priority Rules for Cannibalization of Operational Equipment and Diversion of Material at Contractor Plants to Meet Urgent Operational Requirements

LISTING OF APPENDICES.

    A   Sample Cannibalization Request Message (Aircraft Carriers and Surface Force Ships Only)
    B   Sample Cannibalization Request E-mail (Surface Force Ships only – based on TYCOM guidance)

14.1 PURPOSE. To provide guidance for active ship cannibalization and the resultant payback process between ships and Type Commander (TYCOM) cannibalization reporting requirements.

14.2 POLICY. Cannibalization between active Fleet units is not a normal peacetime practice and will not occur unless:

    a.   A significant degraded readiness condition has been reported.

    b.   All possible actions have been taken to satisfy the material requirement through other means.

    c.   The impact on maintenance personnel has been considered.

14.2.1 Commander Naval Surface Force Ships.

    a.   Cannibalization Not Involving Ships in Overhaul. When a system asset is not available and if the degree of readiness degradation (normally a CASREP) warrants such action, the only remaining alternative is to cannibalize from an active ship. Approval of active ship cannibalization request (not involving ships in overhaul) required to satisfy CASREP requirements will be authorized by the appropriate TYCOM.

    b.   Cannibalization Involving Ships in Availabilities. Cannibalization from ships in availabilities will be minimized since such actions often affect maintenance or operational schedules for several ships. Cannibalization may be initiated only after non-availability of materials through the supply system or alternate sources has been ascertained. Cannibalization from ships in overhaul or availability must be approved through the appropriate TYCOM. Requests must be submitted via the normal chain of command.

    c.   COMNAVSURFLANT or COMNAVSURFPAC will be included as information addressees for tracking purposes on all cannibalization request messages.

Cannibalization requests may be sent as Naval messages or e-mails, per TYCOM guidance.

14.2.2 Naval Air Force Ships. All cannibalization must be requested from and authorized by the TYCOM. The request and authorizations will be via message. The requesting message will specify the source of replacement parts, and will reference communications indicating the cannibalized ship's Commanding Officer's concurrence with the cannibalization action. The message must further specify the method of replacement.

14.2.3 Submarine Force Ships. In all cases, cannibalization actions must be in strict compliance with Appendix K of reference (a).

14.3 DEFINITIONS.

14.3.1 Self-Cannibalization. When a component is available on board the ship, but in a less essential or already inoperative piece of equipment, it may be desirable for the ship to disable the equipment or system to correct a casualty to a more critical piece of equipment or system. Such self-cannibalization is the prerogative of the Commanding Officer. Self-cannibalization is a temporary measure to return a more critical piece of equipment to an operational status. Replacement of the cannibalized component may or may not be required.

14.3.2 System Cannibalization. System cannibalization is cannibalization of system assets beyond the TYCOM's purview, including other TYCOM end-use material and inactive ship equipment and components. System cannibalizations are a supply system action whereas active cannibalizations are a maintenance action. TYCOM expediters will initiate all system cannibalizations.

14.3.3 Active Ship Cannibalization. Active ship cannibalization is removal of component(s) or equipment installed in an active ship (or component(s) or equipment removed for overhaul from an active ship) for installation in another active ship. Because of the adverse effects of active ship cannibalization, such action will be taken as a last resort and only in exceptional cases when all other sources have been exhausted. When active ship cannibalization is authorized, the primary source for cannibalization is ships in Chief of Naval Operations Maintenance Availabilities, with recourse to operational ships only as a last resort.

14.4 CRITERIA FOR AUTHORIZATION (Active Ship Cannibalization). Conditions upon which authorization decisions are based include the following criteria:

a. There is an urgent operational requirement for the equipment and the existing degradation to the equipment or system is considered to be unacceptable to meet the specific operational commitments.

b. A Casualty Report (CASREP) and a Not Operationally Ready Supply requisition for the material or component to be cannibalized have been issued. The scheduled or estimated delivery date must be such that the parts will not be available from the designated supply stocking point in time to achieve satisfactory material readiness at least seven days prior to an underway date or operational commitment. The required part must not be available from other equipment on board the ship, where such equipment is not essential for the ship to accomplish its mission.

c. All other sources, including screening of all ashore supply support sources, afloat inventory assets, local fabrication and system cannibalization have been exhausted.

d.   Operational alternatives such as delays in deployment and gaping requirements have been considered. Routine operations may not be sufficient cause to justify active ship cannibalization.

e.   Immediate Superiors in Command (ISIC) will normally initiate the cannibalization when special circumstances or urgent operational commitments exist.

14.5 REQUEST PROCEDURE (Active Ship Cannibalization). The following procedures apply when requesting authorization for active ship cannibalization:

14.5.1 Requesting Ship.

a.   Submit a CASREP per reference (b) on equipment involved.

b.   Submit a Not Operational Ready Supply requisition for the parts.

c.   Specify the required delivery date. Verify, through the supply system, the part will not be available in time to correct the casualty.

d.   Determine that the required parts are not available from on board stock, other ships of the force in the same port, or other non-essential equipment on board the requesting ship.

e.   Initiate an active ship cannibalization request via naval message. Appendix A of this chapter contains a sample cannibalization message with specific reporting requirements. This format must be utilized when requesting cannibalization.

f.   (Surface Force only) Initiate an active ship cannibalization request via naval message or e-mail per TYCOM guidance. Cannibalization correspondence should be addressed to TYCOM via ISIC. Appendix A of this chapter contains a sample cannibalization Naval message and Appendix B contains a cannibalization e-mail format.

g.   (Submarines only) INFO the following Plain Language Address Directory (PLAD) for all components that have a Last Maintenance Action Date assigned in the Planned Maintenance Requirements Inventories and Schedule: SUBMEPP PORTSMOUTH NH//DDS/SS//.

14.5.2 ISIC (Surface Force only)

a.   Ensure the criteria, specific reporting requirements and proper correspondence format for active ship cannibalization has been met.

b.   Nominate possible sources of cannibalization from ships within the force.

c.   Confirm that cannibalization is necessary and that all prerequisites for active ship cannibalization, including attempts to supply the components from afloat storeroom spares and system cannibalization, have been met.

NOTE: APPROVAL PROCESS AND AUTHORITY FOR ACTIVE SHIP CANNIBALIZATION IN SUPPORT OF FORWARD-DEPLOYED NAVAL FORCES (FDNF) PATROL COASTAL (PC) AND MINE COUNTERMEASURE (MCM) SHIPS IS DELEGATED TO COMMANDER, NAVAL SURFACE SQUADRON FIVE. NAVAL SURFACE SQUADRON FIVE WILL PROCEED FROM HERE TO EXECUTE TYPE COMMANDER

(TYCOM) RESPONSIBILITIES IN PARAGRAPH 14.6.1 WITH INFORMATIONAL REPORTING TO TYCOM.

d. Request authorization from the TYCOM, as appropriate, to cannibalize from a ship within the force by endorsing the ship's request for cannibalization.

e. Transmit concurrence or non-concurrence Naval message or e-mail to TYCOM.

14.6 CANNIBALIZATION AUTHORIZATION AND EXECUTION (Active Ship Cannibalization).

14.6.1 Type Commander.

a. Monitor all cannibalization actions being carried out by subordinate units.

b. Adjudicate and authorize or disapprove all requests for cannibalizations from ships within the force and provide direction concerning the method of payback to the cannibalized ship.

c. If cannibalization is not feasible from a ship within the force, request assistance from other TYCOMs.

d. Meet the reporting requirements contained in reference (c) by producing a monthly cannibalization report (format or template to be provided by U.S. Fleet Forces Command N41). This monthly cannibalization report is due to the Deputy Chief of Staff, Fleet Ordnance and Supply (N41), U.S. Fleet Forces Command no later than the 10th of the following month.

14.6.2 Type Commander or Immediate Superior In Command. TYCOM (or ISIC when assigned) will perform the actions listed:

a. Monitor the delivery of cannibalized part(s) to the ship to ensure the parts are received as soon as possible.

b. Request the appropriate Regional Maintenance Center to assist in performing the cannibalization, to include the removal of the cannibalized parts and providing rigging services, as appropriate.

14.6.3 Requesting Ship. When directed, the ship requesting the cannibalized part will:

a. Assist the cannibalized ship, as requested, with the removal of the parts from the equipment.

b. Ensure the outstanding requisition for the cannibalized parts remains active unless otherwise directed by the TYCOM or the supply inventory control point. This requisition is the payback and will be diverted to the cannibalized ship.

14.6.4 Cannibalized Ship. When directed, the cannibalized ship will:

a. Remove the requested parts, prepare shipping documents, package the parts for shipment and deliver the items to the shipping activity, or deliver directly to the requesting ship, as appropriate.

b. Keep the chain of command advised of the supply status of the required parts. The cannibalized ship should follow-up the outstanding requisition(s) and acknowledge receipt of payback material.

APPENDIX A

SAMPLE CANNIBALIZATION REQUEST MESSAGE

(AIRCRAFT CARRIERS AND SURFACE FORCE SHIPS ONLY)

FM USS (SHIP'S NAME)/(CANNIBALIZING SHIP)
TO TYCOM/ISIC/(AS APPROPRIATE)
INFO TYCOM/ISIC/(AS APPROPRIATE)
NAVSUP WEAPON SYSTEMS SUPPORT MECHANICSBURG PA/
(APPROPRIATE RMC AND/OR RMC DET)
SUBMEPP PORTSMOUTH NH/(PARA 14.4.1.G) (AS APPROPRIATE)
SURFMEPP PORTSMOUTH VA/(AS APPROPRIATE)
USS (SHIP'S NAME)/(CANNIBALIZED SHIP PLAD)
BT
UNCLAS/N04400/
PASS TO OFFICE CODES: (AS APPROPRIATE)
SECINFO/U/-/
SUBJ/ACTIVE SHIP CANNIBALIZATION REQUEST//
MSGID/GENADMIN/USS (ORIGINATING SHIP'S NAME AND HULL NO.)//
REF/A/CASREP/USS (SHIP'S NAME)/(DTG)/
REF/B/DOC/COMUSFLTFORCOMINST 4790.3/
REF/C/DOC/OPNAVINST 4440.19F/
NARR/REF A IS CANNIBALIZING SHIP'S CASREP. REF B IS JOINT FLEET
MAINTENANCE MANUAL VOLUME VI, CHAPTER 14, PROVIDING TYCOM POLICY
ON ACTIVE CANNIBALIZATION. REF C IS POLICIES AND PRIORITY RULES FOR
CANNIBALIZATION OF OPERATIONAL EQUIPMENT AND DIVERSION OF
MATERIAL AT CONTRACTOR PLANTS TO MEET URGENT OPERATIONAL
REQUIREMENTS./
GENTEXT/REMARKS/1. TO CORRECT CASREP PER REF A ON BOARD USS
(CANNIBALIZING SHIP'S NAME), REQUEST ACTIVE SHIP CANNIBALIZATION PER
REF B AND REPORT CANNIBALIZATION DATA PER REF C. THE FOLLOWING
INFORMATION IS REQUIRED PER CANNIBALIZATION REQUEST/REQUISITION:
A.   REQUISITION NUMBER (UIC-JULIAN DATE-SERIAL NUMBER) AND
        CURRENT STATUS
B.   REQUISITION REQUIRED DELIVERY DATE (RDD):
C.   EQUIPMENT NOMENCLATURE/EQUIPMENT IDENTIFICATION CODE (EIC)
D.   CASREP SERIAL NUMBER
E.   COG SYMBOL/NSN/FSCM-PART NUMBER/NOMENCLATURE
F.   APL NUMBER.
G.   CIRCUIT SYMBOL (IF APPLICABLE OR N/A)
H.   JOB CONTROL NUMBER (JCN) USED IN THE CASREP PARTSID/DATA SET
I.   REQUIRED QTY/ALLOWANCE QTY/ON HAND QTY
J.   PART SUPPORTS INTERMEDIATE MAINTENANCE OR REPAIR, YES OR NO
K.   PART CARRIED ONBOARD THE OPERATIONAL UNIT, YES OR NO (SHOULD
        COINCIDE WITH THE ALLOWANCE QTY)

L.   PART AVAILABLE IN SUPPLY SYSTEM WHOLESALE, YES OR NO
       YES=ASSETS ARE AVAILABLE IN THE SUPPLY SYSTEM BUT WILL NOT
       MEET RDD.
       NO=ASSETS ARE NOT AVAILABLE IN THE SUPPLY SYSTEM.

M.   IF ASSETS ARE AVAILABLE IN THE SUPPLY SYSTEM, PROVIDE THE
       ESTIMATED SHIPPING OR DELIVERY DATE.

N.   PROVIDE JUSTIFICATION FOR CANNIBALIZATION WHEN ASSETS ARE
       AVAILABLE IN THE SUPPLY SYSTEM.

O.   REASON PART NOT IN STOCK AT OPERATIONAL UNIT (E.G., CONSUMED,
       INSUFFICIENT QUANTITY, NOT CARRIED, ETC.)

P.   REASON FOR NOT REPLENISHING (E.G., INSUFFICIENT FUNDING, NOT
       CARRIED, ETC.)

2. RECOMMENDED SOURCE IS (CANNIBALIZED SHIP'S NAME).

3. CANNIBALIZATION ACTION NECESSARY FOR (CANNIBALIZING SHIP'S NAME)
TO MEET (E.G., UNDERWAY OPERATIONAL COMMITMENT, LIGHT OFF, ETC.)//
BT
NNNN

**NOTE: PROVIDE HEADER DESCRIPTION IN ACTIVE CANNIBALIZATION
           REQUEST MESSAGE FOR LINE ITEMS 1.A THRU 1.P (E.G., D. CASREP
           SERIAL NUMBER).**

**NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
           AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS
           UTILIZED.**

APPENDIX B

**SAMPLE CANNIBALIZATION REQUEST E-MAIL
(SURFACE FORCE SHIPS ONLY – BASED ON TYCOM GUIDANCE)**

FM CO@DDGXX.NAVY.MIL (requesting ship)
TO usff_cnsl_nrfk_acann@navy.mil
CC ISIC N4
DONOR ISIC N4 (ISIC of suggested cannibalized ship, if identified)
CO@DDGXX.NAVY.MIL (suggested cannibalized ship, if identified)
PMOHQ.CDO@NAVY.MIL
DSCC-DMS-ColumbusOH@dla.mil
SURFMEPP.SYSTEMSENGINEERING@NAVY.MIL
OTHER STAKEHOLDER@ORIGINATORSDISCRETION.MIL
SUBJ USS *SHIPNAME* ACTIVE SHIP CANNIBALIZATION REQUEST
Body

1.   To correct CASREP 15XXX, request active ship cannibalization for (system nomenclature and part nomenclature (i.e., 1A GTM Fuel Oil Purifier)):
A.   Requisition number (UIC-Julian date-serial number) and current status
B.   Requisition required delivery date (RDD): (Julian date)
C.   Equipment system nomenclature or equipment identification code (EIC)
D.   CASREP DTG
E.   Cognizant symbol, NSN, cage-part number, part nomenclature
F.   Acquisition advice code (single digit) or SM&R code (up to 7 digits)
G.   APL number
H.   Circuit symbol (if applicable or n/a)
I.   Job control number (JCN) used in the CASREP PARTS ID or data set
J.   Required QTY, allowance QTY or on hand QTY
K.   Part carried onboard: yes or no (should coincide with the allowance QTY listed)
L.   Part available in the supply system wholesale: yes or no (yes = assets are available in the supply system but will not meet RDD, no = assets are not available in the supply system)
M.   Part supports intermediate maintenance or repair: yes or no: (intermediate maintenance: cannibalization was performed to support intermediate level maintenance or repair. Ships must check the SM&R code to validate the appropriate maintenance level)
N.   If assets are available in the supply system, provide the estimated shipping or delivery date (ESD or EDD Julian date)
O.   Provide justification for cannibalization when assets are available in the supply system (reason or justification or n/a)
P.   Reason part not in stock at operational unit (e.g., consumed, insufficient QTY, not carried, etc.)
Q.   Reason for not replenishing (e.g., insufficient funding, not carried, etc.)
2.   Recommended source is (proposed donor ship's name)
3.   Cannibalization action necessary for (cannibalizing ship's name) to meet (e.g., underway operational commitment, light off, etc.). (This justification must match the CASREP)

**NOTE: DEFAULT TO NAVAL MESSAGE IF NECESSARY E-MAIL ADDRESSES
          ARE NOT KNOWN.**

VOLUME VI

CHAPTER 15

AMMUNITION OFF-LOAD

REFERENCES.

    (a)   NAVSEA OP-4 - Ammunition and Explosive Safety Afloat
    (b)   NAVSEA S9086-CH-STM-030 - NSTM Chapter 074 V3 (Gas Free Engineering)

15.1 PURPOSE. This chapter provides guidance and actions to be taken concerning the status of shipboard ammunition and explosives for ships and craft entering an availability.

15.2 POLICY. Except for those instances where operational requirements dictate the exception, the policies of reference (a) must be adhered to. Operational requirements dictating non-compliance with reference (a) will be addressed in a Type Commander (TYCOM) request for waiver.

15.2.1 Chief of Naval Operations Scheduled Maintenance Availabilities. For availabilities executed in accordance with volume II, part 1, chapter 3 of this manual, ammunition will be off-loaded.

15.2.2 Fleet Maintenance Availabilities. For availabilities executed in accordance with Volume II, Part 1, Chapter 4 of this manual, the Maintenance Team will review the work package for work requiring ammunition off-load or retained during the Work Package Execution Review.

15.3 ACTION. Pyrotechnics (except those within life raft containers) and any ammunition which cannot be stowed in sprinkler-protected magazine spaces will be off loaded. Such magazine spaces need not be located below the main deck or waterline of the ship. All ammunition and pyrotechnics must be removed from ready service locations, launchers, and boats. Retention of other ammunition on board may be authorized on a case basis by the Naval Base Commander, Shipyard Commander or Supervisor of Shipbuilding (SUPSHIP), as applicable, provided the following mandatory requirements are met:

NOTE: TYCOM CONCURRENCE IS REQUIRED BEFORE AMMUNITION OFF-LOAD FOR AN AVAILABILITY.

    a.   If an overriding operational requirement exists, precluding the off-load of all ammunition, the TYCOM will certify that requirement to the cognizant Shipyard Commander, SUPSHIP or Naval Base Commander, as applicable.

    b.   Concurrence of the cognizant Shipyard Commander, SUPSHIP or Naval Base Commander must be obtained. This concurrence is based on an evaluation of the work to be done, the spaces involved, the security and damage control capabilities to be maintained on board during the availability, as well as other environmental factors.

    c.   Within the ship, hot work of any type will not be performed in a space or compartment containing ammunition, or adjacent to a compartment or space containing ammunition. If either condition is expected to exist during the availability, the ammunition in the affected compartment must be off-loaded before starting the availability. For hot work required on external parts of the ship, the requirement for

one intervening compartment may be waived by the Shipyard Commander or SUPSHIP, as applicable, if satisfied with the safety precautions to be taken. For all hot work in the ship, observe the safety and fire precautions in reference (b).

d.   Notification must be made to the base or industrial activities emergency services, including fire, security, safety and medical organizations, what ammunition remains on board.

e.   There must be no handling, re-stowage, test sampling or on or off-loading of ammunition while the ship is within an industrial activity.

f.   The ship's fire prevention and damage control organizations must remain in effect at all times throughout the availability.

g.   Placards and warning signs must be properly posted per reference (a) for specific spaces containing ammunition.

15.4 NOTIFICATION. When a ship or craft is scheduled to enter a commercial industrial activity, and approval has been granted to allow ammunition to remain on board, the United States Coast Guard Captain of the Port within whose jurisdiction the industrial activity is located, must be informed as to name and hull number of the ship, and the types and quantities of ammunition remaining on board. Should there be no cognizant Captain of the Port office, notify the cognizant Coast Guard District Commandant.

VOLUME VI

CHAPTER 16

HABITABILITY

REFERENCES.

  (a)   OPNAVINST 9640.1 - Shipboard Habitability Program
  (b)   NAVSEAINST C9210.4 - Changes, Repairs and Maintenance to Nuclear Powered
        Ships
  (c)   NAVSEAINST 9210.14 - Changes to Submarine Tenders and Destroyer Tenders with
        Nuclear Support Facilities, Requirements Concerning
  (d)   NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and
        Operations Manual
  (e)   COMNAVAIRFORINST 9640.1 - Control of Habitability Improvements in Aircraft
        Carriers

LISTING OF APPENDICES.

  A   Table of Habitability Project Technical Requirements and Actions
  B   Sample Habitability OPTAR Augment Funding Request
  C   Advance Planning Milestones

16.1 PURPOSE. To provide guidance in the requirements for implementing various habitability programs, and to identify the sources of assistance available for these programs.

16.1.1 Policy. The Chief of Naval Operation's shipboard habitability policy, as set forth in reference (a), sets specific minimum standards for new construction and commissioned naval ships, establishes procedures for attainment, and assigns responsibility for implementation.

  a.   Expenditure of ship's Operating Target (OPTAR) on habitability improvements, tools, and shipboard furniture and fixtures is considered a part of this program. Funds allocated to habitability must be obligated wisely to ensure the maximum, positive impact on shipboard quality of life.

  b.   For the procurement of furnishings, food service equipment and laundry equipment, every effort must be taken to use the Navy approved equipment identified in the NAVSEA Warfare Center – Philadelphia (NAVSEAWARCEN PD) Code 434 online catalog identified in paragraph 16.2.2.1.4.o of this chapter.

  c.   Unauthorized alterations and rearrangements are prohibited.

  d.   Changes to spaces or systems covered by references (b) and (c) must be approved by Naval Sea Systems Command (NAVSEA) and conform to the requirements of Chapter 3 section 3.8 of this volume.

  e.   (Surface Force Ships and Aircraft Carriers only) All changes to Ship Configuration as a result of habitability improvements, repair or replacement, regardless of the accomplishing activity, must meet the requirements of reference (d), Section 2 and Appendix A of this chapter.

16.1.2 Discussion. Shipboard habitability encompasses ship's systems and facilities which satisfy the basic human needs of the crew. Included are facilities and systems for eating, sleeping, personal hygiene, ventilation, climate control, and recuperative or leisure activity. Since funds are severely limited, a well-managed habitability program is essential to ensure ships conform to the minimum standards of shipboard habitability.

16.2 HABITABILITY IMPROVEMENT PROGRAMS.

16.2.1 Ship's Force Habitability Improvement Projects. A short-range program, initiated, planned and scheduled by the ship. This program uses ship's OPTAR funds, not to exceed $25,000 per project, with the majority of the work being accomplished by Ship's Force.

    a.   These projects are intended to be practical, workable, short-range projects representing the individual Commanding Officer's strategy for the enhancement of living quarters and personnel services areas on board ship.

    b.   The emphasis of this program is to improve existing living conditions and the quality of life to meet the standards of reference (a) using Ship's Force labor and, when approved, special habitability fund augmentation. Allocation of these limited funds will be on a "fair share" basis in relation to Force requirements.

    c.   Not all livability items fall within the purview of ship's habitability improvement projects or qualify for special habitability fund augmentation. Items of the following nature are not within the scope of this program.

        (1)   Replacement of consumable items such as mattresses, pillows, or utensils. These items should be programmed for regular OPTAR funding on an incremental basis.

        (2)   Improvements such as furnishings and lighting in working spaces and passageways which are more properly categorized as improvements in safety or operations.

        (3)   Unauthorized modifications or alterations. These modifications include alterations which affect compartment size or location, adding false bulkheads, overheads, or new equipment not previously installed.

        (4)   Normal ship maintenance and organizational repair responsibilities.

        (5)   The Deck coverings such as tile, terrazzo, etc. which are available via the Regional Maintenance Center (RMC) or Immediate Superior In Command (ISIC) Commercial Industrial Services contracts.

    d.   Ship's OPTAR funds may be used to renew existing bulkhead sheathing and false overheads in food preparation, medical, dental, flag, Commanding Officer, Executive Officer, chapel, wardroom, and Chief Petty Officer (CPO) messing and lounge areas. Existing sheathing and false overheads in crew messing areas may be replaced when unserviceable. Sheathing and false overheads in all other areas will be removed when unserviceable and will not be replaced. There will be no new installations of bulkhead sheathing or false overheads.

e.   Due to the fiscal and physical limitations on this program, individual ships should develop a sensible, realistic and continuing plan for improving overall living conditions, with most of the work to be accomplished by Ship's Force.

f.   Commanding Officers may request funds to support an emergent Habitability Improvement Project through the chain of command at any time. The request should contain an itemized listing, in prioritized order, with location, nomenclature, National Stock Number (NSN), cost estimate, and other clarifying information.

g.   When requesting funds to replace food service equipment, comply with Type Commander (TYCOM) supply procedures. All requests must have clear and concise justification. Appendix B of this chapter provides a sample request letter.

16.2.2 Habitability Programs Under the Technical Sponsorship of Naval Sea Systems Command. These are programs under various titles that have evolved from the NAVSEA Habitability Program originally established in 1975. The common program element is approved NAVSEA title block drawings that define the scope and details for projects accomplished there under. These formalized programs are executed following long-range plans with the established goal of achieving and maintaining the Habitability Standards issued by reference (a) over the life of each ship.

a.   The TYCOM must authorize and fund individual habitability upgrade and refurbishment projects. For aircraft carriers, projects are per reference (h). Contractor services may be utilized for design and engineering support, procurement development and monitoring, and on board installation support. Installation support may be provided in the form of a Customer Contract Team (CCT) that accomplishes the full scope of the project or as professional technical advisor who assists untrained and inexperienced Ship's Force personnel with accomplishment of the work.

b.   The TYCOM is responsible for developing and maintaining the long-range five-year NAVSEA Habitability Life Cycle Program plan. Ships are selected for initial induction into the Program based on years in-service. Specific ensuing projects are based on non-compliance with criteria specified by reference (a), the general scope of habitability deficiencies as noted by the Board of Inspection and Survey, planned life cycle furniture replacement schedules, and other available documentation. Ship's Force input is encouraged.

c.   Design surveys are normally accomplished during Chief of Naval Operation's maintenance availabilities. Follow-on installation projects will be scheduled during subsequent maintenance availabilities until all designated compartments in each ship have been upgraded or new furniture has been received. Once all the designated compartments in any ship have been upgraded or refurnished, the process will repeat itself. That is, each compartment, after the initial upgrade, will be, per the TYCOM life cycle plan, scheduled for second and subsequent upgrades at specified intervals until such time that ship is removed from the program pending decommissioning.

d.   While the routine replacement of habitability hardware usually does not generate the requirement for changes to arrangements for ventilation, power and lighting, steam, support foundations, etc., more extensive projects such as upgrades may well generate these requirements. Where these changes result in requirements to increase the

capacity of the "hotel" systems providing support, a concurrent Ship Change Document (SCD) per reference (d) for upgrade of the "hotel" systems must be executed at TYCOM expense concurrent with the individual Program project. More detailed guidance in this area is provided by Appendix A of this chapter. Verification of whether or not SCDs are required to support individual projects may be made via the following TYCOM Codes:

 (1) COMNAVAIRPAC Shipboard Habitability Manager, Code N434A8.

 (2) COMNAVAIRLANT Shipboard Habitability Manager, Code N431HE.

 (3) COMNAVSURFPAC Shipboard Habitability Manager, Code N43TH.

 (4) COMNAVSURFLANT Shipboard Habitability Manager, Code N436E6.

e. Program projects should be prioritized in the following order.

 (1) Crew and CPO Berthing.

 (2) Crew and CPO Sanitary Spaces.

 (3) Troop Spaces.

 (4) Food Preparation and Service Spaces.

 (5) Laundry Spaces

f. Per the authority of reference (a), the TYCOM may task and fund various agents including an RMC to accomplish the following:

 (1) Design habitability improvements for accomplishment by Forces Afloat or a CCT.

 (2) Procure installation materials.

 (3) Perform other management and engineering services.

 (4) Provide installation or installation support services.

16.2.2.1 Program Responsibilities.

16.2.2.1.1 Chief of Naval Operations.

a. Authorize Program.

b. Establish shipboard habitability standards based on recommendations of Habitability Working Groups.

16.2.2.1.2 Naval Sea Systems Command.

a. Establish technical policy.

b. Approve furnishings, fixtures, materials, food service equipment and laundry equipment.

c. Develop installation procedures.

16.2.2.1.3 Type Commander.

a. The Habitability Program Manager must follow the Technical Requirements of Appendix A.

b. Develop the Long Range Plan and establish priorities for attainment of standards. Provide these plans to the appropriate Expanded Planning Yard (EPY) updating plans as required.

c. Plan, schedule, coordinate and monitor projects.

d. Authorize, budget and fund the Program.

16.2.2.1.4 <u>Regional Maintenance Center or Other Agent as Tasked and Funded by Type Commander</u>.

a. Solicit, award and administer contracts to support Program requirements for design, engineering and technical support and installation. Perform the duties of a Contracting Officer's Representative for the monitoring and oversight of Program contractors.

b. Provide project coordination throughout the life of each project.

c. Provide liaison with Fleet and TYCOMs, COMNAVSEASYSCOM, NAVSEAWARCEN PD In-Service Engineering Agents (ISEA), Life Cycle Managers (LCM), Planning Yards, other RMCs and other naval activities.

d. Upon induction of the first ship of each class into the Program, submit preliminary habitability space arrangement concepts or drawings to COMNAVSEA's NAVSEAWARCEN PD ISEA or LCM for verification of conformance to applicable ship habitability specifications and criteria (e.g., reference (a)). Submittal of concepts or drawings for follow-on ships of the class is not required, unless different space arrangements are proposed. Submit the final habitability space arrangement drawings for NSWCPD ISEA review (prior to Planning Yard signature).

e. Prepare, approve or task approval by the EPY NAVSEA drawings for the Program as required by Appendix A of this chapter. Provide copies of locally approved drawings to the EPY. (For nuclear-powered ships, drawings are submitted to the Hull Planning Yard or Reactor Planning Yard for review and approval.)

f. Maintain a chronological record of all projects accomplished on each ship from the induction of the ship into the Program through decommissioning. This record includes initial ship check data, copies of all installation drawings, red-line drawings (if any) and other pertinent data.

g. Identify and oversee the procurement of all required installation material. Maintain a material commodity database identifying all material approved for use under the Program.

h. Prepare and update procurement specifications for habitability material.

i. Identify requirements for Indefinite Delivery Indefinite Quantity Contracts to provide material for frequently used material items. (Contracts are normally awarded and administered by the Fleet Logistics Centers.)

j. Operate material staging centers for the receipt, staging and shipping of project material.

k. Perform quality assurance checks at material staging centers and onboard ships of new material and hardware. Prepare Quality Deficiency Reports and Reports of Discrepancy on requisitioned material as needed.

l. Provide administrative assistance to the TYCOM in the preparation of long-range habitability improvement plans and related correspondence.

m. Maintain a habitability web site to facilitate the dissemination of Program information.

n. Respond to fleet requests for habitability assistance or support.

o. Use NAVSEAWARCEN PD's web site to access the Navy online catalog for approved furniture, food service and laundry equipment at HTTPS://NAVLOGTD.NAVY.MIL/HABITABILITY .

p. When required, request NAVSEAWARCEN PD ISEA or LCM support for approval of alternative food service, laundry equipment and furniture not found in the online catalog. When required, request NAVSEAWARCEN PD ISEA or LCM to conduct equipment selection, evaluation and testing. Also, request NAVSEAWARCEN PD support for equipment Integrated Logistics Support packages (parts support via Allowance Parts Lists, Tech Manuals and Maintenance Index Pages, Maintenance Requirement Cards) and Coordinated Shipboard Allowance List support.

16.2.2.1.5 Supply Activity.

a. Prepare, contract, and procure materials.

b. Administer other associated contracts.

16.2.2.1.6 Ship Commanding Officer. (When projects are accomplished by Ship's Force.)

a. Assign project manager and petty officer supervision for projects.

b. Assign an adequate labor force for removal, space preparation, installation and required fire watches working under technical advisor supervision.

c. Conduct training programs.

d. Account for, coordinate all movement of, and store all project material as it is received on board.

e. Coordinate all required tag-out or in paperwork and Work Authorization Forms.

f. Dispose of all retrograde material generated by the project.

g. Report changes affecting repair parts support to Naval Inventory Control Point. Technical data will be provided to the ship by the Agent preparing installation drawings.

h. Report completion to the TYCOM with summary of lessons learned.

i. Ensure Ship's Selected Records are updated, as appropriate. Technical data will be provided to the ship by the Agent preparing installation drawings.

16.2.2.2 Project Milestones. Advanced Planning milestones for scheduled projects are listed in Appendix C of this chapter for aircraft carriers and submarine forces and Volume II, Part II, Chapter 2, Appendix D of this manual for surface force ships.

16.2.2.2.1 Advance Planning Notice (Surface Force Ships only). This TYCOM generated notice identifies Projects proposed for accomplishment, and provides work scope details including, if applicable, Ship's Force manpower requirements. This notice also requests Commanding Officer's comments, concurrence, and commitment of resources to the proposed projects.

16.2.2.2.2 Advance Planning Notice (Aircraft Carriers only). Habitability projects are entered into the Availability Work Package. Volume II, Part I, Chapter 3 of this manual provides guidance in the development and revision of the Availability Work Package.

16.2.2.2.3 Project Confirmation Notice. Following receipt of the Commanding Officer's concurrence with the proposed work scope and commitment of resources, the TYCOM confirms the projects. Thereafter, any modification or change to the scope of the projects will adversely affect scheduled milestones and could result in project deferral or cancellation.

16.2.2.2.4 Project Authorization. (Applicable to projects accomplished by Ship's Force.) Upon receipt of the Commanding Officer's project start request, normally about two weeks before the start of the maintenance availability, the TYCOM evaluates readiness to begin the project and authorizes the project to be started. Rip-out must not proceed until receipt of this authorization.

16.2.2.3 Project Completion Report. (Applicable to projects accomplished by Ship's Force.) Following completion of the project, the Commanding Officer must prepare a letter describing the project experience, which will be used by the TYCOM to update planning and installation practices. The letter should include the name and designation of the project, funds expended, certification that Integrated Logistics Support procedures have been followed, and any significant problems encountered, improvement recommendations, or lessons learned. Completion letters on all authorized projects should be forwarded via the chain of command to the TYCOM.

16.2.2.4 Integrated Logistics Support Reporting. For projects accomplished by Ship's Force, the ship is responsible for submitting any necessary OPNAV 4790/CK forms for Coordinated Shipboard Allowance List support. Technical data will be provided to the ship by the Agent preparing installation drawings. For projects accomplished by a CCT, the requirements of NAVSEA Standard Item 009-21 must be invoked.

16.3 NEW CONSTRUCTION SHIPS. U.S. Navy ships are built to meet the habitability standards of reference (a). Prior to certifying the ship's readiness for In-Service, the ISIC will conduct a Habitability Inspection to determine that the ship is materially ready for the crew to move aboard. The results of the Habitability Inspection must be reported to the TYCOM by message per Volume I, Chapter 3 of this manual.

16.4 NAVAL AIRPAC AND AIRLANT SPECIFIC HABITABILITY IMPROVEMENT PROGRAMS.

16.4.1 Aircraft Carrier Climate Control Improvement Team.

   a.   The Aircraft Carrier Climate Control Improvement Team (ACCCIT) provides technical assistance to improve aircraft carrier habitability through specific improvements to air conditioning, heating, and ventilation systems serving manned spaces. The TYCOM schedules an ACCCIT visit every 12 to 15 months, but no greater than 24 months.

b.　30 days prior to the visit, the ship will provide a list of 50 spaces the ship requests to be inspected to the Commander, Naval Air Force Program Manager. Criteria for the spaces to be nominated are:

(1)　Normally manned.

(2)　Spaces are being utilized as designated. Voids and storerooms that have been converted to offices or workshops by Ship's Force without alteration authorization will not be investigated.

(3)　Space has not been investigated during a previous ACCCIT unless all discrepancies were corrected and a problem still exists.

(4)　Main Propulsion and Auxiliary machinery spaces.

(5)　Food Device and Laundry Spaces.

c.　During the visit, the team will provide On the Job Training for Ship's Force, validate alteration requirements, validate Planned Maintenance System coverage and assist in the preparation of Current Ship's Maintenance Project (CSMP) deferrals to document discrepancies found. Additionally, with Ship's Force assistance, the team will correct deficiencies as they are discovered if within their capability. Upon completion of the visit, a formal report will be issued listing discrepancies discovered, status of each, correction responsibility and recommended alterations. All corrected and uncorrected discrepancies identified during each survey will be submitted in electronic format (M0001 file) for submission into the ship's CSMP. The TYCOM will utilize this report to conduct follow-up ship checks to track completion of discrepancies.

16.4.2 Food Service and Laundry (Commander Naval Air Force Pacific) and Enhanced Quality Of Life Program (Commander, Naval Air Force Atlantic).

a.　The Food Service and Laundry (FS&L) and the Enhanced Quality Of Life (EQOL) Programs were developed to achieve and maintain high standards of material and operational readiness of food and hotel services equipment through intensified work definition, configuration analysis, corrective maintenance, and programmed and emergent equipment replacements.

b.　The FS&L and EQOL programs are a cooperative teaming effort involving the Aircraft Carrier TYCOM and Ship's Supply Department. The TYCOM will provide program management, labor funding and administer material procurement. The TYCOM will provide funding and oversight for material procurement. Ship's Force is instrumental in determining the requirements and opportunity for correction of material deficiencies. The FS&L and EQOL programs key objectives are:

(1)　Advance planning.

(2)　Technical expertise and continuity.

(3)　Standardization of approved shipboard food service and laundry equipment.

(4)　Achievement of full Allowance Parts List supportability.

(5)　Maintenance and grooming support planning.

(6)　Maintenance training for Ship's Force personnel.

c.　The replacement of food service or laundry equipment usually does not generate the requirement for changes to arrangements of ventilation, electrical, piping systems, and support foundations, etc. However, where changes result in net compartment increase to the capacity of the "hotel" systems providing support, or change the physical configuration of the ship's structure, an SCD per reference (g) for upgrade of the "hotel" systems must be executed at TYCOM expense. The FS&L and EQOL programs are not intended to supplant the SHIPMAIN Entitled Process. All equipment replacements will consist of equipment that has been approved for shipboard use per the online catalog or by NSWCPD ISEA or LCM, including the interchangeability of like equipment.

d.　Not all food service or laundry equipment falls within the purview of the FS&L and EQOL programs. Items of the following nature are not within the scope of this program.

(1)　Repair or replacement of non-approved equipment.

(2)　Unauthorized modifications or alterations. These modifications include alterations which affect compartment size or location, adding false bulkheads, overheads, or new equipment not previously installed.

(3)　Normal ship maintenance and organizational repair responsibilities.

(4)　Deck coverings in spaces other than food service and laundry spaces.

APPENDIX A

TABLE OF HABITABILITY PROJECT TECHNICAL REQUIREMENTS AND ACTIONS

REQUIREMENT ATTRIBUTE	HABITABILITY IMPROVEMENT PROJECT TYPE			MODERNIZATION SCD REQUIRED	MINIMUM ACTION REQUIRED
	REPAIR	UPGRADE	REPLACEMENT		
Requires change in berthing capacity below CNO requirements		X	X	X	Process and execute SCD
Requires new berthing arrangement or design within existing compartment		X	X		For non-nuclear powered ships, provide drawings to Planning Yard. For nuclear powered ships, comply with NAVSEAINST C9210.4.
Requires new Head arrangement or design within existing compartment		X	X		For non-nuclear powered ships, provide drawings to Planning Yard. For nuclear powered ships, comply with NAVSEAINST C9210.4.
Requires new Lounge Area arrangement or design within existing compartment		X	X		For non-nuclear powered ships, provide drawings to Planning Yard. For nuclear powered ships, comply with NAVSEAINST C9210.4.
Replace lockers, berths, furniture, fixtures, food service or laundry equipment of exact same design within same frames, power supply and footprint	X				Use existing drawings to generate Bill of Material
Requires increased ventilation capacity to compartment		X	X	X	Process SCD, install in conjunction with Habitability Improvement Project
Requires rerouting of ventilation within existing capacity		X	X		For non-nuclear powered ships, provide drawings to Planning Yard. For nuclear powered ships, comply with NAVSEAINST C9210.4.

REQUIREMENT ATTRIBUTE	HABITABILITY IMPROVEMENT PROJECT TYPE			MODERNIZATION SCD REQUIRED	MINIMUM ACTION REQUIRED
	REPAIR	UPGRADE	REPLACEMENT		
Requires increased electrical capacity to compartment		X	X	X	Process and execute SCD
Requires use of spare breaker		X	X		Task Expanded Planning Yard to review and approve drawings
Requires rerouting of electrical cables within existing capacity		X	X		For non-nuclear powered ships, provide drawings to Planning Yard. For nuclear powered ships, comply with NAVSEAINST C9210.4.
Requires increased steam capacity, chill water capacity, etc. to compartment		X	X	X	Process and execute SCD
Requires rerouting of steam piping, chill water piping, etc. within existing capacity		X	X		For non-nuclear powered ships, provide drawings to Planning Yard. For nuclear powered ships, comply with NAVSEAINST C9210.4.
Requires modification of living space sprinkler system within existing capacity		X	X		For non-nuclear powered ships, provide drawings to Planning Yard. For nuclear powered ships, comply with NAVSEAINST C9210.4.
Requires additional sprinkler heads(s) to maintain adequate coverage (Per PY review)		X		X	Process SCD, install in conjunction with Habitability Improvement Project

APPENDIX B

SAMPLE HABITABILITY OPTAR AUGMENT FUNDING REQUEST

From: Commanding Officer, USS (Ship's Name and Hull No.)
To: TYCOM (as appropriate)

Subj: HABITABILITY OPTAR AUGMENT FUNDING REQUEST

Ref: (a) (Cognizant Fleet and TYCOM Instructions)

1. Request approval of a special OPTAR augmentation per reference (a) in the amount of (dollar amount) for the quality of life improvement project(s) as listed:

PRIORITY	NOMENCLATURE or NSN	QTY	COST EST
1	(Item description, location, etc.)		
2			
3			

                        TOTAL COST EST:

2. JUSTIFICATION (Conditions necessitating accomplishment of projects)

3. POINT OF CONTACT   (Name, DSN or Comm telephone number, e-mail address, etc.)

COPY TO:
ISIC (as appropriate)

APPENDIX C
ADVANCE PLANNING MILESTONES

MILESTONE (A-MO)	ACTION	EVENT
A - 23	TYCOM	ESTABLISH PLANNING ESTIMATE. TASK RMC WITH DESIGN SHIPCHECK
A - 22	RMC or AGENT	SHIP VALIDATION AND COMMENCE DESIGN
A - 14	TYCOM	SEND HABITABILITY PROJECT ADVANCE PLANNING NOTICE (SURFACE SHIPS)
A - 13	SHIP	INDICATE CONCURRENCE OR COMMITMENT TO PROJECT(S) TO TYCOM. ENTER PROJECTS(S) IN CSMP
A - 12	TYCOM	CONFIRM PROJECT
A - 9	TYCOM (AIRCRAFT CARRIERS)	ENTER PROJECTS IN AVAILABILITY WORK PACKAGE (AWP)
A - 8	PMS 312C (CVNs), SHIP, TYCOM (AIRCRAFT CARRIERS)	PROJECT REVIEW CONFERENCE (PRC)
A - 8	RMC OR AGENT	PREPARE SPECIFICATION DEVELOPMENT PACKAGE AND FORWARD TO APPROPRIATE PLANNING ACTIVITY
A - 8	RMC OR AGENT	PREPARE MATERIAL REQUISITIONS
A - 7	RMC OR AGENT	SEND REQUISITIONS TO FLEET LOGISTICS CENTER
A - 6	RMC OR AGENT (SURFACE SHIPS)	ISSUE DRAWINGS TO EPY
A - 2	RMC, AGENT OR SHIP	PROJECT KICK-OFF BRIEFING
A	SHIP OR RMC AGENT	START AVAILABILITY OR PROJECTS
COMP	SHIP (APPLICABLE TO PROJECTS ACCOMPLISHED BY SHIP'S FORCE)	SEND COMPLETION REPORT

VOLUME VI

CHAPTER 17

IMPRESSED CURRENT CATHODIC PROTECTION

REFERENCES.

  (a)   NAVSEA S9086-VF-STM-010 - NSTM Chapter 633 (Cathodic Protection)

17.1 PURPOSE. To provide guidance for the submission of Cathodic Protection Logs, as required by reference (a) and post dry-docking system activation. The contents of this chapter are applicable to all classes of ships that are outfitted with Impressed Current Cathodic Protection (ICCP).

17.2 CATHODIC PROTECTION LOGS. Logs must be maintained as part of the system operating procedures and be retained by the ship for a period of two years.

17.2.1 Surface Force Ships. All ships with installed ICCP systems must submit logs monthly per reference (a), using Naval Sea Systems Command (NAVSEA) Form 9633/1 or equivalent, no later than 15 days after the last day of the reporting month to the Cathodic Protection In-Service Engineering Activity (ISEA), Naval Surface Warfare Center, Philadelphia Division (NAVSEAWARCEN PD). NAVSEAWARCEN PD will review the ICCP log data and provide an electronic mail response to each ship within 15 working days indicating log receipt and system operational status.

17.2.2 Naval Air Force Ships. All aircraft carriers with installed ICCP systems must submit logs monthly per reference (a), using NAVSEA Form 9633/1 or equivalent, to the Cathodic Protection ISEA NAVSEAWARCEN PD no later than 15 days after the last day of the reporting month. NAVSEAWARCEN PD will review the ICCP log data and provide a naval message response to each ship within 15 working days indicating ICCP log receipt and system operational status.

17.2.3 Submarine Force Ships. All submarines with installed ICCP systems must submit monthly logs using NAVSEA form 9633/2 or equivalent to the Performance Monitoring Team (PMT) no later than 10 days after the last day of the reporting month, or upon return to homeport. PMT will then upload data to Submarine Maintenance Monitoring Information Systems (SMMIS). NAVSEAWARCEN PD Code 332 will review the data and provide feedback to PMT to initiate the OSAR process to correct any necessary deficiencies or optimize system operational status.

17.3 POST DRYDOCKING ACTIVATION. Guidance on the activation of the ICCP systems after undocking:

  a.   The Cathodic Protection System should be activated as soon as electrical power is available. Early activation is encouraged to counteract stray electrical currents from waterborne welding or other industrial activity evolutions which may cause hull deterioration by electrolysis. If the ICCP system cannot be actuated within two hours following undocking, the Type Commander or Immediate Superior In Command must be notified.

b.   If the cathodic protection components have been removed or power to all components is not available within 24 hours after undocking, alternate provisions should be made for activating part of the system if possible. Hull potentials can be monitored using the ship's controller reference electrode (silver-silver chloride) in conjunction with a portable volt-ohm meter.

NOTE: ALL VOLTAGES REFERENCED ARE DIRECT CURRENT.

c.   If the system cannot be activated within three days of undocking, provisions should be made to ensure hull integrity by taking daily hull potential readings. Without cathodic protection, the acceptable hull potential range is 0.60 to 0.80 volts with respect to a silver-silver chloride reference cell. If daily readings are more electropositive than 0.55 volt or if changes in hull potentials greater than 0.1 volt occur, welding practices should be checked or a temporary system capable of maintaining the hull at 0.85 plus or minus 0.05 volts should be provided.

d.   Where major underwater hull painting (not including touch up) has been performed less than seven days before undocking, caution should be exercised to avoid hull potentials greater than 1.00 volt to a silver-silver chloride reference cell until after the seven-day curing period. During the seven-day curing period, if the hull potential exceeds 1.00 volt, secure part or all of the system to avoid any effect on the hull coating. After a seven-day cure, proper navy hull coating systems are not affected by the higher hull voltages attainable with ICCP systems.

VOLUME VI

CHAPTER 18

INFLATABLE LIFE RAFTS

REFERENCES.

- (a)   NAVSEA S9086-TX-STM-010 - NSTM Chapter 583 (Boats and Small Craft)
- (b)   NAVSEA S9008-AA-PRO-010 - Lifeboat, Inflatable, MK6, MK7 and MK8 Inspection, Test and Repair Procedures
- (c)   NAVAIR 13-1-6.1 - Aviation Crew Systems, Chapter 7 (LRU 13/A)
- (d)   NAVSEA TW024-AA-ORD-010 - Unserviceable, Suspended, and Limited Use Ammunition
- (e)   NAVSUP Publication 485 - Afloat Supply Procedures

18.1   PURPOSE. To provide guidance for the maintenance, repair, certification and procurement of life rafts used onboard naval ships and craft. An inflatable life raft is one constructed of a coated fabric and inflated to its design shape by air or other gas. The raft is stowed aboard ship for use only as a life raft, when and as directed by the Commanding Officer or Officer In Charge.

18.2   FLEET LIFE RAFT PROGRAM. The United States Fleet Forces Command Maintenance Officer has delegated Fleet Life Raft Program management responsibilities to the Type Commanders (TYCOM) including the establishment of policy guidelines. Policy will be disseminated to the Fleet and Naval Sea Systems Command certified Regional Maintenance Centers (RMC), Ship Repair Facilities (SRF) and Fleet Maintenance Activities (FMA) for the scheduling, planning, and recertification of life rafts. For Surface Force Ships only, TYCOMs will have a designated Life Raft Program Manager (LRPM) assigned.   Commander Naval Surface Force Atlantic (Code N43E) and Commander Naval Surface Force Pacific (Code N43SB) are designated Fleet Life Raft Program Managers.

18.3   TYPES OF INFLATABLE LIFE RAFTS. There are three basic Navy type inflatable life rafts for use throughout the fleet (ships, aircraft carriers, boats, service craft and aircraft):

- a.   25-Person (MK-7 Mod 1 and Mod 2) air inflated life raft - currently carried by surface force ships and service craft, encapsulated in a fiberglass container.

- b.   50-Person (MK-8 Mod 1 and Mod 2) air inflated life raft - currently carried by aircraft carriers, amphibious assault and littoral combat ships encapsulated in a fiberglass container.

- c.   Person (LRU 13/A (formerly MK-2)) CO_2 inflated life raft currently carried by aircraft, certified to Naval Air Systems Command (NAVAIR) requirements.

18.4   COMMERCIAL LIFE RAFTS. Various commercial Coast Guard approved life rafts are installed on board certain craft, aircraft and navy ships for service and in-service evaluation testing. The cognizant command is responsible for recertification requirements for their commercial life rafts.

18.5 RECERTIFICATION. The periodicity of recertification will be as designated by Planned Maintenance System requirements.

a.   Recertification is based on Planned Maintenance System periodicity starting from the recertification date stamped on the outside of the life raft container.

b.   If the certification date is not present on the data plate on the outside of the life raft container or verified from the ship's life raft log inspection, recertification records, or unavailable by scanning and electronic remote identification, life raft certification will be considered expired.

18.6 LRU 13/A LIFE RAFTS. The responsible NAVAIR command will provide guidance for the procurement, certification, and disposition of LRU 13/A life rafts (aircraft).

18.7 AUTOMATED TRACKING SYSTEM. A U.S. Navy life raft data base is maintained by Naval Surface Warfare Center, Carderock Division Detachment, Norfolk VA (NAVSURFWARCEN CDDN), for tracking the Navy MK-7 and MK-8 life raft population and certification. Life raft records and information may be accessed at https://watercraft.dc3n.navy.mil80. Submit e-mail request to W_CRDR_LC_NAVY_WatercraftAdmin@us.navy.mil for access.

18.8 RESPONSIBILITIES.

18.8.1 Commanding Officer or Officer In Charge.

a.   Submitting an OPNAV 4790/2K - Work Notification (WN) to the RMC, SRF or FMA for any life raft requiring replacement or recertification. For recertification, the OPNAV 4790/2K – WN should be submitted no sooner than 6-months prior to the expiration date present on the outside of the life raft container (or date verified by the ship's life raft log). Arrange with the RMC, SFR or FMA for transfer and shipping of rafts to facilitate schedules.

b.   Maintaining a log of all life rafts on board per PMS.

c.   Send a report to NAVSURFWARCEN CDDN, at CRDR_LC_NavyLifeRafts@us.navy.mil, the respective Type Commander (LRPM) and the recertification or repair facility upon receipt of new life rafts, if any life raft is lost , unaccounted for, damaged, or transferred to another ship. Reports should include the life raft serial number, manufacturer's name, recertification facility and a description of the circumstances.

d.   Ensure life raft fiberglass containers are handled with care using appropriate certified lifting slings. Life rafts are not to be rolled or stood on-end. Life rafts will be placed with the top up, in racks, with the container seal or canister joint in the horizontal position.

e.   Upon notification of decommissioning, contact the respective TYCOM LRPM, for life raft disposition instructions.

NOTE: ONLY AUTHORIZED LIFE RAFT REPAIR FACILITIES ARE APPROVED TO MAINTAIN AND OPERATE A LIFE RAFT CONTINGENCY POOL.

18.8.2 Fleet RMC, SRF, and FMA Life Raft Repair Facility.

a. Manage and dispose of life raft contingency pool assets. A contingency pool is not to exceed 100 life rafts unless approved by TYCOM LRPM. Restock life rafts for the contingency pool from decommissioning assets, as available. If no assets are available, procure life rafts using Operational Target . Ships should submit additional funding request via their respective TYCOM to support procurement.

b. Life rafts lost or considered beyond economical repair may be replaced with contingency pool assets. If contingency pool assets are not available, ships shall requisition replacement life rafts.

c. Interface with the TYCOM LRPM, as required, in support of scheduling, coordinating recertification, repair and the contingency pool.

d. Upon receipt of screened OPNAV 4790/2K - WN, repair or recertify life rafts to a Level "C" Plan in accordance with references (a), (b), PMS or Volume V of this manual, as applicable.

e. Maintain an equipped Life Raft Facility with qualified repair personnel to conduct repairs or recertification of life rafts as indicated below:

NOTE: FACILITY CAPABILITIES AND PERSONNEL QUALIFICATIONS WILL BE AUDITED BY NAVSURFWARCEN CDDN AND TYCOM REPRESENTATIVES ON AN ANNUAL BASIS OR AS A SITUATION DICTATES.

(1) Ensure that a minimum of 75 percent of all personnel assigned to the life raft shop have received formal NAVSURFWARCEN CDDN training and certification in Level "C" repair.

(2) Conduct and document annual training and the level of On-the-Job Training in Level "C" repair of all shop personnel.

(3) Appoint in writing, two life raft repair coordinators, E-6 or above, or equivalent civilian grade, who has received formal NAVSURFWARCEN CDDN training in Level "C" repair.

(4) Appoint in writing, a signal flare coordinator, E-4 or above, or equivalent civilian grade, who is trained in handling ordnance and is responsible for the coordination and installation of signal flares in all life rafts.

(5) Maintain copies of all technical manuals, maintenance bulletins, correspondence and messages pertaining to life raft maintenance and repair.

(6) Maintain accountability of signal flare kits per reference (d).

18.8.3 <u>TYCOM Life Raft Program Manager</u>.

a. Establish contingency pool requirements for MK-7 and MK-8 life rafts and communicate fleet requirements to respective Fleet RMC, SRF, or FMA.

b. Set priorities for the disposition of life rafts throughout service life.

c. Interface, and coordinate with United States Fleet Forces Command, NAVSURFWARCEN CDDN, RMC, SRF, FMA, NAVSUP WSS, and Ship's maintenance in the management of the Fleet Life Raft Program.

d. Resolve issues requiring final decisions involving TYCOM ships and crafts.

18.9 UNSERVICEABLE OR REJECTED LIFE RAFTS. RMC, SRF, FMA life raft repair facility, ship or craft will process unserviceable or rejected life rafts in this manner:

a. Life rafts that have reached the end of service life are considered unserviceable per reference (a) and should be turned in to respective RMC, SRF or FMA for disposal. Procure new life rafts using ship or craft Operational Target funds. Ships and crafts are not authorized to dispose of life rafts.

b. Mark-7 and Mark-8 life rafts typically have a 25-year service life. Mark-7 and Mark-8 life rafts manufactured by Inflatable Survival Systems Inc. (ISSI)/RFD Beaufort prior to July 2015 will be removed from service upon reaching 15-years of age or a total of four repacks, whichever occurs first.

c. Report survey results to NAVSURFWARCEN CDDN.

18.10 DEPARTURES FROM SPECIFICATIONS. Departures from Specifications will be submitted per Volume V, Part I, Chapter 8 of this manual. Departures greater than six months beyond certification periodicity will be classified as major.

18.11 RECORDS. The RMC, SRF or FMA life raft repair facility must maintain an auditable record for five years of all life raft transactions, including repairs, replacements, and recertification. These records must include:

a. Copies of all Inflatable Life Raft Recertification Records issued for recertified life rafts.

b. Job Sequence Numbers, serial numbers, and the manufacturer's name of each rejected life raft.

c. The condition of the rejected life rafts.

d. The disposition of the rejected life rafts and components salvaged.

e. Lot Sample Record.

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CHAPTER 19

MAINTENANCE AND MATERIAL MANAGEMENT

REFERENCES.

(a)   OPNAVINST 4790.4 – Ship's Maintenance and Material Management System Policy
(b)   NAVSEAINST 4790.8 – Ships' Maintenance and Material Management (3-M) Manual

19.1 PURPOSE. To provide guidance for the implementation of Maintenance and Material Management (3-M) program policies as set forth in references (a) and (b).

19.2 POLICY. Material readiness, a key component of warfighting readiness, must be supported throughout the chain of command with clear and concise directives, maintenance requirements and maintenance procedures. The foundation of a positive shipboard or unit maintenance culture, a precursor to sound material readiness, is proactive leadership. Senior leadership (commanding officer or officer in charge, executive officer, command master chief or chief of the boat and the 3-M coordinator) is responsible for establishing this culture by promoting critical self-assessments, faithfully conducting zone inspections, accurately reporting the accomplishment of maintenance, maintaining an accurate Current Ship's Maintenance Project, and aggressively working to correct Current Ship's Maintenance Project reported deficiencies.

19.3 SCOPE. This chapter applies to all ships, service craft, small boats, Type Commander cognizant shore activities and non-aviation fleet test and support equipment, except as exempted in paragraph 19.3.c. of this chapter. This includes, but is not limited to, Navy Meteorological Equipment, Naval Air Traffic Control Equipment, Air Navigation and Landing Systems Equipment, Aviation Launch and Recovery Equipment and activities under the cognizance of Navy Expeditionary Combat Command. This chapter also applies to Commander Naval Information Forces, Commander Navy Installations Command, Commander Naval Reserve Force, Naval Personnel Development Command, Training Commands and Mission Package Support Facility.

a.   Maintenance and Material Management is divided into Type Commander specific chapters; chapter applicability is defined in paragraphs 19.3.a.(1) through (8) of this chapter:

(1)   Chapter 19-1 Naval Air Forces

(2)   Chapter 19-2 Navy Expeditionary Combat Command

(3)   Chapter 19-3 Naval Information Forces

(4)   Chapter 19-4 Naval Installations Command

(5)   Chapter 19-5 Naval Submarine Forces

(6)   Chapter 19-6 Naval Surface Forces

(7)   Chapter 19-7 Maintenance Data System (applicable to all)

b.   Any departure from the policies, procedures or responsibilities delineated in the 3-M Manual are not authorized without prior Naval Sea Systems Command approval and Chief of Naval Operations concurrence.

c.   This chapter does not apply to:

(1)   Fleet Ballistic Missile systems under the cognizance of Strategic Systems Programs Office.

(2)   Nuclear power plants and associated test equipment under the cognizance of Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08).

(3)   Aeronautical equipment used in support of the aviation maintenance mission.

(4)   Civilian operated and maintained ships, small boats, and service craft, unless specifically included in a base operating contract or another similar document.

(5)   Navy Expeditionary Combat Command damage control equipment. In instances where damage control equipment is not under contract for maintenance from civil entities and falls under the responsibility of a given work center, it must be maintained per command-generated instruction.

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CHAPTER 19-1

NAVAL AIR FORCES

REFERENCES.

   (a) NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual
   (b) COMNAVAIRFORINST 4700.23 - Aircraft Carrier Maintenance Support Centers (MSC)
   (c) NAVSEA T-9630-AB-MMD-010/ALL USN HULLS - Corrosion Control Assessment and Maintenance Manual
   (d) NAVEDTRA 43241 - Personnel Qualification Standard for Ship's Maintenance and Material Management (3-M) System
   (e) NAVEDTRA 43523 - Personnel Qualification Standard for Quality Maintenance Program
   (f) NAVSEA S0400-AD-URM-010/TUM – Tag-Out Users Manual
   (g) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy (SORM)
   (h) Ship's Force Resource Manual for Aircraft Carrier Availability Planning Management Guide - Resource Manual from Aircraft Carrier Team One Portal
   (i) CNAL/CNAP OMMS-NG Users Guide – PowerPoint Presentation April 2016 Ver 7

LISTING OF APPENDICES.

   A   3-MTT Grade Sheets
   B   3-M Inspection Criteria
   C   Zone Inspection Deficiency List, Zone Inspection Material Guide and Flow Charts
   D   SKED 3.2 Settings and Preferences
   E   Format for Reporting 3-M Inspections

19-1.1 APPLICABILITY. This section is a joint Commander, Naval Air Force Pacific and Commander, Naval Air Force Atlantic (COMNAVAIRLANT) instruction.

19-1.2 ROLES AND RESPONSIBILITIES.

   a.   Type Commander. The Type Commander (TYCOM) exercises primary responsibility for the effective operation and support of the Ships' Maintenance and Material Management (3-M) System. Areas of responsibility include but are not limited to the following:

      (1)   Afloat Maintenance Data System (MDS).

          (a)   Organizational Maintenance Management System (OMMS).

          (b)   R-Admin, R-Supply, Organizational Maintenance Management System – Next Generation (OMMS-NG).

          (c)   Mission Readiness Assessment System.

      (2)   Ashore MDS.

(a)   Maintenance Figure of Merit Family of Systems.

(b)   Advanced Industrial Management for Regional Maintenance Centers.

(c)   Regional Maintenance Automated Information System. This will be replaced by Validation, Screening and Brokering.

(d)   Maintenance Resource Management System.

(3)   Planned Maintenance System (PMS) Scheduling (SKED) software.

(4)   Alteration Management System.

(a)   Navy Data Enterprise.

(b)   Type Commander Alteration Management System.

(5)   Current Ship's Maintenance Project (CSMP).

(6)   Master Job Catalog (MJC).

(7)   The screening and processing of Feedback Reports (FBR).

(8)   Maintaining an inspection data file per paragraph 19-1.6.5.i of this chapter.

(9)   Providing program enhancement requirements to the respective Fleet Commander via N43.

(10)   Ensuring ships and units are manned with Navy Enlisted Classification (NEC) qualified 3-M Coordinators (3MC).

(11)   Analyzing 3-M Inspection (3MI) and self-assessment data, identifying common concerns, conducting problem root cause analysis with the development and implementation of solutions.

(12)   Ensuring TYCOM inspection team members are qualified to inspect assigned areas.

b.   TYCOM 3-M Officer. Commander, Naval Air Force Pacific N436 and Commander, Naval Air Force Atlantic N436 are the Force 3-M Officers (3MOs) and responsible for administration of the 3-M system within the TYCOMs. The 3MO is the single point of contact for shipboard 3-M matters.

c.   TYCOM 3-M Team. The 3-M Team consists of the N436 3MO, senior enlisted personnel of appropriate technical ratings, and N432 MDS subject matter experts. This team is responsible for:

(1)   Assisting and advising commands in administration of the 3-M system.

(2)   Conducting reviews of Planned Maintenance System (PMS) feedback reports and responses.

(3)   Conducting 3-M system training, assists, and inspections.

(4)   Monitoring overall implementation and effectiveness of the 3-M system on all aircraft carriers.

(5)   Reviewing self-assessment results to identify trends and providing prompt support to ships as required.

(6)   Training the ship's 3-M Training Team (3-MTT).

(7)   Maintaining liaison with Commander, Fleet Forces Command, Commander, Pacific Fleet, Naval Sea Logistics Center (NSLC), and other commands on 3-M matters.

(8)   Providing onboard and off-ship assistance or training in OMMS-NG operations.

(9)   Conducting OMMS-NG and Propulsion – Organizational Maintenance Management System (P-OMMS) evaluations and software grooms in conjunction with scheduled 3-M assists and inspections.

(10)   Coordinating OMMS-NG and P-OMMS external source inputs to ship's CSMP to ensure quality of information.

(11)   Coordinating and providing application administrator training for OMMS-NG Functional Area Supervisors (FAS).

(12)   Coordinating and providing CSMP management training.

(13)   Assisting and providing support for TYCOM CSMP validations.

(14)   Ensuring 3-M Inspections are current.

(15)   Ensuring subordinate commands conduct rigorous quarterly 3-M Self-Assessments and report results to the TYCOM 3-M Coordinator (3MC).

(16)   Monitoring the status of troubled systems and Top Management Attention items using the quarterly 3-M Self-Assessment.

(17)   Ensuring subordinate commands comply with standard work center (WC), division, and department structure.

(18)   Tracking and monitoring 3-M major milestones and training events, overseeing, and providing inspection teams and conducting 3-M spot checks.

d.   TYCOM Maintenance Logistics Branch Managers (N432). To enhance the operation and effectiveness of OMMS-NG, Commander Naval Air Force Atlantic and Commander Naval Air Force Pacific N432s will:

(1)   Conduct MDS evaluations in conjunction with 3-M inspections.

(2)   Provide onboard and off-ship user and administrative assistance or training in the operations of the ship's Maintenance Support Center (MSC).

(3)   Conduct MSC assist and audit evaluations yearly.

e.   Commanding Officer. The Commanding Officer (CO) is responsible for establishing an aggressive Self-Assessment Program that validates the administration and execution of maintenance and detects improperly conducted maintenance or falsely reported accomplishments. In addition, the CO is overall responsible for the ship's Zone Inspection Program and will participate in zone inspections as an inspector. Whenever possible, the CO will inspect a different zone during each inspection to ensure that they inspect the whole unit within a reasonable period. COs should assure

themselves that zone inspections are being conducted and the correction of deficiencies is being satisfactorily pursued.

f.   Executive Officer:

(1)   The Executive Officer (XO) is the command's 3-M System manager responsible to the CO for the overall management of the 3-M Program. The XO will:

(a)   Brief the CO on the status of 3-M.

(b)   Designate in writing the 3MC (NEC qualified) and an officer to be the ship's 3MO.

(c)   Chair quarterly 3-M System meetings with Department Heads (DH), Ship's Maintenance Manager (SMM), Reactor Maintenance Officer (RMO), 3MO, Repair Officer, 3MC(s), and 3-MTT.

(d)   Integrate 3-M System training into the command's training and qualification program.

(e)   Ensure personnel receive adequate and effective 3-M System training.

(f)   Ensure the effectiveness of the command's 3-M Self-Assessment Program.

(g)   Act as the final review officer for shifts of maintenance responsibility between departments.

(h)   Lead the 3-MTT.

(2)   The XO also has overall responsibility for execution of the ship's Zone Inspection program. In this capacity the XO will:

(a)   Schedule and publish zone inspection dates and times and designated zones to be inspected.

(b)   Assign DHs, Division Officers (DIVO), Chief Petty Officers, or other senior officers as inspecting officers.

(c)   Participate in zone inspections as an inspector.

(d)   Review reports of discrepancies and corrective actions and make appropriate reports to the CO.

(e)   Maintain an auditable record indicating that all spaces have been inspected by zone at least once a quarter. This record should be maintained to show all inspections for the last 12 months.

(f)   Train Officers and Chief Petty Officers in the conduct of zone inspections.

g.   3-M Training Team. The 3-MTT will:

(1)   Monitor and observe weekly spot-checks performed by designated spot checkers. Critique spot checker and maintenance personnel performance upon completion using Appendix A, Section I of this chapter. The

maintenance check should include at least one of the following:

    (a)   Working aloft.

    (b)   Tag-out.

    (c)   Hazardous Material (HAZMAT).

    (d)   Personal protective equipment (PPE).

(2)   Evaluate spot checkers based on adherence to and knowledge of directives required to complete the maintenance action.

(3)   Provide divisional training and Personal Qualification Standard (PQS) qualification support as requested, or as directed by the 3MO based on 3-MTT trend data.

(4)   Support the 3MO in conducting 3-M self-assessments or audits.

(5)   Meet monthly (at a minimum) to discuss performance trends, performance improvement recommendations and strategies and to conduct training of 3-MTT members.

(6)   Conduct quarterly 3-M training for E-7 and above. Training topics should focus on mitigating negative trend data.

(7)   Provide training attendance sheets for all training that 3-MTT members provide. Training must be documented and retained for 24 months by the 3MO. Attendance sheets will have the following information:

    (a)   Lecturer

    (b)   Attendees

    (c)   Date of training

    (d)   Topics covered

    (e)   Senior member present at the training

    (f)   Location and length of training

(8)   Conduct CSMP review to ensure compliance with the standards set forth in this chapter.

(9)   Conduct OMMS-NG or P-OMMS Practical Exams.

h.   3-M Officer.

(1)   The 3MO acts as the XO's principal assistant regarding 3-M matters. The 3MO will:

    (a)   Coordinate all administrative facets of the 3-M Program.

    (b)   Evaluate command's 3-M program and keep the XO advised of operational effectiveness.

    (c)   Monitor the Spot Check Program and report program's effectiveness weekly to the XO.

(d)   Manage 3-MTT and maintain designation letters.

(e)   Coordinate, maintain, train, and monitor the performance of the 3-MTT.

(f)   Maintain a weekly 3-M report that will display both ship's Spot Check Accomplishment Rate (SCAR) and 3-MTT SCAR as separate columns for comparison.

(g)   Provide 3-M Program advice and assistance to DHs, DIVOs, Departmental 3-M Assistants (D3MA), Leading Chief Petty Officers (LCPO) and Work Center Supervisors (WCS).

(h)   Maintain a file of current 3-M instructions and directives (may be electronic); disseminate changes.

(i)   Ensure timely submission of FBRs.

(j)   Maintain a master file of submitted FBRs, Responses, Advance Change Notices (ACN) and Document Information Transmittals.

(k)   Conduct 3-M Self-Assessments.

(l)   Coordinate and conduct 3-M training. (Weekly at a minimum.)

(m)   Coordinate and conduct 3-M qualification program.

(n)   Ensure that PMS improvement plans are prepared and executed.

(o)   Ensure that a Scheduling and Execution Effectiveness Review (SEER) is completed and maintained for 24 months for every WC upon implementation of a Force Revision (FR). Reviewers (E-7 or above) are to utilize the SEER worksheet from Appendix B section I-A.

(2)   The 3MO is also directly responsible to the XO for deck-plate execution of Zone Inspections and the annual review of the Zone Inspection Program instruction. The 3MO will:

(a)   Designate the zones, zone boundaries, number of zones, and spaces assigned to each zone subject to the review of appropriate DHs and XO approval.

(b)   Coordinate assignment of inspectors and escorts with the XO and departmental LCPOs.

(c)   Muster and brief zone inspectors, escorts, and recorders prior to inspections.

(d)   Furnish the inspecting party with binders containing blank Zone Inspection Deficiency Lists (ZIDL) (Appendix C Section I), Zone Inspection Material Guide (Appendix C Section II) and a copy of the last four inspection ZIDLs.

(e)   Collect and maintain completed ZIDLs:

<u>1</u>   Ensure all ZIDLs are entered into Maintenance Onboard Data Exchange System (MODES) module located in the Total Ship Information Management System (TSIMS) by Departmental 3MAs.

<u>2</u>   Ensure Departmental 3MAs assist in correcting unsatisfactory conditions noted on inspection reports for their departments.

<u>3</u>   Forward the MODES and the zone inspection discrepancy report to the XO, DHs, Damage Control Assistant (DCA), Electrical Officer and Safety Officer.

(f)   Maintain the ZIDL database in the MODES module to include accurate up-to-date space ownership assignments.

(g)   After XO approval, distribute zone inspection discrepancy reports to DHs, DIVOs, and department LCPOs. Report will contain at a minimum any space that is inspected (UNSAT) and a list of all repair, "level one" category discrepancies.

(h)   Maintain an auditable record indicating that all spaces have been formally inspected by zone at least once every quarter. It will be maintained to show all zone inspections and assessment reports for the last year (the ZIDL Metrics Report generated in MODES is used for this purpose).

(i)   Monitor an active, self-critical assessment program and report program effectiveness quarterly to the XO per paragraph 19-1.5.8 of this chapter program assessment and Appendix B Section IV-D, Zone Inspection Program Check Sheet.

i.   Safety Officer. The Safety Officer in support of zone inspections will:

(1)   Review MODES and all zone inspection discrepancy reports sent out by the 3MO for safety related discrepancies after each zone inspection.

(2)   Assist and track immediate correction of safety violations or issues arising from zone inspections and make recommendations as appropriate to the CO and XO concerning any trends or major safety issues.

(3)   Provide zone inspection safety discrepancy "lessons learned" at Safety Petty Officer, Safety Committee and Safety Council training meetings.

(4)   Verify discrepancies originated by safety department remain open until corrected. Verify discrepancies are corrected and close out entries in either MODES, the CSMP or both.

(5)   Ensure a safety department representative, E-7 or above, is present to brief inspectors and DIVOs on ship wide safety hazard concerns prior to commencement of the zone inspection.

(6)   Utilize the term "SAFO" as the rate when entering Safety Department walk through discrepancies into MODES.

j.   Electrical Officer. The Electrical Officer in support of zone inspections will:

   (1)   Review MODES and all zone inspection discrepancy reports sent out by the 3MO for electrical safety related discrepancies after each zone inspection.

   (2)   Assist and track immediate correction of electrical safety violations and issues arising from zone inspections through the trouble call MODES database per 19-1.7 of this chapter and make recommendation(s) as appropriate to the Chief Engineer (CHENG) concerning trends or major safety issues.

   (3)   Ensure an electrical division representative, E-7 or above, is present to brief inspectors and DIVOs on ship wide electrical safety concerns prior to commencement of the zone inspection.

k.   Repair Officer. The Repair Officer in support of zone inspections will:

   (1)   Provide assistance and advice to all levels of the Chain Of Command (CoC) for correcting discrepancies that require organizational level TA-4 engineering attention.

   (2)   Verify, assist, and track immediate correction of all repair "level one" safety violations or issues arising from zone inspections through the trouble call MODES database.

l.   Command Master Chief. The Command Master Chief (CMC) will:

   (1)   Attend the XO's quarterly 3-M System meetings providing senior enlisted feedback.

   (2)   Conduct PMS Spot Checks following the command's policy to ensure required maintenance is being properly performed and documented.

m.   Command 3-M Coordinator. The 3MC reports to the 3MO on all 3-M matters. The 3MC will:

   (1)   Support the ship's 3MO in management of the 3-M program.

   (2)   Maintain copies of the current FR NAVY PMS Digital Video Disk (DVD), List of Effective Pages (LOEP) for every WC, changes issued between FRs in their original format and classified Maintenance Requirement Cards (MRC). Digital copies are allowed unless there have been changes between FRs.

   (3)   Manage PMS Master File per the requirements of this document, maintain a locater card for all primary and secondary classified MRCs as part of the PMS Master File.

   (4)   Advise, monitor, and assist DHs, DIVOs, LCPOs and WCS in matters concerning the 3-M System.

   (5)   Monitor the Ship's 3-M PQS Program and maintain an auditable record of personnel qualified in 3-M PQS.

   (6)   Maintain a master accountability log of all PMS changes.

   (7)   Develop and maintain a Split Maintenance Index Page (MIP) Log.

(8)   Administer the configuration management program onboard the ship or unit.

(9)   Supervise the command's 3-M Self-Assessment program and provide a weekly status to the 3MO.

(10)   Develop and administer the Ship or Unit's PMS Spot Check Program.

(11)   Maintain a matrix to select and track spot-checks to be performed at the executive level by the following personnel:

   (a)   CO

   (b)   XO

   (c)   3MO

   (d)   3MC

   (e)   3-MTT

   (f)   CMC

(12)   Serve as 3-MTT Coordinator. Ensure all 3-MTT members are fully qualified. Maintain a roster and qualification record of all 3-MTT members.

(13)   Coordinate weekly general administrative duties and spot check requirements for the ship's 3-MTT.

(14)   Maintain a current roster of all D3MAs and WCSs.

(15)   Ensure corrective actions are taken on all unsatisfactory PMS Spot Checks and report same to the 3MO as part of weekly PMS reporting.

(16)   Ensure backups of SKED database are produced daily and maintained in Automated Data Processing (ADP).

(17)   Ensure ship's Maintenance Outlook Report is generated weekly for a minimum of 60 days out.

(18)   Ensure Global Events are triggered in SKED and completed based on unit events such as flight quarters, drills, or underway replenishment.

(19)   Ensure that Global States and Triggers are properly set at the Command level.

(20)   Screen all FBRs, verify content, validity, serialize and forward within seven days of origination.

(21)   Maintain accountability of all submitted FBRs and actions taken until corrected or new PMS documentation is received.

(22)   Ensure the FBR originator and all applicable WCs are apprised of action taken and that changes or corrections are implemented when received.

(23)   Ensure 3-M documents such as Ship's Maintenance Action Form OPNAV 4790/2K, Ship's Configuration Change Forms OPNAV 4790/CK, etc. that require forwarding to a data processing activity are forwarded within seven days of origination or as operationally feasible.

(24)   Validate 3-M MDS data elements following the 3-M validation specifications.

(25)   Ensure 3-M documents returned for the correction of data are promptly revised and resubmitted.

(26)   Track the reporting of completed maintenance actions related to an alteration or because of a configuration change with timely processing of Automated Shore Interface (ASI) configuration and logistic data.

(27)   Report up-line CSMP maintenance transactions and command equipment file corrections at least once a week.

(28)   Maintain any outstanding paper copies of message work candidates and 2-Limas, either paper or electronic.

n.   Reactor Maintenance Officer. The RMO has cognizance of the Reactor Plant. The RMO will:

(1)   Notify the SMM of cross boundary maintenance.

(2)   Coordinate all facets of shipboard corrective maintenance.

(3)   Coordinate industrial and shipboard maintenance during availabilities.

(4)   Coordinate with and aid the 3MO and 3MC in monitoring the Configuration Validation Program. Ensure all departments are aware that equipment validation forms and configuration or logistic support problems must be submitted to the MSC for review, research, and input into OMMS-NG per reference (b).

(5)   Ensure all documentation deferring maintenance on newly created, unreported Job Control Numbers (JCN) is reviewed and approved in a timely manner by the responsible DH. Time from work candidate origination to DH approval will not exceed seven working days.

(6)   Monitor the operation of MDS.

(7)   Act as the Immediate Unit Commander (IUC) representative for IUC screening and programming.

o.   Ship's Maintenance Manager. The SMM has cognizance over topside maintenance. The SMM will:

(1)   Notify the RMO of cross boundary maintenance. The SMM has cognizance of the material condition of the ship except for the Reactor Plant.

(2)   Coordinate all facets of shipboard corrective maintenance.

(3)   Coordinate industrial and shipboard maintenance during availabilities.

(4)   Coordinate with and aid the 3MO and 3MC in monitoring the Configuration Validation Program. Ensure all departments are aware that equipment validation forms and configuration or logistic support problems must be submitted to the MSC for review, research, and input into OMMS-NG per reference (b).

(5) Ensure all documentation deferring maintenance on newly created, unreported JCNs is reviewed and approved in a timely manner by the responsible DH. Time from work candidate origination to DH approval will not exceed seven working days.

(6) Monitor the operation of MDS.

(7) Act as the IUC representative for IUC screening and programming.

(8) In support of zone inspections:

(a) Provide assistance and advice to all levels of the CoC for correcting discrepancies that require outside repair activity assistance.

(b) Coordinate with the Ship's Repair Officer, CNAL/CNAP N43 Maintenance Program Manager (MPM) and the PMS312, Carrier Planning Activity for all depot level Corrosion Control Information Management System conditions 2 through 4 per reference (c).

p. 3-M Functional Area Supervisor. The FAS will be designated in writing by the CHENG or RMO, hold the 3MC NEC (811A) and be a Chief Petty Officer or above. Functional Area Supervisors report directly to the SMM or RMO on all 3-M MDS matters. Primary responsibilities include the proper operation and maintenance of the OMMS-NG and P-OMMS systems, as well as training of users. The FAS will:

(1) Coordinate all administrative facets of the 3-M MDS program per current directives.

(2) Support the SMM and RMO in the management of the program.

(3) Serve as 3-MTT Coordinator for all MDS matters. Ensure all 3-MTT members are fully qualified in MDS.

(4) Produce updated OMMS-NG documents (CSMP up-line reports, ASI reports, etc.) to TYCOM as required.

(5) Process customer feedback files from the TYCOM.

(6) Monitor and process all external interface transactions. Process bulk load files into OMMS-NG. Forward a copy of the Bulk Load Report to the CNAL/CNAP N43 MDS specialist.

(7) Coordinate use of OMMS-NG to support Strike Force Intermediate Maintenance Activity (SFIMA).

(8) Act as primary point of contact for off ship training provided by CNAL/CNAP N43.

(9) Train Ship's Force personnel at the appropriate level for the billet in which they are serving.

(10) Maintain a "Ship Availability Listing" for distribution to Ship's Force personnel. Ensure availability listing is co-located with the WC CSMP MJB516 (CSMP Detail Listing by Job Sequence Number (JSN)) report.

(11) Monitor and correct work candidates in the OMMS-NG import correction

queue.

(12)   Maintain OMMS-NG site parameters per TYCOM directives.

(13)   Process OMMS-NG system utilities and data alignment programs as required.

(14)   Maintain tracking of Board of Inspection and Survey discrepancies in OMMS-NG.

(15)   Maintain a log tracking significant OMMS-NG down time.

(16)   Ensure all work candidates assigned to the "REJ" availability, rejected, or requiring more information from TYCOM, are processed, and returned to the TYCOM MPM.

(17)   Maintain a log of submitted OMMS-NG trouble reports and change proposals.

(18)   Maintain a log to track OMMS-NG up line reporting.

(19)   Conduct review and approval screening of all open and completed work candidates. Ensure all "New" not previously reported work candidates are approved by OMMS-NG FAS within seven working days.

(20)   Ensure, in support of the Automated Consolidated Shipboard Allowance List Improvement Program, only MSC personnel are given access to order repair parts using the "Parts Not Listed" ordering capability in OMMS-NG.

q.   Maintenance Support Center. The MSC will support the ship's Configuration Validation Program. Specific responsibilities include:

(1)   Assign problem worksheet numbers and use problem worksheets to track configuration database changes.

(2)   Update the ship's configuration database with additions and changes as identified through validation efforts.

(3)   Assist departments in identification of configuration items requiring validation.

(4)   Conduct research on requests for the ordering of parts not listed on an Allowance Parts List (APL) or Allowance Equipage List and take action as required. Action will include placing the part on order for the WC as a part not listed on the APL or Allowance Equipage List.

r.   Command Maintenance Availability Coordinator. The Command Maintenance Availability Coordinator will be responsible for the coordination of all Fleet Maintenance Activity (FMA) repairs and coordinate closely with the 3MC. The Command Maintenance Availability Coordinator will also provide a single working level point of contact and coordinate the command's requirements with the requirements of the FMA. These duties include:

(1)   Technical review of work requests submitted for FMA accomplishment.

(a)   Ensure readability and technical correctness.

    (b)   Prevent duplication of work requests for ship alterations, and other MJC originated deferrals.

    (c)   Collect supplemental 2-LIMA requests for routine work (i.e., lagging, painting, label plates, tiling, etc.) from all WCs and prepare an integrated priority list for each type of routine work to maximize the FMA's effectiveness.

(2)   Ensuring command preparations for an FMA availability are conducted per Volume II, Part I, Chapter 4 of this manual.

(3)   Meeting daily, during an availability, with the assigned ship superintendent to discuss the status of all active jobs.

(4)   Attending all FMA production, night work and management meetings.

(5)   Providing a daily FMA job status to each DH, DIVO and Leading Petty Officer (LPO).

(6)   Establishment of a Planning Board for Maintenance.

s.   Department Head.

(1)   The DH is responsible to the XO for the operation and execution of the 3-M System within the department. Delegating review and approval authority does not relieve the DH of his or her duties and responsibilities in maintaining an effective 3-M program. The DH will:

    (a)   Ensure all Principal Assistants (PA), D3MAs, DIVOs, LCPOs and WCSs are fully qualified and designated in writing.

    (b)   Ensure all maintenance personnel are fully qualified.

    (c)   Delegate review and approval authority, if desired, to a 3-M Principal Assistant. The 3-M Principal Assistant must be an officer, with the same 3-M qualifications as the DH, designated in writing, and provides oversight and assistance to the DH.

    (d)   Ensure maintenance is prioritized to facilitate accomplishment.

    (e)   Review and approve all department PMS schedules and revisions.

    (f)   Review maintenance action annotations.

    (g)   Review weekly PMS alerts.

    (h)   Implement a Self-Assessment Program within the department to validate properly accomplished and reported maintenance.

    (i)   Take corrective action on all "Unsatisfactory" PMS Spot Checks and report to the 3MO via 3MC as part of weekly PMS reporting.

    (j)   Ensure all material deficiencies are documented and promptly reported.

    (k)   Review and verify the content and validity of all FBRs, digitally sign FBRs within four days of origination.

(l) Ensure the Configuration Management Database accurately reflects equipment changes whether the action is performed by command personnel or outside activities.

(m) Authorize placement of equipment into an Inactive Equipment Maintenance (IEM) status, ensure PMS scheduling is annotated accordingly.

(n) Review and approve department work candidates within four days of creation; ensure completeness, accuracy, and the correct assignment of priority.

(o) Review all work candidates in the departmental CSMP every 90 days.

(p) Ensure that no classified data or Navy Nuclear Propulsion Information is reflected on 3-M documents designated for off-hull distribution.

(q) Conduct quarterly meetings with DIVOs, LCPOs and WCSs and provide status of departmental 3-M System to the 3MO.

(2) In support of the ship's zone inspection program, the DH will:

(a) Ensure on time participation of all required zone inspectors, escorts, recorders, and space presenters.

(b) Ensure Department LCPOs review the weekly zone plan and assign qualified inspectors. Provide names of qualified substitutes when required to the 3-M Office one day prior to the zone inspection.

(c) Ensure DIVOs prepare and report divisional spaces ready for inspection prior to the time published for zone inspection.

(d) Review MODES and the zone inspection discrepancy report sent out by the 3MO after each zone inspection and follow up on all reported discrepancies. Ensure repair "level one" safety discrepancies are resolved immediately by the division responsible for the space or corrected per paragraph 19-1.7 of this chapter and reported to the XO and 3MO within 24 hours.

(e) Keep the XO apprised by ensuring discrepancies in the MODES database are routinely updated to reflect the status of corrective action. The MODES database is to be updated no later than the week following the previous week's zone inspection.

(f) Ensure D3MA submits a completed maintenance action without prior deferral into OMMS-NG or P-OMMS to document the total man-hours expended in the accomplishment of the zone inspection deficiencies for the entire month. One JCN will be submitted for the entire department under the department administrative work center. The "Zone Inspection Program" XSYSTEMITEM APL will be used. For example:

APL	HSC	EFD	ESD
XSYSTEMITEM	13011SFZIP	Zone Inspection Program	Zone Inspection

t.   Departmental 3-M Assistant. The D3MAs should be E-7 or above. Stellar E-6s (except for Weapons, Combat, Air, Reactor and Engineering departments) may be considered but must be approved in writing by the XO. The D3MA will:

(1)   Assist the DH in coordinating and supervising all administrative aspects of the department's 3-M Program.

(2)   Serve as the department's 3-M Program technical expert and advisor.

(3)   Assist the 3MC in the proper execution of the 3-M Program within the department.

(4)   Supervise and coordinate quarterly departmental 3-M Self-Assessments.

(5)   Assist the 3MO and 3MC in administering an effective 3-M Certification Program for the qualification of 3-M personnel.

(6)   Assist in the development and execution of the short and long-range 3-M training plan.

(7)   Assist the 3MC in maintaining a high-quality Spot Check Program.

(8)   Generate a weekly PMS spot check assignment matrix for officers, CPOs, and designated supervisory personnel.

(9)   Monitor the department's CSMP for accuracy and effectiveness, review, and report job status to the DIVO and DH.

(10)   Coordinate repair activities within the department to ensure timely resolution of material deficiencies.

(11)   Provide the DH with a weekly status of the department's:

(a)   3-M Self-Assessment Program.

(b)   CSMP.

(c)   PMS Performance Report (from SKED).

(d)   Equipment file validations (as scheduled by MSC).

(12)   Use SKED's Revision Editor to ensure that all PMS changes have been properly annotated and applied to the schedule prior to DH review and finalization.

(13)   Oversee and assist WCSs in the implementation of FRs, updates and changes.

(14)   Review each WC's lineouts and all 3-M documentation supporting PMS and MDS prior to submission to the DH.

(15)   Ensure all equipment changes, adds and removals, regardless of whether the action is performed by command personnel or outside activities, is reflected in

the Configuration Management Database; if not, report via 4790/CK to the Configuration Data Manager (CDM) and utilize a PMS FBR to affect LOEP changes.

(16)   Manage the departmental TSIMS and MODES program requirements.

u.   Department Leading Chief Petty Officer. The department LCPO is responsible for the proper operation of the 3-M System within their department. The department LCPO will:

(1)   Provide 3-M System guidance and training to DIVOs and division LCPOs within their department.

(2)   Participate in quarterly Self-Assessments.

(3)   Review all quarterly Self-Assessments and promptly correct discrepancies found within the department.

(4)   Support the DH with Zone Inspection responsibilities.

v.   Division Officer.

(1)   The DIVO is responsible to the DH for the execution of maintenance within the division. The DIVO will:

(a)   Ensure all PMS scheduling changes have been properly annotated and applied prior to DH review and finalization.

(b)   Review the 13-Week Accountability Log at the beginning of the PMS week and sign at the end of the week (if not using electronic accountability in SKED or when SKED is not available).

(c)   Review and verify the content and validity of PMS FBRs within three days of origination.

(d)   Ensure 3-M documents generated within the division are complete, accurate and promptly submitted to the DH.

(e)   Conduct 3-M Self-Assessments as directed by the command's policy.

(f)   Provide weekly updates to the DH concerning the status of the 3-M System within the division.

(g)   Incorporate 3-M System training into the Divisional Training Plan.

(h)   Review divisional work candidates and the CSMP for validity and accuracy.

(i)   Conduct monthly briefings for the DH on the status of all work candidates.

(j)   Acknowledge weekly PMS Alerts.

(2)   In support of the ship's zone inspection program, the DIVO will:

    (a)   Ensure zone inspection escorts and space presenters are familiar with locations of their assigned areas. Space presenters will normally be the individuals responsible for the space.

    (b)   Ensure zone inspection escorts and recorders attend training with department LCPO the day prior to the inspection and be knowledgeable of the spaces to be inspected.

    (c)   Ensure applicable compartments, gear lockers, drawers, stowage lockers, and other enclosures are unlocked and accessible for inspections.

    (d)   Maintain a zone inspection folder for each space within their division containing ZIDLs (Appendix C Section I) from the last four inspections.

    (e)   Ensure spaces assigned are ready for zone inspection, paying particular attention to safety, damage control, material condition, preservation, and cleanliness. Report results to the DH and ensure divisional CSMP reflects current material condition of all spaces.

    (f)   Review MODES and the zone inspection discrepancy report sent out by the 3MO after each zone inspection and follow up on all reported discrepancies. Ensure repair "level one" safety discrepancies are resolved immediately by the division responsible for the space or corrected per paragraph 19-1.7 of this chapter and reported to the DH and 3MO within 24 hours.

    (g)   Ensure discrepancies that are within the division's capability that cannot be corrected by the division within 30 days, are submitted by originating WC with a JCN. Discrepancies that cannot be completed by the division responsible for the space, but within Ship's Force capability, must have a Ship's Force organizational JCN submitted. Discrepancies that are beyond Ship's Force capability must have an outside activity JCN assigned. JCNs that require parts or cannot be completed by the originating WC must be submitted within seven days via the CSMP.

    (h)   Keep the DH apprised by ensuring zone inspection discrepancies in the MODES database are routinely updated to reflect the status of corrective action. The MODES database is to be updated no later than the week following the previous week's zone inspection.

w.   Division Leading Chief Petty Officer. The division LCPO is responsible for the proper operation of the 3-M System within their division. The division LCPO will:

(1)   Supervise WCSs in the execution of daily maintenance.

(2)   Ensure WCSs are properly trained, equipped and are knowledgeable of all WC divisional equipment maintenance requirements.

(3)   Ensure divisional personnel are properly trained and qualified to conduct maintenance.

(4)   Verify all divisional WC equipment is covered by PMS.

(5)   Ensure PMS is properly scheduled and conducted, including all underway and special evolution situational "R" checks.

(6)   Review WC PMS records (e.g., FRs, ACNs and PMS FBRs and Responses), approve all lineouts and additions on the LOEP, MIP, and PMS schedules prior to DIVO and DH reviews. Ensure proper justification is noted on each lineout.

(7)   Review and approve non-applicable procedural steps lined-out on MRCs.

(8)   Review and sign the 13-Week Accountability Log at the end of the PMS week and ensure checks added that week are hand-written into the blank accountability log. (if not using electronic accountability in SKED or when SKED is not available).

(9)   Review the PMS Scheduling Forecasting Report to ensure that all Tools, Parts, Material and Test Equipment (TPMTE) are available to support upcoming maintenance actions.

(10)   Provide the DIVO a weekly status of the division's Self-Assessment Program, CSMP and PMS.

(11)   Ensure the Configuration Management Database reflects current ship's configuration.

(12)   Ensure FBRs are submitted requesting LOEP changes to reflect system, equipment and component installs or removals.

(13)   Review and verify the content and validity of PMS FBRs within two days of origination.

(14)   Ensure the divisional CSMP accurately reflects material conditions.

(15)   Review and approve work candidates, act as the second point of contact for work candidates and provide the DIVO a weekly brief on the status of all work candidates in the CSMP.

(16)   Ensure proper testing and inspection of work done by outside activities prior to job acceptance.

(17)   Coordinate repair activities within the division.

(18)   Review, approve, and close out weekly schedules. This closeout of the previous week's schedules must occur on the first day of the following week (i.e., Monday).

(19)   Review Check Notes for required and updated information.

(20)   Write PMS Alert details to include why planning allowed loss of periodicity and the plan to complete PMS.

(21)   Support the DIVO with Zone Inspection responsibilities.

x.   Work Center Supervisor. The WCS must be an E-6 or above unless waived in writing by the XO. The WCS of a 40 series work center must be Damage Control Petty Officer (DCPO) qualified and recommended in writing by the DCA. The WCS will:

(1)   Record all equipment deficiencies within their WC, utilizing OMMS-NG and P-OMMS to ensure all required 3-M System documents are submitted to the division LCPO.

(2)   Ensure work center personnel have completed 3-M PQS training commensurate with position held.

(3)   Ensure PMS covers all maintenance worthy equipment in the WC.

(4)   Maintain an accurate and current LOEP.

(5)   Ensure 3-M System WC files and publications are complete, current, and available to WC personnel.

(6)   Ensure WC initiated 3-M documentation is correct, legible, promptly prepared and submitted.

(7)   Maintain a 13-Week Accountability Log containing the current and previous 13-Week Log (if not using electronic accountability in SKED or when SKED is not available).

(8)   Prepare weekly WC schedule, obtain required approval, assign maintenance personnel, and update schedule to reflect status.

(9)   Ensure equipment changes, adds and removals are reflected in the Configuration Management Database and, if not, report via 4790/CK to the CDM.

(10)   Ensure FBRs are submitted whenever:

(a)   Maintenance requirements are not fully understood.

(b)   Errors are believed to exist.

(c)   Entries in the TPMTE block are wrong or inadequate.

(d)   Additional coverage is needed.

(e)   Performance of the maintenance requirement would cause a hazardous condition to exist.

(11)   Ensure prompt reporting of all material deficiencies and completed maintenance actions.

(12)   Ensure test and measurement equipment or other portable support equipment is delivered for test or calibration as scheduled.

(13)   Ensure the DIVO and division LCPO or LPO are advised of all 3-M System activity within the WC.

(14)   Review the PMS Scheduling Forecasting Report to ensure that all TPMTE is available to support upcoming maintenance actions.

(15)   Ensure all WC weekly schedules are updated daily.

(16)   Ensure WC personnel make necessary preparations and ensure presenters and spaces are ready for zone inspection.

y.   Damage Control Assistant.

   (1)   The DCA will be the principal advisor to the XO for all matters pertaining to damage control maintenance including scheduling, performance, and the technical aspects of planned maintenance for all Damage Control (DC) equipment. The DCA will:

      (a)   Provide a comprehensive weekly training and qualification program for DCPOs.

      (b)   Schedule and control the performance of planned and corrective maintenance of DC equipment requiring outside or off hull assistance.

      (c)   Advise DHs of scheduled dates for maintenance actions requiring coordination between departments or throughout the ship.

      (d)   Coordinate PMS on DC gear not assigned to a WC, division, or department.

   (2)   In support of the ship's zone inspection program, the DCA will:

      (a)   Review MODES and all zone inspection discrepancy reports sent out by the 3MO for damage control related discrepancies after each zone inspection.

      (b)   Assist and track immediate correction of damage control violations or issues arising from zone inspections. DCA will make recommendation(s) as appropriate to the CO, XO via the CHENG concerning any trends or major safety issues.

      (c)   Report serious or long-standing repair or firefighting discrepancies to the CHENG and XO. Additionally, provide these "lessons learned" at DCPO training.

      (d)   Track corrections of damage control discrepancies with the ship's Fire Marshall (FM).

      (e)   Ensure a damage control division representative, E-7 or above, is present to brief inspectors and DIVOs on ship wide damage control concerns prior to commencement of the zone inspection.

      (f)   Utilize "Duty FM" as the rate when entering Duty Fire Marshall walk through discrepancies into MODES. This is to allow for easier identification when reviewing the system-generated reports.

z. Maintenance Personnel. Maintenance Personnel will perform all PMS as assigned utilizing PMS documents in SKED and ensure "Check Notes" contain amplifying information and tagout identifiers as required. Maintenance personnel will:

(1) Perform assigned maintenance.

(2) Notify the WCS when:

(a) An MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

(b) There are issues with the TPMTE block of the MRC.

(c) The technician has doubts concerning his or her ability to perform the maintenance.

(d) Equipment deficiencies or casualties are discovered.

(e) Factors exist which would make performance of the maintenance unwise or dangerous.

(3) Initiate FBRs when discrepancies are discovered during the performance of an MRC.

(4) Inform the WCS when planned maintenance requirements are complete.

(5) Annotate PMS schedule to reflect accomplishment of maintenance.

(6) Sign 13-Week Accountability Log. (If not using electronic accountability in SKED or when SKED is not available).

aa. Zone Inspectors. Zone Inspectors will:

(1) Provide their individual flashlight and PPE.

(2) Inspect assigned spaces expeditiously and completely. Annotate results on the ZIDL forms (Appendix C Section I of this chapter) and ensure the escort and recorder:

(a) Clearly understands what is being reported

(b) Annotates discrepancies

(c) Understands repair "level one" safety discrepancies must be corrected by the division or corrected per paragraph 19-1.7 of this chapter and reported to the DIVO and 3MO within 24 hours.

(3) Contact responsible DIVO or LCPO immediately when repair "level one" unsafe conditions are found and remain on station until sufficient action is taken or other personnel arrive to resolve the unsafe condition.

bb. Zone Inspector Escorts and Recorders. Zone inspector escorts and recorders will:

(1) Attend training per this section with the department LCPO the day prior to the inspection and be knowledgeable of the spaces to be inspected.

(2) Plan an efficient route for the inspection and make sure all spaces are unlocked. Record all information into the inspection binder.

cc.   Zone Inspection Space Presenters. Space presenters will:

(1)   Be knowledgeable of the spaces to be inspected and have keys or combinations to applicable compartments, gear lockers, drawers, stowage lockers and other enclosures. The space presenter should be the individual responsible for the cleanliness and maintenance of the space.

(2)   Present both, a current CSMP (Automated Work Request or 516 Report) and a MODES report identifying existing deficiencies to the inspector and have the divisional space ZIDL folder containing the last four ZIDLs for each space.

(3)   Route completed ZIDL forms via the CoC.

19-1.3 QUALIFICATIONS. All personnel assigned to billets associated with the 3-M system must be 3-M PQS qualified for the assigned billet per reference (d).

a.   Evidence of qualification in support of 3-M requirements must be maintained by the command in an auditable fashion. In addition to 3-M PQS qualifications, all personnel assigned to accomplish 3-M related maintenance on systems listed in Volume V, Part 1, Chapter 2 paragraph 2.2.1 of this manual, must be qualified per reference (e)." Table 19-1-1 reflects the PQS qualifications required to fill 3-M billets.

Table 19-1-1 - Required PQS Qualifications	
3-M Coordinator	PQS-307
3-M Assistant	PQS-305
Department Head	PQS-306
Department LCPO	PQS-305
3-MTT Members	PQS-304
Division Officer	PQS-304
Division LCPO	PQS-304
Work Center Supervisor	PQS-303
Repair Parts Petty Officer	PQS-302 or RPPO Continuing Training and Qualifications Software
Maintenance Personnel	PQS-301

b.   Personnel checking into the command with a 3-M qualification obtained from a previous command may be required to re-qualify. They may re-qualify directly to the highest level previously obtained and they do not have to re-qualify at lower levels. Prerequisites, however, for all qualifications must be documented in Relational Administration (RADM).

19-1.4 PLANNED MAINTENANCE.

19-1.4.1 Minimum Standards. MRC accomplishment is critical for maintaining equipment in a ready state and achieving expected service life. The maintenance tasks directed by MRCs are the

minimum standards for organizational, shipboard planned maintenance, and therefore equipment degradation can be assumed if maintenance is deferred. The following provisions are provided to maximize on time performance of PMS and provide increased fleet latitude in maintaining equipment.

a.   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. The MRC will 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.

b.   Per Naval Sea Systems Command (NAVSEA), procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. 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:

(1)   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.

(2)   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.)

(3)   Specify every possible action of the maintainer.

c.   Leadership will 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, not necessarily step-by-step performance.

d.   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.

e.   MRC completion status is dependent on the accomplishment of all procedural steps on all the equipment listed on the MRC or its accompanying Location Guide List.

f.   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).

g.   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. Substitution requirements are provided by reference (a) and other technical documents.

19-1.4.2 <u>Functional Components</u>.

a.   PMS Master File. The Master File, maintained by the units 3MC, contains information relative to PMS requirements that are specific to equipment for which the command is responsible. The Master File provides for duplicate issue of missing MIPs and MRCs, contains supplementary information provided by NSLC Detachments Norfolk or San Diego and serves as a repository for changes received between FR distributions, which must be retained on file until the changes are reflected in a subsequent FR. Master File content is delineated in Appendix B, Section I-B, Command Level Effectiveness Review (CLER) .

b.   Work Center PMS File. The WC File provides a ready reference of planned maintenance requirements and information to be retained in the working area for use by the WCS and maintenance personnel. The WC File contains only the documents and information applicable to a specific WC. The content of the WC File is delineated in Appendix B Section I-A of this chapter (SEER).

(1)   CNAL and CNAP require documenting qualifications within the WC File with a RADM PQS finder, by watch station print out, showing WC personnel qualification dates for all required qualifications necessary for completion of WC maintenance.

(2)   The following additional qualifications may be required in some WCs:

(a)   Safety Petty Officer (SPO).

(b)   DCPO.

(c)   Quality Assurance (QA) craftsman.

(d)   Any qualification or NEC designation specified by the MIP or MRC.

In SPO required maintenance, for example, the MP must be SPO (NAVEDTRA 43460 series) watch station 301 and 3-M 301 MP qualified.

(3)   Designation letters for the PA (if assigned), DIVO, D3MA, LCPO and WCS must be in the WC File and include designated individual's signature and initials.

(4)   Printed copies of MRCs used by the WC on a routine basis (specifically quarterly, monthly, weekly, and daily) will be maintained. All applicable situational maintenance requirements (R-checks) will also be included.

(5)   If a WCS or higher position is turned over, all line outs within the WC File for that position will be reviewed and re-initialed as soon as possible or no later than implementation of the next FR.

c.   PMS Administrative Requirements. In lieu of a WC or a Master File the following should be retained:

    (1)   Work Center

        (a)   Current classified MRCs.

        (b)   Current Tailored Force Revision (TFR) reports.

    (2)   3MO

        (a)   SKED 3.2 Help file.

        (b)   Split MIP Tracking Log, updated to current FR.

        (c)   Applicable 3-M Instructions, both Ship and TYCOM.

        (d)   Current 3-M messages and guidance.

        (e)   Current 3MC TFR Reports.

        (f)   Master classified MRCs.

        (g)   Current SKED Database back-up files on DVD or CD-R and an Excel spread sheet from the SKED report Checks and Maintenance Outlook Report of all WCs, for the current and next future quarter.

        (h)   3-M Program short and long range training plan approved by the XO.

d.   Interim MRC Procedures. The ship may develop interim MRC procedures based on experience and applicable technical manuals in support of equipment or systems without PMS coverage until formal documentation is received. Before scheduling preliminary MIP requirements, the WCS and the DH must verify their applicability to installed equipment.

e.   Weekly Status Report. The weekly PMS monitoring status reports will be retained, electronically if desired, by the 3MC for the current and previous quarter. These reports from the 3MC to the 3MO will contain, as a minimum, the information cited in paragraphs 19-1.4.2.d.(1) through (6) of this chapter.

    (1)   Completed Spot-Check and Monitored MRC results.

    (2)   Completed WC audits and results.

    (3)   The number of FBRs over 7 days old that have not been reviewed by the CoC.

    (4)   Abatement and corrective actions completed because of a monitoring program finding.

    (5)   IEM Details Summary Report.

    (6)   Overdue (Alerting) MRCs and plan of corrective action.

f.   Change Service Accountability Log. The Change Service Accountability Log (CSAL), Figure 19-1-1 of this chapter, provides a definitive record of all changes to a command's 3-M program. Whenever a change to a command's 3-M program is directed, be it from an FR, FBR, TYCOM direction, etc., the change will be routed to

the concerned WCS via a memorandum. Whenever such a memorandum is issued, it must be recorded in the CSAL. Once the WCS reports the directed change has been completed, the 3MC will file the WCS's response and annotate in the CSAL that the action is complete.

(1)   The CSAL is comprised of the actual log sheet, a copy of all memos routed to the WCS and the memo from the WCS to the 3MC indicating completion.

(2)   The importance of the CSAL cannot be overstated. Basically, it provides for a day-to-day, year-to-year record of changes to a command's planned maintenance program. It is also a turnover document at deployment sites, allowing a current command to quickly identify all changes from a previous command. Finally, it will be inspected during all command 3-M assessments and inspections, providing visibility as to how well a command manages 3-M from one inspection to another.

Figure 19-1-1 - Change Service Accountability Log

FR Change Number or Authority	Date RCVD	Cognizant Dept. or WC	Date Cover Sheet Issued	Date Cover Sheet Returned	Date Master File Updated or Item Closed	Summary of Change

g.   3-M Training Team. The 3-MTT is formed to enhance and maintain a peak level of PMS and MDS performance by providing focused training and evaluation of the ship's 3-M program.

(1)   The 3-MTT will be a minimum of 30 members led by the XO with the 3MO and 3MC(s) serving as primary assistants. Team membership will be comprised of officers, CPOs, and D3MAs. The 3-MTT will have representation from all departments but should be proportionally represented by the four major departments which are identified as Reactor, Engineering, Combat Systems and Air.

(2)   Each week, one third of the 3-MTT will conduct maintenance person spot checks, one third of the 3-MTT will conduct spot check the spot checker and one third will complete administrative 3-M duties as assigned by 3MC.

(3)   The OMMS-NG and P-OMMS FASs will provide evaluation and training for all matters related to MDS to the 3-MTT.

(4)   3-MTT members must be 3-M (304) DIVO PQS qualified, E-7 or above and have extensive experience in administering and monitoring the 3-M program. All 3-MTT members will be designated in writing and the 3MO will maintain designation letters.

(5)   3-MTT objectives:

(a)   Elevate level of PMS and MDS performance and sustain PMS and MDS proficiency through self-critical evaluation and deck-plate involvement.

(b)   Monitor spot-check performance and provide feedback to spot-checkers and maintenance personnel.

(c)   Provide data to support establishment and tracking of trend data by the 3-M Office.

(d)   Ensure compliance with CSMP requirements and the standards set forth in this manual.

(e)   Ensure personnel have sufficient knowledge of maintenance software to perform assigned duties.

19-1.4.3 <u>PMS Functional Operations</u>.

a.   PMS Documentation Verification. The WCS will ensure that all WC MIPs and MRCs are verified against installed equipment. The WCS's signature on the Records of Changes Page indicates review of the LOEP, MIPs and MRCs has been completed. Any line-out of an MRC or a MIP requires the scheduling aid, approved FBR response, Document Information Transmittals, ACN number or split MIP annotation to be recorded with the line-out.

b.   Date Format. All PMS recording documents (i.e., 13-Week Accountability Log, Carbon Dioxide (CO2) or Aqueous Film Forming Foam record sheets, electrical safety checks, battery service life) must utilize the following format for recording dates: DD, MMM, YYYY (i.e., 11 OCT 2020). This will ensure correct interpretation of dates.

c.   Tag Out. Reference (f) will be the sole source for tag-out procedural guidance. Commands will not generate local instructions. All personnel must strictly adhere to reference (f) procedures and those called out in this manual. Electronic tag-out is currently installed on all carriers relieving the administrative burden of tag-outs; therefore, laminated PMS danger tags are not authorized for use. Commands may generate local guidance to define qualifications and designate administrative responsibilities.

(1)   Tag-Out Logs. The following departments are authorized to maintain a Department Tag-Out Log as identified in Figure 19-1-2 in the location specified:

Figure 19-1-2 - Tag-Out Logs		
Department	Space	Prefix Code
Air	V-2 Office or V-4 Office	AIR
Combat Systems	CS Maintenance Office	CS
Engineering	Damage Control Central	ENG
Weapons	Weapons Elevator Shop	WEP
Reactor	1 and 2 EOS	1Reactor or 2Reactor

(2)   Tag-Out Use. Figure 19-1-3 is a breakdown of departments indicating which Tag-Out Logs to be used:

Figure 19-1-3 - Tag-Out Log Usage	
Department	Tag-Out Log
Air	Air
Combat Systems, Navigation, Operations, Embarked Staff	Combat Systems
Engineering, DCPOs, Aircraft Intermediate Maintenance Department (Advanced Industrial Management Department), Supply, Admin, Dental, Medical, Deck, Training, Command Religious Ministries Department, Legal, Media and all others not listed.	Engineering
Weapons	Weapons
Reactor, In-Plant DCPO	Reactor

19-1.4.4 <u>Related Maintenance</u>. Related maintenance, so designated by the In Service Engineering Activity (ISEA) or Technical Warrant Holder, is determined from the MIP. The "RELATED MAINT" column of the MIP reflects related maintenance requirements. Related requirements are positioned on the MIP to line up directly across from the MRC to which they are related. Related maintenance requirements are also identified in the TPMTE section of the MRC under "MISCELLANEOUS".

NOTE:　　　**MANDATORY RELATED REQUIREMENTS MUST BE LINKED IN SKED TO BE AUTOMATICALLY SCHEDULED.**

    a.   Related Maintenance Categories.

        (1)   Mandatory Related. Mandatory related maintenance requirements are those maintenance actions that must be accomplished concurrently with another maintenance requirement. The mandatory relationship is indicated with the use of the # sign. If the mandatory related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity#" (e.g., M-3#). If the related maintenance resides on another MIP, it will be reflected as "MIP:periodicity#" (e.g., IC-013/033:M-4#). Mandatory related maintenance requirements are automatically scheduled by SKED.

        (2)   Convenience Related. Convenience related maintenance requirements are those maintenance actions that can be accomplished concurrently with another maintenance requirement to save time (preliminary steps and tag-outs already accomplished) or for work force considerations. If the convenience related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "Periodicity" (e.g., M-5). If the related maintenance resides on another MIP, it will be reflected as "MIP:periodicity" (e.g., EL-010/001:M-4)). In both cases, the # symbol is omitted. The WCS manually schedules convenience related requirements.

        (3)   Conditional Related. Conditional related maintenance requirements are those maintenance actions that are performed when specific conditions are present or specified parameters are not met on the referencing MRC. Conditional related maintenance will appear on the MIP in the same manner as convenience related maintenance. The WCS manually schedules conditional related requirements.

        (4)   None. No related maintenance is reflected as "None" in the RELATED MAINT column.

    b.   Work Center Supervisors Actions. WCSs are encouraged to review their schedules on a regular basis for opportunities to perform other PMS when an equipment or system has maintenance actions scheduled. Rescheduling of PMS to take advantage of other system maintenance if convenience related is highly recommended.

        (1)   If an MRC has related maintenance from another MIP, review the related MIP and MRC and determine if it requires assistance from another WC.

(2) If the related MIP and MRC does not require assistance from another WC and is not on the lead WC LOEP, submit an FBR to have it added to the LOEP.

(3) If the related MIP and MRC requires assistance or completion by another WC and is mandatory, convenience or conditional related then it should also be on the lead WC LOEP. If it is not on the lead WC LOEP, submit an FBR to have it added to the LOEP. If the related MRC requires technical assistance, a special NEC, or another rating that is not part of the lead WC, then the person with the technical training, special NEC or required rating should be temporarily added to the lead WC "Crew List" and assigned the related maintenance in either an assist or performance role. All WCSs involved will collaboratively plan the required maintenance and may adjust schedules based upon individual workload. When the maintenance is completed, the lead WCS will mark the MRC as completed.

19-1.4.5 <u>Inactive Equipment Maintenance</u>.

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

    (1) Status I. Equipment that will:

        (a) Remain onboard.

        (b) Is not scheduled for corrective maintenance or overhaul.

        (c) Will be inactive during extended shutdown periods and maintenance availabilities as determined by the DH.

    (2) Status II. Equipment that is inactive and:

        (a) Subject to corrective maintenance, overhaul, or removal for safe storage.

        (b) Temporarily transferred to another activity for maintenance responsibility for extended shutdown periods as determined by the DH.

        (c) When system(s) components are scheduled for replacement.

b. Implementation and Responsibility. While inactive, minimum maintenance is performed to ensure the success of the reactivation. The IEM section of the MIP will cover this maintenance. However, consideration should also be given to active PMS maintenance checks (e.g., M-1, Q-1, A-1) that can be manually added and performed during this period of inactivity.

    (1) The ship will develop an IEM plan for all inactive equipment during availabilities lasting 21 days or longer. The plan will include reason for inactivation, duration, impact to division maintenance schedule and reflect integration with the Lead Maintenance Activity work schedule and operational recovery. DH approval of this plan will be documented in the SKED IEM remarks.

(2)   Carriers in availabilities will negotiate operational control requirements with the maintenance activity at the arrival conference, to define responsibility for IEM. IEM periodic maintenance requirements (PM-1, PM-2, PM-3) and any applicable active PMS maintenance checks (M-1, Q-1, S-1) must be added manually at the appropriate frequency.

(3)   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 or Ship's Force personnel will conduct PMS during an inactive period. MIPs in each WC will be reviewed to determine if equipment has IEM coverage (e.g., Lay-up (LU), Periodic Maintenance (PM), Start-up (SU) and Operational Test, if the coverage is adequate, and what procedures to follow if there is no IEM coverage on the MIP or provided coverage appears inadequate. The DH is responsible for determining equipment IEM status. When placing a system or equipment in IEM status, the DH 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 that would have been scheduled during the IEM period should be reviewed for applicability, with applicable maintenance accomplished prior to operating equipment.

(4)   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 IEM section of the MIP. When IEM procedures are inadequate, submit an FBR. The unit or 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.

(5)   The lack of IEM requirements on a MIP does not prohibit placing that system or equipment into an inactive state. Additionally, certain locations require precautions and maintenance not required force-wide. The unit or ship should consider all factors that affect equipment deterioration and take necessary precautionary measures. The WCS or LCPO is responsible for identifying factors that are inadequate and may require additional preparation and maintenance of the inactive equipment while reporting same to the DH for approval. Factors may include environmental conditions, equipment location or susceptibility to damage. For those actions that are recurring in nature, the WCS should submit an FBR for possible MRC development.

c.   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 following 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 10th day. This allows the MP or 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 or 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 or 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 10th day. This allows the MP or WCS scheduling flexibility within the plus side of the date range of the MRC.

NOTE: **WHERE THE GOAL OF 100% ACCOMPLISHMENT CANNOT BE REACHED, THE UNIT'S COC MUST BE KEPT INFORMED OF THE**

CIRCUMSTANCES THAT PREVENT ACCOMPLISHMENT OF SCHEDULED MAINTENANCE.

19-1.4.6 <u>Scheduling</u>. PMS is a portion of the command's 3-M program that provides, in one authoritative system, the scheduling information and technical procedures governing planned maintenance. PMS provides a simple method for scheduling and documenting the execution of planned maintenance procedures. Fleet policy is listed in paragraph 19A.2 with the scope identified in paragraph 19A.3 of this chapter.

    a.   Situational maintenance scheduling will be managed utilizing the tools provided by the computer based PMS scheduling software employed by the activity. All event driven situational requirements will be "triggered" when required and performed per reference (a).

    b.   The creation and use of generic crew members such as "Engineering Laboratory Technicians" is not authorized. For those instances where the watch-stander performs the MRC, the senior watch-stander's name will be indicated in SKED.

    c.   The MP will be assigned prior to commencing the week and must complete the maintenance as directed. If a different person is required, the WCS will reassign the PMS accordingly.

    d.   Check Notes are required in SKED under the following circumstances.

        (1)   When PMS is marked as "lost".

        (2)   When PMS is marked as not applicable.

        (3)   When PMS is marked with the '¢' symbol, "satisfied by Higher Level Maintenance."

        (4)   When PMS requires a tag-out, the tag-out program of record identifier will be entered.

    e.   Alert Notes will be in the format of paragraph 19-1.4.10.

    f.   After the FR is approved, the 3MC will conduct quarter archival to maintain one completed quarter, one current quarter, and at least two future quarters. This permits the ability to review past records and forecasting of upcoming maintenance actions.

19-1.4.7 <u>SKED</u>. The use of SKED version 3.2 or subsequent versions for PMS Scheduling constitutes full compliance with all administrative provisions of the 3-M Manual.

    a.   Guidance for use of SKED is provided via the SKED users guide with help menus, and wizards associated with SKED functionality.

    b.   The Navy PMS DVD or CD-ROM is used to update the command or unit's SKED PMS data.

    c.   The SKED program uses days to schedule and keep track of calendar periodicities. MRCs are displayed as out of periodicity when they fall outside the established date ranges in the SKED program. These date ranges are as reflected in Table 19-1-2:

    d.   Appendix D provides SKED 3.2 User Settings, Global Preferences and UIC Preferences.

Table 19-1-2 - SKED Periodicity – Date Ranges

Periodicity	Date Range
Daily	None
2D	None
3D	None
Weekly	None
2W	9 - 19 days
3W	14 - 28 days
Monthly	21 - 41 days
2M	41 - 83 days
Quarterly	61 - 121 days
4M	83 - 165 days
Semi-Annually	121 - 243 days
8M	165 - 331 days
9M	+ or - 90 days from scheduled date
Annual	+ or - 90 days from scheduled date
Multi-month after annual	+ or - 90 days from scheduled date

19-1.4.8 SKED Server Failure. In the event of a SKED server failure, operation of PMS performance and tracking is as follows:

a. Retrieve most recent Maintenance Outlook Report.

b. The WCS or LCPO will maintain the assignment of PMS with the Maintenance Outlook Report until server is restored.

c. Document and retain accomplished maintenance on printed blank 13-Week Reports that are in the documents folder on the FR DVD.

d. When the server is restored, update SKED based on accomplished maintenance documented on 13-Week Reports.

19-1.4.9 Accomplishing PMS. Maintenance personnel use MRCs to accomplish assigned planned maintenance as described in subparagraphs 19-1.4.9.a through 19-1.4.9.h of this chapter.

a. From SKED "My Task" view, review the 13-Week Report.

b. Determine maintenance tasks assigned.

c. Determine when the maintenance task(s) are due.

d. Determine what tools, parts, material, test equipment or supplies are needed. For MRCs that contain inspections and then maintenance actions based upon the

inspection findings, the TPMTE needed to perform the follow-on maintenance caused by the inspection findings does not need to be obtained prior to performing the MRC but rather, may be obtained as needed.

e. Perform the maintenance on schedule.

f. Notify the WCS immediately whenever one or more of the following conditions exist:

  (1) Anything on an MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

  (2) TPMTE prescribed by the MRC is not available, is not correct or questions about substitutions arise.

  (3) Any doubt exists about your capability, training, or experience to properly perform the maintenance requirement as prescribed.

  (4) Factors exist which would make performance of the maintenance requirement unwise or dangerous (e.g., disassembly of equipment needed for operations, radiation when prohibited, situations causing safety hazard to exist, etc.).

  (5) Equipment deficiencies or casualties are discovered.

  (6) Any provisions or requirements on the MRC cannot be accomplished as prescribed. See paragraph 19-1.4.1 of this chapter for clarification.

g. If an MRC can be completed step by step as written, then the maintenance action can be signed off as completed. Report completed planned maintenance actions to the WCS, update the PMS schedule to reflect the completed maintenance, annotate and sign the 13-Week Report (if used). If multiple maintenance personnel are assigned to a single maintenance action, the most senior person assigned must update the PMS schedule, annotate, and sign the 13-Week Report or Check Note if using SKED 3.2 electronic accountability.

h. If inspection criteria or a threshold inspected by the MRC does not meet the intended criteria, then those maintenance actions cannot be signed off as completed until the discrepancies are corrected. The only allowable maintenance actions that can be signed off as complete are those discrepancies where the PMS documents (MRC or MIP) have an actual statement that directs a CSMP, Material Condition Assessment Process (MCAP), or Equipment Deficiency Log (EDL) entry to be made if there are discrepancies. The statement to inform the WCS of discrepancies, by itself, is not sufficient to sign the maintenance action as complete when discrepancies exist. Maintenance actions not fully completed will be reported to the WCS. However, if material deficiencies or casualties, which are unrelated to that MR, are discovered, the MR can be checked off (provided the MR was fully completed) but the discrepancy must be reported via MDS.

19-1.4.10 Non-Accomplished PMS Categories. The WCS or LCPO will add a brief description for each Alert Note for non-accomplished categories using subparagraphs 19-1.4.10.a through 19-1.4.10.g of this chapter.

a.   System or Equipment Failure. System or equipment is not operational or in a reduced operational status thus preventing maintenance from being accomplished. CSMP Job Sequence Number (JSN) required in additional text description.

b.   Inadequate Maintenance Procedures. MRC procedure or steps cannot be accomplished to a point where the maintenance can be considered accomplished. FBR number required in additional text description.

c.   Ship Operational Requirements. Operations prevent the maintenance from being accomplished. Requires additional text description.

d.   System or Equipment Operational Requirements. Required operation of system or equipment prevents maintenance from being accomplished. Requires additional text description.

e.   Lack of Hazardous Material. Correct HAZMAT not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

f.   Missing or Incorrect TPMTE. Correct or calibrated TPMTE was not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

g.   Other. Requires additional text description.

19-1.4.11 Accountability. The credibility of the Navy PMS program relies heavily on the individual accomplishing the maintenance. The required dedication and integrity of that individual cannot be overstressed.

a.   To maintain accountability, personnel are required to sign for the completion of assigned maintenance in an Accountability Log if used. The WCS is required to review and sign the Accountability Log weekly to verify the accuracy and completeness of entries. Accountability sheets will be maintained in the WC PMS File for a period of not less than 13 weeks.

b.   Electronic accountability will be utilized by ships employing SKED 3.2. When an individual updates the disposition of a check, this is the same as signing and dating a check completion on a 13-Week Accountability Sheet. The disposition of a check will become permanent when the weekly closeout is performed. All PMS maintenance assigned to a MP is presented to them immediately upon SKED 3.2 log-on; and CoC review can be tracked on the Weekly Closeout Signature Sheet. Therefore, there is no need to print and sign the 13-Week Accountability Form.

19-1.4.12 Force Revision Implementation. In addition to the requirements of reference (a), the following steps ensure the most efficient and thorough implementation of an FR:

a.   MRC deletions on MIPs will be marked to indicate the reason for deletion:

(1)   Scheduling Aids (SA). Indicate applicable scheduling aid "(e.g., SA-.")."

(2)   Split MIP. Indicate responsible WC (e.g., "EA01") if the MRC is applicable to the ship, the responsible WC designation will be used versus a scheduling aid.

(3)   "Other" includes approved responses to FBRs, ACNs (e.g., "NSWC ltr Ser 4790.005."), Message Date Time Group (e.g., "NUWC R124535Z AUG 05."), dual periodicity. Indicate guiding notation for deletion such as "SA-1" or "Note 1", configuration change number.

b.   The FR will be completed on or before the first Monday of the new calendar quarter. When operational schedules do not provide adequate time to implement the revision prior to the start of the quarter, the XO may direct an alternate implementation date. This deferred FR will be reported to the TYCOM. If two or more FRs were not available while the unit was deployed, only the most recent FR will be installed and implemented.

c.   It is advisable to complete the FR process through DH approval before conducting quarterly audits by a chief or more senior.

d.   The 3MC will:

(1)   Update PMS and TFR data into SKED prior to routing the change documentation to WCs.

(2)   Route the FR to WCS for implementation. See Figure 19-1-4 and Figure 19-1-5 of this chapter for an example of a routing memorandum and an FR implementation checklist)

(3)   Delete SKED FBRs after reflection within the FR.

e.   The WCS, upon receipt of the change document from the 3MC, will:

(1)   Make the appropriate entry in the WC of Change Log.

(2)   Make appropriate LOEP, MIP, MRC, etc. changes to the WC PMS File.

(3)   Apply changes to the WC PMS schedule utilizing SKED Revision Editor.

(4)   Route revision changes to division LCPO for review and concurrence.

f.   The division LCPO will:

(1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Review line outs on LOEPs, MIPs and MRCs. Initial all such line-outs to indicate concurrence.

(3)   Submit PMS schedule to the DIVO for review and concurrence.

g.   The DIVO will:

(1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Submit PMS schedule to DH for review and approval.

h.   The DH will:

(1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Review and approve WC PMS Schedules.

i.   The WCS makes final entries in the WC Record of Change Log, completes the PMS Change Documentation Routing Memorandum, and returns it to the 3MC.

j.   The 3MC updates the CSAL and notifies the XO that the FR has been installed after receiving all FR PMS Change Documentation Routing Memorandums from the WCs.

Figure 19-1-4 - Force Revision Routing Memorandum

MEMORANDUM

From: 3-M Coordinator

To: _____ Work Center Supervisor

Subj: FORCE REVISION PACKAGE X-XX

Encl: (1) Force Revision Implementation Checklist

    (2) List of Effective Pages (LOEP)

1.   Force Revision Serial: X-XX has arrived from NSLC.

2.   The SKED Force Revision (FR) update is complete. Begin your work center FR implementation using enclosures (1) and (2); complete through your Department Head no later than (Day Month Year).

3.   Corrections, including those to LOEP, MIP and MRC, should be made immediately. Make certain ACNs and FBR responses are reflected in the FR. If not, maintain the copies and changes to your MIP(s) and MRC(s) until reflected in a subsequent FR.

4.   MRCs with procedural line-outs previously approved by the LCPO must again be reviewed by the LCPO to confirm they continue to meet the requirements of the JFMM Volume VI, Chapter 19. Specifically, in the procedure block, Work Center Supervisors may line-out the non-applicable line items or alternate procedures that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are work center and maintenance item specific, submission of an FBR is not required.

R/

3MC

Figure 19-1-5 - Force Revision Implementation Checklist

MEMORANDUM

From   Work Center Supervisor
To: 3-M Coordinator
Subj: FORCE REVISION IMPLEMENTATION CHECKLIST COMPLETION

1. The following actions have been accomplished in SKED to implement Force Revision X-XX.

Task Description	Initial
Verified all equipment is listed under each MIP.	
Verified new or changed MRCs (green or yellow) are added to the correct Maintenance Item (equipment).	
Verified all applicable MRCs for each piece of equipment are active.	
Verified all MRC's have associated "Related Maintenance" attached.	
Verified that Safety of Ship is toggled to "YES" if applicable.	
Verified that all MIP lineout's have a technical reason documented for deletion. (Select the "Pencil" Icon on top row)	
Verify Maintenance Item Serials & Locations are correct.	
Upon completion of implementation Marked Complete for digital approval by: LCPO, Division Officer and Department Head.	LCPO
	DIVO
	DH

2. After DH approval:

LCPO run SKED report PMS Documents and Customized MRCs – Line-outs. Verify each procedural lineout meets the requirements of paragraph 19-1.4.13.k of this manual.	
WCS create an excel spread sheet from the Maintenance Outlook Report as a minimum electronic backup forecasting as many quarters in advance as available and store it on your hard drive (not a LAN drive) in the event of the LAN crashing.	
WCS select "Work Center" from the upper menu and "Update Unassigned Slots." Initially, any MRC without ownership will be assigned to the WCS. Reassignment by the WCS or LCPO will follow.	

3. Printing requirements for MRCs are determined by individual command policy. Printed MRCs must come from "PMS Documents" (not PMS Viewer).

4. The only required documents in the WC PMS File are:

    a. Classified MRCs.

    b. MRCs required by the command.

    c. MRCs with pen & ink changes authorized by ACNs or answered FBRs.

5. Approval Signatures:

Position	Signature
LCPO	
DIVO	
DH	
3MC	

19-1.4.13 <u>Planned Maintenance System Feedback Reports</u>. PMS FBRs are used to identify problems with PMS documentation or to request the addition or deletion of PMS coverage. Issues with the periodicity, rates, man-hours, TPMTE and procedure may all be reported via an FBR. An FBR is also used to request copies of classified MRCs, request the addition or deletion of an MRC to or from a MIP, splitting a MIP between WCs, shifting of maintenance responsibility or to request PMS coverage for newly installed systems or equipment. Paragraphs 19-1.4.13.a through 19-1.4.13.j of this chapter provide amplifying information dealing with the issues that may prompt the submission of an FBR.

a. Periodicity. An FBR can be used to request the increase or decrease in the frequency of a maintenance action, i.e., an MRC. However, the originator needs to keep in mind that the ship or unit has the prerogative to increase the frequency because of harsh weather, unusual operating conditions or corrective maintenance and associated testing requirements. A 726 Class submarine submitted an FBR requesting the frequency of cleaning a specific electronics cabinet filter be increased from quarterly to monthly. Research revealed this MRC was applicable to all 726 Class units and no other ship had submitted a similar request. In fact, two other units had requested the frequency be decreased to semi-annual. It was determined that the submitting unit was in an extended upkeep period and increased foot traffic by shipyard personnel near the electronic cabinet was the most likely cause of the filter becoming clogged. The ship was authorized to increase the frequency to support the extended upkeep period and the periodicity of the MRC was not changed.

b. Rates. The Rates block on the MRC represents the developer's recommendation of the skill level (rate and rank) best suited to accomplish the maintenance action. The key word is recommendation. Qualified personnel other than the rate and ranking specified may be assigned. When an NEC is assigned or DCPO or Safety Petty Officer (SPO), substitution of other personnel is not allowed other than those exceptions as noted in reference (a). An FBR requesting the rate on an MRC be changed from an ET2 to an FT2 will probably not pass TYCOM screening, yet an FBR requesting the addition or deletion of personnel will generally pass to the cognizant technical activity for review.

c. Man-hours. The MRC reflects the average time per equipment, per person. It does not reflect or account for gathering and putting away tools, tag-outs or time removing and replacing interferences. From a maintainer's perspective, this is not an accurate representation of the time required to accomplish the maintenance action. The Future of PMS initiative will attempt to do a better job of accounting for this additional time but until then, FBRs should be submitted only when the allotted time per equipment is significantly out of synch with the actual time required. For example, an MRC calls out 0.5 man-hours per equipment, but it takes 1.0 man-hours.

d. Tools, Parts, Material and Test Equipment. TPMTE FBRs should be submitted when the procedure calls for an item not listed in the TPMTE block or when the TPMTE block lists an item not called out in the procedure. Updating the MRC to reflect common hand tools, administrative or office supplies and basic housekeeping items is addressed in paragraph 19-1.4.13.k.(1) of this chapter.

e. Procedure. Procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. MRCs exist to provide standardized proven procedures, specify consistent acceptance criteria and to communicate warnings and cautions relative to the specific maintenance action. They are not intended to specify every possible action of the maintainer. There may be instances where an obvious typographical error exists on the MRC (example: Turn switch to ON; however, switch may already be ON and the intent of the step is to turn unit off, the card should read Turn switch to OFF). This type of error should not prevent the scheduling or performance of maintenance. However, in this situation, the accomplishment of the MRC is not possible until the WCS reviews the error and concurs that it is safe to proceed. A temporary notation including the reason for the correction must be made on the MRC, initialed by the WCS and an FBR submitted. Extreme caution will be taken when reviewing MRCs for this type of error. Errors must be obvious typographical errors and a PMS FBR must be submitted immediately upon discovered. Do not permanently alter the MRC until authorized by the applicable Systems Command, ISEA or NSLC Detachment. If a step is missing that is necessary to complete the task, and that step is not obvious to the MP, submit an FBR to have it added. An FBR submitted to request procedural changes should include the originators contact information and supporting rationale or justification. If, however, a step is missing that is clearly obvious (a ladder was used to install a fixture, but steps were not provided to put the ladder back in stowage) an FBR only serves to overload a process that should be focused on more technical issues.

f. Duplicate MRCs. Unclassified MIPs and MRCs are now available from the DVD. Copies of classified MRCs still require an FBR request due to handling requirements.

g. Addition or Deletion of an MRC. During the life cycle of a system, equipment, or component it may become necessary to add a maintenance action to prevent an age-related functional failure or to delete a maintenance action due to inherent reliability not foreseen during maintenance development. An FBR submitted to request the addition or deletion of an MRC should include the originator's contact information and supporting rationale or justification.

h. Newly Installed or Removed Equipment. While an FBR request for PMS coverage will provide initial maintenance coverage or deletion of a MIP because of equipment removal, submission of an OPNAV 4790/CK is still required to initiate the rest of the logistic support change process. This point cannot be overstressed; the submission of the FBR does not relieve the ship or unit from initiating a CK. The CK initiates supply support, CDMD-OA changes, ship selected record drawing updates and class maintenance plan updates.

i. Splitting a MIP. There are instances in which a MIP includes MRCs for more than one WC to perform. When this occurs, a decision is required by the command as to whether the MIP will be split or will be scheduled singly by one WC. Only the XO can authorize the splitting of a MIP if an MRC requires another WC to perform the entire maintenance action. If the decision is made not to split the MIP, then the MRs will be accomplished through the coordination of WCSs.

(1)   If the MIP is split, the following procedures apply:

    (a)   Submit to the XO a non-technical PMS FBR requesting approval to split the maintenance responsibility.

    (b)   Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR stating, "XO concurs with splitting MIP maintenance responsibility".

(2)   Upon receipt of the FBR approval:

    (a)   Utilizing the SKED Revision Editor, delete the MRC from the MIP and show the reason for deletion as the designation of the WC assuming responsibility (e.g., EE01).

    (b)   If the WC assuming responsibility does not reflect the MIP and maintenance items, utilize the SKED Revision Editor to add them. Schedule only the MRC(s) that pertain to the WC. Reflect remaining as deleted with the reason for deletion the designation of the parent (lead) WC (e.g., EA01).

(3)   If the situation occurs where a WC removes a split MIP, the following procedures apply:

    (a)   Submit an XO approved, non-technical PMS FBR reporting the decision to remove the split maintenance responsibility. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with removing split MIP maintenance responsibility".

    (b)   Upon receipt of FBR approval, utilize the SKED Revision Editor, remove the MIP, MRC(s) and maintenance item(s) from the WC no longer involved. Ensure that the lead WC assumes full responsibility for the MIP and MRC(s) and annotates their schedules accordingly.

j.   Shift of Maintenance Responsibility. Individual ships sometimes consider it necessary to shift maintenance responsibility from one WC to another, to combine two or more existing WCs or to split an existing WC. These requests for changes of PMS maintenance responsibility require XO concurrence and may require final approval by the applicable TYCOM. Due to the considerable administrative burden, requests for this type of change should not be submitted to accommodate a temporary situation such as short-term assignment of two (2) WCs to one supervisor.

(1)   The following factors should be carefully considered before submitting such requests:

    (a)   Composition of WCs by size and ratings.

    (b)   Scope of maintenance responsibilities.

    (c)   WC workload.

    (d)   Ease of administration of a WC as a cohesive maintenance group.

(e)   Importance of WC Grouping to equipment maintenance responsibilities, PMS scheduling, MDS reporting, and CSMP listings.

(2)   When changes in maintenance responsibility are considered necessary, the following procedures apply:

(a)   Submit a PMS FBR (non-technical). Indicate from which WC(s) equipment is to be deleted and to which it is to be transferred. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with the shift of maintenance responsibility."

(b)   WC or equipment changes will also be reported in the OMMS-NG system via a configuration change request (4790/CK) through the CSMP up-line reporting process.

(3)   Upon receipt of the FBR approval, perform the following actions:

(a)   The PMS Master File is updated to reflect deletion of the MIP from one WC and addition to the WC receiving the responsibility. The originating FBR serial number is annotated on the affected line item on the LOEP for both WCs. The PMS Master File must contain a record of deleted equipment until the change is reflected in a future FR.

(b)   Utilizing the SKED Revision Editor, load the affected MIP(s) and MRC(s) to the WC receiving maintenance responsibility. Delete the MIP(s) and MRC(s) from WC shifting responsibility.

(c)   Utilizing SKED, perform a revision to move the equipment from the original WC's current schedule to the WC receiving the maintenance responsibility. Data is exported from one and imported to the other maintaining equipment history.

k.   MRC Changes Not Requiring Feedback Reports. The only MRC modifications shipboard or unit personnel may make without submitting a PMS feedback report are as listed in subparagraphs 19-1.4.13.k.(1) and (2) of this chapter.

(1)   TPMTE Block.

(a)   Common hand tools, administrative or office supplies and basic housekeeping items may be substituted or added by the WCS. The WCS may add notes to the MRC to reflect these substitutions. In the case where specific common tools are called out by description, substitutions are not authorized. For example, substitutions such as using synthetic fiber brushes in place of animal hairbrushes or rags and paper towels in place of lint free cloths are not allowed.

(b)   Approved parts, materials and miscellaneous item substituted from the supply system, technical manual, or Military Specification, etc., which meet or exceed the requirements may be used. Ensure that substitutions satisfy both the basic maintenance and safety

requirements of the MRC. If there is any doubt, a PMS FBR should be submitted specifying substitution desired and reason.

(c) Test equipment or certified tools, which meet or exceed the Sub-Category code requirement, may be used.

(d) When an MRC pertains to multiple configurations of equipment and the TPMTE block contains tools, parts, test equipment and materials for each unique configuration, the TPMTE block may be tailored for the unit's specific configuration by lining out the items that do not pertain to equipment held.

(e) Exception to TPMTE block change: If an item listed in the TPMTE block is not called for in the procedures block, submit an FBR explaining the circumstances. Conversely, if a tool, piece of test equipment, part or material is called for in the procedure block and is not listed in the TPMTE block an FBR should be submitted.

(2) In the procedure block, WCSs may line-out the non-applicable line items or alternate procedures that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of an FBR is not required. If a step or steps in the procedure block have been lined out and tools, parts, material, and test equipment in the TPMTE block pertain only to that step or steps, then they will be lined out as well with a reference to the step or steps lined out and approved by the division LCPO. Warnings, cautions, and notes associated with the lined out step or steps will also be lined out.

l. Types of Feedback Reports. There are two types of FBRs, Technical and Non-Technical.

(1) Technical. These FBRs are used to report technical discrepancies inhibiting PMS performance. Technical feedbacks, normally adjudicated by an ISEA responsible for the system or equipment covered by the PMS documentation, require all the supporting information the originator can provide. The originator should identify the issue, providing as much supporting technical information (APL, Reparable Identity Code, drawing or Hierarchical Structure Code (HSC)) as available and a proposed response or solution if known. Most importantly, provide Point Of Contact information, including name and phone number, so that the ISEA can contact the originator should they have questions. Bottom line, the FBR must be accurate and complete to "stand alone", that is, the FBR will be understood without additional explanation. The better the FBR describes the problem, the more likely the originator will receive a timely response. There are two sub-categories of technical FBRs:

(a) Routine. An FBR will be considered routine when it relates to the technical requirements of PMS. It is used to report technical discrepancies or request clarification of procedures.

(b)   Urgent. An FBR will be considered urgent when it relates to the technical requirements of PMS and involves safety of personnel, safety of ship or the potential for equipment damage. Urgent FBRs will be forwarded by naval message containing a PMS FBR serial number, to both NSLC Detachments Norfolk and San Diego, with info to the cognizant Systems Command, TYCOM and the Naval Safety Center. The message must describe the unsafe procedures or conditions, must identify the MIP and MRC involved and reflect the serial number of the FBR generated in SKED or Planned Maintenance System – Management Information System (PMS-MIS). Once the message has been sent, include the date time group of the message in the FBR and submit.

(2)   Non-technical. These FBRs are intended to support PMS requests that do not require technical review, including WC changes and shift of maintenance responsibility. Non-technical FBRs are submitted to request classified or other PMS documentation which cannot be obtained locally or to request clarification of issues not of a technical nature.

m.   Feedback Report Submission. All SKED users will submit FBRs via SKED using the Feedback Report Wizard. Non-SKED users may submit FBRs via PMS-MIS web site at https://algol.pmsmis.navy.mil/PMSMIS by selecting the Feedback Tab and Feedback Report Wizard from the drop-down tab. Non-SKED users accessing this web site 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 confirming your account and providing access to the main screen. The Anchor Desk web site can also be used to submit FBRs.

n.   Feedback Report Screening (Shipboard or Activity).

(1)   Initial screening is accomplished by the originator or WCS who is responsible for ensuring all data is accurate and complete.

(2)   The division LCPO or DIVO accomplishes the second level screening and verifies the content and validity of the FBR within three days of origination.

(3)   The DH, next to screen the FBR, is responsible for verifying the content and validity of the FBR and digitally signing FBRs within five days of origination.

(4)   The 3MC is responsible for screening, serializing, and forwarding FBRs within seven days of origination. The 3MC will also:

(a)   Maintain accountability for all PMS FBRs submitted and actions taken until updated PMS documentation is received.

(b)   Ensure that the originator and all applicable WCs are kept apprised of action taken and ensure the originating and other applicable WCSs implement the changes or corrections when received.

o. Feedback Report Screening (External to Hull or Activity). FBRs are next processed by the TYCOM. The TYCOM will verify the content and validity of the FBR and either return the document to the originator or pass it on for further processing and resolution

p. Feedback Processing Activities.

    (1) The central control points for processing FBRs are the Planned Maintenance System Coordinating Activity (PMSCA). Depending on the type of FBR and level of technical authority necessary to answer the FBR, the PMSCA will either respond to the originator with a resolution or forward the FBR to the appropriate technical authority for action.

    (2) ISEAs are those activities designated by NAVSEA as the technical experts for specific systems or equipment. Naval Surface Warfare Center, Philadelphia Detachment is the ISEA for the majority of non-nuclear hull, mechanical and electrical equipment installed on most ships. ISEAs under the direction of the NAVSEA Technical Warrant Holder adjudicate the FBR request and forward the response to the PMSCA. The PMSCA provides the final response to the originator and updates the PMS database to reflect ISEA changes. PMS changes are issued with the next available FR.

NOTE: **IT IS POSSIBLE AN FBR RESPONSE MAY NOT MAKE A SPECIFIC FR BASED ON THE DATE THE RESPONSE WAS RECEIVED BY NAVSEALOGCEN. PROCESSING TIME AND HANDLING MAY CAUSE THE REVISED DOCUMENTATION TO MISS AN FR CUTOFF DATE. HOWEVER, SINCE ALL FRS ARE NOW RECEIVED QUARTERLY, IF A REVISION MISSES THE CURRENT FR CUTOFF WINDOW, THE REVISED DOCUMENTATION WILL BE AVAILABLE WITHIN THE NEXT THREE (3) MONTHS.**

q. Feedback Processing. FBRs are processed per NAVSEA policy:

    (1) Urgent FBRs.

        (a) The PMSCA will provide a message response to all Urgent FBRs within one (1) working day of receipt. If the FBR is forwarded to a Design Activity or ISEA for resolution, then the Design Activity or ISEA will provide a message response informing the originator of specific actions or required changes because of the adjudication of the FBR within one working day of receipt. This message response must be addressed to the originator and 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.

        (b) The PMSCA will distribute revised PMS documentation to all affected users within 30 calendar days of receipt of the FBR, via special issue or ACN.

    (2) Routine FBRs.

(a)   The PMSCA will perform technical reviews, research, and provide a response to routine FBRs where resolution does not require technical authority action.

(b)   FBRs that the PMSCA cannot resolve will be sent to the cognizant Design Activity or ISEA. The cognizant Design Activity or ISEA will provide the response to the appropriate PMSCA describing the action taken. The PMSCA will provide the response to the originator by electronic means.

(c)   Distribution of the revised MRC to the originator and other affected users will be accomplished via ACN or the next available FR.

(d)   NAVSEA's existing policy calls for Technical Review Activities and ISEAs to provide FBR responses in less than 21 working days from time of receipt. In addition, NAVSEA has established a goal of providing answers to FBRs in one day. While some FBRs will require extensive research and days, weeks or in some cases months to resolve, the vast majority of FBRs can and should be answered much sooner. One day may be overly optimistic, but the intent is to put the emphasis back on the timely resolution of FBRs.

(e)   If no revision to PMS documentation is required, pertinent comments will be provided in the response to the PMSCA. When not concurring with the feedback report, the rationale for the non-concurrence must be provided to the PMSCA.

r.   Feedback Response Implementation. Units will implement responses to FBRs based on the category and content as determined by the unit's 3MC.

(1)   Urgent FBR. Within 24 hours of receipt of FBR response.

(2)   Urgent FBR with an ACN. Within 24 hours of receipt, the ship will implement an administrative change to incorporate the new PMS documentation. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(3)   Routine FBR:

(a)   Technical. The response deals with content such as a revision to technical specifications, tolerances, test equipment, materials, acceptance criteria or the sequence of procedural steps. These changes need to be implemented within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window.

(b)   Administrative. The response deals with issues that do not affect the technical content or procedural steps. Administrative changes might be added steps to provide a better degree of clarity, formatting revisions to tables or figures that do not change technical content, or updating of Notes, Warnings or Cautions that do not impact the

performance of the MRC. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required before the next scheduled accomplishment date of the MRC.

(4)   Routine FBR with an ACN:

(a)   Technical. These changes need to be implemented via an administrative change within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(b)   Administrative. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required via an Administrative Change before the next scheduled accomplishment date of the MRC.

19-1.4.14 <u>Assessment Procedure MRCs</u>. Assessment Procedure (AP) MRCs need not be scheduled within SKED, but they will be maintained "active" through the FR and TFR process. AP MRCs need only be printed on an "as needed" basis for use by assessment personnel or Ship's Force. The record of completed AP MRCs by off-ship personnel is recorded on the work candidate and Ship's Force participation is recorded in their completion remarks of that work candidate. There is no need for recording Ship's Force participation in an assessment event on their PMS schedule within SKED. FBRs submitted requesting deletion of a MIP that only contains AP MRCS will be disapproved and returned to the originator.

19-1.4.15 <u>Self-Assessments</u>. The ability of an activity to perform critical self-assessments is instrumental to the success of the command's PMS program. The PMS Self-Assessment Program needs to address all aspects of 3-M.

a.   TYCOM Self-Assessment Polices. Each ship must perform a quarterly Self-Assessment utilizing the shipboard 3 MTT and onboard 3-M organization personnel per Appendix B. Additionally, assessments are to be conducted as determined necessary by ship's 3-M organization, 60 days prior to a scheduled 3MA or 3MI and when directed by the TYCOM. The completed report will be retained by the 3MO for 12 months and provided to CNAL or CNAP 3-M Team one week prior to arrival for the conduct of a 3MA or 3MI, or 14 days after completion of a TYCOM directed assessment. The XO via the 3MO will ensure that personnel performing the audits have adequate 3-M knowledge to ensure a thorough review. The CO will receive a formal briefing of the findings of the Self-Assessment and intended corrective actions. Self-assessment results will be documented via message format provided by the TYCOM.

b.   Self-Assessment Elements. The major program elements of a Self-Assessment include an evaluation of the PMS Performance Rate (PPR) and CSMP Validity, monitoring MRC performance, monitored MRC, and conducting PMS Spot-Checks, WC audits, and deficiency abatement. 3MCs will retain monitored PMS results, Spot

Checks and WC audits from the last completed quarter in either hard copy or digital format for review supporting the self-assessment.

(1)   Monitored MRC. Supervisory personnel must periodically monitor the performance of PMS to provide feedback and training to maintenance personnel and to enforce command maintenance standards. This will be conducted by the LCPO or LPO of each work center. Personnel charged with monitoring must be System Matter Experts for the system, equipment, or component for which the MRC applies. Concerns and recommendations from monitored maintenance actions will be turned in to the D3MA for analysis and training. Monitored checks can be used for on-the-job training to teach the "right way" to conduct maintenance. These monitored MRCs will be documented as a monitored evolution and findings will be provided to the WC's CoC for inclusion into training and deficiency abatement. The value of monitor maintenance cannot be overstated, and commands are encouraged to establish a robust monitored maintenance program.

   (a)   Every work center will have at a minimum one monitored maintenance action per week when maintenance is scheduled and if it has not already been monitored.

   (b)   Monitored maintenance should only be accomplish once per quarter on a specific MRC per maintenance person, to avoid repetition.

(2)   PMS Spot Check. PMS Spot Checks are utilized to validate that previously scheduled and accomplished MRCs were performed and the degree to which they were performed. The checklist contained in Appendix B Section II of this chapter, is the tool supervisory personnel utilize to determine the accomplishment status of a completed MRC. Deficiencies noted and the final grade will be provided to the WC's CoC for abatement. The WCS will record the Spot Check grade into SKED to generate the SCAR for the quarterly PMS Performance Report. Spot Checks will involve all elements of the CoC to include the CO, CMC, XO, 3MC, DHs, DLCPOs, DIVOs, divisional LCPOs, and first-class petty officers. By following the checklist, the inspector can determine if the sailor is competent, the maintenance was accomplished, required TPMTE was available and used, and safety precautions were followed. The focus should be less on administration and more on the condition of the gear.

   (a)   Avoid Spot-Checks of MRCs with insufficient complexity. Performing a Spot-Check on a 3 or 5 step MRC does not provide the CoC an accurate picture of the health of the command's maintenance program. Selected MRCs should be of sufficient content to provide the auditor with evidence of satisfactory performance (e.g., tag-outs, QA packages, parts required, off-hull reporting, test equipment, safety equipment, etc.).

   (b)   Spot-Checks evaluated as "below standards" will require immediate training and re-performance as determined by the 3MO. Any re-

accomplishment of the MRC must be monitored by the LCPO to ensure noted deficiencies are not repeated.

(c) The spot-checker or monitor will ensure that the Spot-Check or monitored data is immediately entered into SKED. When applicable, a brief synopsis of any deficiencies resulting from the Spot-Check will be indicated within the Spot Check.

(d) The minimum number of Spot-checks is reflected in Table 19-1-3 of this chapter.

Table 19-1-3 - Aircraft Carrier Spot Checks

Management Level	Number of Checks	Interval
CO	1	Weekly
XO	1	Weekly
CMC	1	Weekly
DH*	1	Weekly
DLCPO	1	Weekly
3MO	1	Weekly
3MC**	1	Weekly
1/3 of 3-MTT	1	Weekly
DIVO	1	Weekly

* If the department has a designated 3-M PA, then the PA will be assigned a spot check along with the DH. The DH cannot delegate the weekly spot check requirement.

** The number of spot checks to be conducted by the 3MC is set by the number of 3MCs assigned to the 3-M Office.

(e) The 3-M Office will establish, and track spot-check trend data records for the following areas: Maintenance Person Knowledge and Performance, Tag-out, Safety, HAZMAT and PPE. This data will be kept for a minimum of 24 months.

(3) Work Center Audits. Each WC must receive an audit once per quarter by a supervisory individual, Chief Petty Officers or above. Deficiencies noted from this audit will be reported to the WC's CoC for abatement. The 3MC will report recurring deficiencies to the XO for further investigation and corrective action.

(4) Deficiency Abatement. The status of discovered deficiencies will be kept current within the monitoring program. Recurring deficiencies must be reported to the XO for further investigation and corrective action. Deficiencies that have been reported as corrected will be subject to follow-up

monitoring to ensure corrective action was effective and results of the follow up monitoring will be reported to the XO. The ship's 3-M Abatement Program will include the previous quarter's audits, Spot-Checks, monitored evolutions and CSMP validity audits noting trends and corrective actions.

19-1.5 ZONE INSPECTION PROGRAM.

19-1.5.1 Purpose. To set forth the responsibilities and procedures for the Zone Inspection Program. Reference (g) requires every command to conduct periodic zone inspections to ensure proper measures are taken to keep machinery, spaces, and equipment operational, clean and in a satisfactory state of preservation. Each space will be formally inspected at least once per calendar quarter.

19-1.5.2 Background.

a.   Zone inspections will emphasize safety, preservation, damage control readiness, material condition, cleanliness, and specific items of interest. They 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. To ensure documentation and standardization, the ZIDL, Appendix C Section I of this chapter, will be used and must be entered into the MODES module located in the TSIMS Program.

b.   The reactor officer is responsible for conducting MCAP inspections inside main propulsion spaces per nuclear note. The reactor officer will keep the XO apprised of results of these inspections.

c.   Reference (c) states the following spaces will not be under the Zone Inspection Program: all tanks, voids, sponson voids, catapult trough wing voids, aircraft electrical service stations, catwalks, bilges, underwater hull, freeboard, and the exterior surface of the island, ventilation plenums, and cold weather openings and closures for supply and exhaust systems. Inspection results will be entered into the Corrosion Control Information Management System database. Inspection results provide Carrier Planning Activity and CNAL/CNAP N43 the proper tools for planning future availabilities.

19-1.5.3 Zone Designation.

a.   To accomplish the inspection of all spaces each quarter, the 2,000-plus available spaces must be divided up into zones to coincide with 13-week quarters. A different zone will be inspected each week on a rotating basis. They are further sub-divided into smaller sets within each zone.

b.   The number of inspectors and escorts from a given department is determined by the number of groups each department has within a given zone.

c.   Zone inspection deficiencies will be entered and tracked in MODES module accessed through the TSIMS Program.

19-1.5.4 Zone Space Assignment. The responsibility for each space of the ship will be assigned to a specific division and WC per space database maintained by the 3MO. This will normally be

the WC located in or responsible for maintaining the majority of the equipment in the space. Spaces are to be grouped into inspection zones according to WC cognizance whenever possible, rather than in geographical slices from several WCs. The designated WCS, or group supervisor if utilized, will retain overall responsibility for the space and for the proper administration of inspection deficiencies.

19-1.5.5 <u>Procedures</u>.

    a.   Department LCPOs will be notified by the 3-M Office each week identifying the zone scheduled for inspection the following week and are responsible to provide the 3-M Office qualified inspectors.

    b.   Department LCPOs will provide replacement names of qualified zone inspector substitutes (when required) to the 3-M Office one day prior to the zone inspection.

    c.   Zone inspection escorts will attend training per this section with the Department LCPO the day prior to the inspection and be knowledgeable of the spaces to be inspected. Escorts will be provided a list of the spaces that they will be responsible for. Training will be given on escort responsibilities to include the expectation that escorts will find all the spaces on their list and plan a logical and efficient route for the inspection.

    d.   Thirty minutes prior to the scheduled time of the zone inspection, escorts and inspectors will assemble at the designated muster location for zone inspection administrative instructions.

    e.   Zone Inspectors will include the CO, XO, CMC, DHs, PAs, Limited Duty Officers, Chief Warrant Officers, DIVOs and all CPOs. Inspectors will be trained in requirements of this section. All officers and CPOs must be qualified PQS-304, DHs to PQS 306 and all need to be knowledgeable of damage control space requirements. Other officers or CPOs may be assigned as assistant inspectors to gain experience and assist in identifying discrepancies.

    f.   Zone inspectors will receive specific direction on safety, damage control and other inspection criteria or points of interest from the XO or his designated representative.

    g.   Zone inspection escorts and recorders will provide a folder that will contain a list of spaces to inspect, blank ZIDL forms and inspection guidelines.

    h.   Zone inspectors will meet their assigned escort and commence a thorough and expeditious inspection of their assigned spaces. Zone inspection escorts will guide the zone inspector through department spaces.

    i.   Space presenters will be standing by the entrance to each space and be equipped with clipboard and black ink pen. The space presenter will greet the inspector and present the space by saluting and saying, "Good morning or afternoon Sir or Ma'am. (Rank), (Last Name), compartment (number), (number) Division, standing by for zone inspection." Presenters will also have the division's space ZIDL folder containing the last four ZIDLs.

    j.   All spaces will be open and ready for inspection. Locked spaces are unacceptable and require immediate action by the CoC for inspection to proceed.

k. Embarked air wing personnel will comply with zone inspection program as set forth in this instruction and work with primary space owners to correct material deficiencies.

l. Zone inspectors will ensure ZIDL forms are filled out correctly. A mark of "NA" will be given for all active discrepancies identified on previous inspections if the space presenter provides a current MODES database or CSMP report identifying existing deficiencies to the inspector.

m. At the conclusion of an inspection, the inspector and escort must sign the ZIDL and ensure the zone inspection folder is immediately returned to the 3-M Office.

n. The 3-M Office will collect, review, and maintain completed ZIDLs. The 3-M Office will ensure all ZIDLs are entered into MODES module located in the TSIMS program by the D3MA for appropriate action by the departments and divisions.

o. The 3MO will forward the weekly zone inspection discrepancy report summarizing the results of the week's inspection to the XO, copy to DHs, PAs, and department LCPOs. Report will contain at a minimum any space that is inspected UNSAT and a list of all repair "priority one" category discrepancies.

p. DHs, PAs, and department LCPOs will review MODES and the zone inspection discrepancy report sent out by the 3-M Office after each zone inspection and follow up on all reported discrepancies.

 (1) Ensure repair "level one" safety discrepancies are resolved immediately by the division responsible for the space or corrected per paragraph 19-1.7. of this chapter and reported to the XO and 3-M Office within 24 hours.

 (2) All discrepancies generated by Safety Department will be documented in the TSIMS via MODES for one shipboard deficiency list. Discrepancies originated by the Safety Department will remain open in MODES until completed. These discrepancies may have dual documentation in MODES and the CSMP. They will remain open until closed and verified by the Ship's Safety Officer. These JCNs are excluded from the 30-day policy but will be a discrepancy if there is not a corresponding work candidate in OMMS-NG after 30 days. Properly managed safety discrepancies will not be counted or included as part of the 5% delinquent threshold.

 (3) All discrepancies originated by the FM or Duty FM will be documented in MODES for one shipboard deficiency list. The ship's FM discrepancies will remain open until completed. These discrepancies may have dual documentation in MODES and the CSMP and will remain open until closed and verified by the Ship's FM. These JCNs are excluded from the 30-day policy but will be a discrepancy if there is not a corresponding work candidate in OMMS-NG after 30 days. Properly managed DC discrepancies will not be counted or included as part of the 5% delinquent threshold.

 (4) Discrepancies that are within a division's capability to correct but cannot be corrected by the division within 30 days, must have an originating WC JCN established. Discrepancies that cannot be completed by the division

responsible for the space, but the discrepancies are within Ship's Force capability, must have a Ship's Force organizational JCN established per paragraph 19-1.8 of this chapter. Discrepancies that are beyond Ship's Force capability must have an outside activity JCN established. JCNs that require parts or cannot be completed by the originating WC must be submitted within seven days via the CSMP.

(5)   Additionally, safety and damage control zone inspection discrepancies should be entered in the departmental 8 o'clock reports as appropriate.

(6)   Any discrepancy that results in a grade of "UNSAT" will be corrected on the day of the inspection. Any safety or damage control discrepancy not corrected on the day of the inspection will be reported by the DH to the XO via the 3MO for further transmission to the CO.

NOTE: **FOR EXCELLENT AND SATISFACTORY GRADES, LARGE SPACES NEED TO BE TAKEN INTO CONSIDERATION FOR NUMBER OF MINOR REPAIR "PRIORITY 2" DISCREPANCIES SUCH AS THE SIZE OF A SMALL CLEANING GEAR LOCKER TO A LARGE HANGER BAY. IF THE SPACE PRESENTER PROVIDES A CURRENT JCN FOR A PREVIOUSLY DOCUMENTED DISCREPANCY THAT REQUIRES OUTSIDE ASSISTANCE, THE DISCREPANCY IS NOT TO BE RECORDED.**

19-1.5.6. <u>Inspection Criteria</u>. Zone inspection parties should use Appendix C Section II of this chapter, the zone inspection material guide, as a minimum requirement. Each space will be assigned an objective grade on each ZIDL, Appendix C Section I of this chapter as follows:

a.   Outstanding. Space has no discrepancies in any repair priority category and space gives immediate impression of continuous maintenance with cleanliness above standards. Presenter has good working knowledge of space.

b.   Excellent. Space has one minor repair "priority 2" discrepancy, no discrepancies in repair "priority 1" category and a good history of maintenance. Presenter has good working knowledge of space.

c.   Satisfactory. Space has multiple minor repair "priority 2" discrepancies, no discrepancies in repair "priority 1" category and space is clean but not exceptional. Presentation of space is poor.

d.   Unsatisfactory (UNSAT). Any major repair "priority 1" discrepancy or previously documented discrepancies that could have been corrected but were not handled at divisional level. After an UNSAT, a re-inspection with DH and department LCPO will be conducted within seven days.

19-1.5.7 <u>Repair Priorities</u>. Repair priorities are defined as follows:

a.   Repair Priority 1. Immediate danger to personnel or equipment.

b.   Repair Priority 2. Presenting a hazard affecting crew health, safety, or having a direct impact on the ship's mission.

c.   Repair Priority 3. Minor material deficiency.

19-1.5.8 <u>Program Assessment</u>.

a.   Zone inspection assessments will be used to determine the performance level of the ship's zone inspection program. They will also provide data that will be used to develop an improvement plan to address Zone Inspection Program weaknesses per the Zone Inspection Program Check Sheet, Appendix B Section IV-D of this chapter.

b.   Ship's Force assessments will be conducted per Appendix B of this chapter on the following occasions:

(1)   Quarterly or when determined necessary by the ship's 3MO.

(2)   Sixty days prior to a scheduled CNAL or CNAP Team visit.

(3)   When directed by the TYCOM.

c.   Ship's Force assessment and reports will be maintained for one year. Results that reveal areas where performance did not meet established standards will drive the development of an improvement plan. After implementing the corrective actions developed in the improvement plan, Ship's Force will conduct follow up assessment to determine effectiveness of corrective actions. Ship's Force will maintain the last four Zone Inspection Program assessments.

d.   If an evaluation is conducted off site, Ship's Force will provide in electronic format, the following documentation to the 3-M Team the 1st and 3rd quarter of the year (January and July), before the 10th day of the month:

(1)   Completed Ship's Force assessments as per Appendix B of this chapter.

(2)   The last six months MODES ZIDL Program export report. (ZIDL, TC and ZIDL Metric)

(3)   If a TYCOM 3-M Team evaluation is conducted onboard, the 3-M Team will brief the scheduled sequence of events with the XO and 3MO.

(a)   N432 MDS Specialist will check MODES and OMMS-NG to ensure conformity with TYCOM direction.

(b)   The 3-M Team will assess a ship Zone Inspection Program per Appendix B Section IV-D. The 3MO will provide to the 3-M Team the time, the zone, list of spaces to be inspected and a list of zone inspectors.

(c)   Assessment results will be submitted to the 3-M Team Leader, CNAL or CNAP and an official copy to the ship.

19-1.6 <u>3-M ASSISTS, TRAINING, ASSESSMENTS, AND INSPECTIONS</u>.

19-1.6.1 <u>Accommodations and Transportation</u>. The team in the scheduling message will request transportation assistance. Adequate working space for team members is required, with tables, desks, and chairs. Wardrooms, wardroom lounges, mess decks if not in use and large classrooms are usually adequate. E-mail accounts and tier one internet access may be required for team

members. A message will be provided to the ship with a detailed listing of accommodations required for the visit. If flying on or off the ship, team members will be categorized as Priority 1.

19-1.6.2 <u>3-M Assist Visit</u>. 3-M Assist visits (3-MAT) are an opportunity to train personnel in specific areas of 3-M. The purpose of the assist visit is to identify areas where improvements may be made. Prior to the arrival of the 3-M Team, the ship will respond appropriately to identify areas that need attention and ascertain the type of assistance desired. The CO will be debriefed on the visit results prior to departure. The report will be provided to the cognizant CNAL or CNAP Assistant Chief of Staff for Maintenance and Materiel (N43) for review. There will be at least one assist visit between formal inspections. Since the primary focus of the assist visit is training, no assist visit will be upgraded to an inspection. Ships will routinely have one 3-MAT prior to or at the beginning of a major CNO availability and an additional 3-MAT close to the end of an availability. Routine visits will be coordinated by the ship's 3MO and the TYCOM 3-M team. Assist visits will not be scheduled within 90 days of an inspection.

NOTE: **ALL ASSESSED GRADING CRITERIA DURING THE SHIP'S 3-MTT WILL BE USED IN CALCULATING PURPLE-E POINTS FOR THE CALENDAR YEAR.**

19-1.6.3 <u>3-MTT Training Visit</u>. 3-MTT Training Visits provide an opportunity for evaluation and training of the ship's 3-MTT.

    a.   The TYCOM 3-M Team will evaluate the effectiveness of 3-MTT members in conducting and evaluating spot checks using Appendix A Section I of this chapter.

    b.   The 3-M Team will evaluate the overall effectiveness of the 3-M training organization using Appendix A Sections I and II of this chapter.

    c.   The 3-M Team will provide training for the ship's 3-MTT concerning their duties and responsibilities as a 3-MTT member.

    d.   The 3-M Team will provide spot check training. This training may be classroom oriented, deck-plate oriented (i.e. monitored maintenance), or a combination of both.

    e.   At the conclusion of the training visit, the ship will be provided a written report detailing findings, a summary of the 3-M Team training provided and any recommendations for improvement.

    f.   The 3-MTT will be considered below standards if the ship fails to achieve a 3-MTT SCAR of 85 percent or greater.

19-1.6.4 <u>3-M Assessment</u>. A 3MA will be scheduled and conducted by the TYCOM 3-M Team. Commands will receive notification of their 3MA prior to the arrival of the 3-M team. Coordination with the TYCOM staff will eliminate conflicts with other major evolutions. Internal ship evolutions will be coordinated with the team leader on arrival, normally, a four day in-port visit.

    a.   Required Documents. Required documents provided upon arrival of the assessment team:

        (1)   Shipboard Instructions:

            (a)   3-M Instruction.

        (b)   Hazardous Material Instruction.

        (c)   Personnel Working Aloft Instruction.

        (d)   Electrical Safety Instruction.

    (2)   Ship's last quarter report.

    (3)   WC PMS file.

    (4)   List of WCs to include:

        (a)   WC noun name.

        (b)   WC designation.

        (c)   Location.

        (d)   Telephone number.

        (e)   Name of WCS.

    (5)   List of WCs that have no PMS responsibilities.

    (6)   Copy of the ship's split MIP log.

    (7)   Current roster of D3MAs.

    (8)   List of zone inspectors. (For that week's zone inspection)

  b.   3MA Grade Computation.

    (1)   Maintenance Accomplishment Rate. Maintenance Accomplishment Rate (MAR) is the ratio of accomplished (both situational and periodic), lost, alerted, and omitted maintenance requirements over the ship's last reported quarter. Periodic Accomplishment Rate (PAR) and Situational Accomplishment Rate (SAR) values are provided via SKED.

$$MAR = \frac{PAR\ COMP + SAR\ COMP}{PAR\ COMP + SAR\ COMP + ALERTS + LOST + OMITTED}$$

    (2)   Spot Check Accomplishment Rate. SCAR is the ratio of total points earned and the total points available of all spot checks completed following Appendix B, Section II of this chapter. TYCOM inspectors will select and conduct approximately 100 spot checks.

$$SCAR = \frac{TOTAL\ POINTS\ EARNED}{TOTAL\ POINTS\ AVAILABLE}$$

NOTE: **THE ZONE INSPECTION PROGRAM IS EVALUATED AS PER APPENDIX B, SECTION IV-D (ZONE INSPECTION PROGRAM CHECK SHEET). FINAL GRADE IS NOT APPLIED FOR 3MA SCORING.**

(3)   Zone Inspection Program Evaluation. Zone Inspection Program Evaluation
(ZIPE) determines the ship's ability to conduct thorough space inspections,
and document and fix deficiencies. ZIPE is defined by the following formula:

ZIPE =Total Number of Satisfactory Questions X 4 Points
÷
Total Number of Points Available (100)

NOTE: **SRE PROGRAM IS EVALUATED AS PER APPENDIX B SECTION IV-B
(SELF REPAIR EFFICIENCY FORM). THREE AREAS ARE
EVALUATED: TROUBLE CALL PROGRAM (TCP), SHIP SELF-
REPAIR PROGRAM (SSRP) AND PRACTICAL EXAMINATIONS
(PRAT). FINAL GRADE IS NOT APPLIED FOR 3MA SCORING.**

(4)   Self-Repair Efficiency. Self-Repair Efficiency (SRE) determines the ship's
ability to self-assess and conduct ship repair operations. SRE is defined by
the following formula:

SRE = (TCP x .30) + (SSRP x .50) + (PRAT x .20)

(5)   CSMP Validity Factor. CSMP Validity Factor (CVF) is the overall qualitative
measure of the accuracy and completeness of ship's material deficiencies and
deferred corrective maintenance as represented by the complete CSMP. CVF
is defined by the following formula:

CVF =Total Number of Valid Entries
÷
Total Number of Entries Sampled

CVF will be evaluated following the guidelines of Appendix B Section IV-A
of this chapter.

(a)   10 percent of entries (minimum of 2, maximum of 15) per WC are
selected from the Ship's Force generated CSMP. In addition, all
Casualty Report (CASREP) JCN's for the ship will be validated.

(b)   Selected entries from the CSMP are verified utilizing the Work
Candidate Evaluation Sheet in Appendix B, section IV-A, CSMP
Validity Factor Form.

(c)   All jobs in Ship's Force Work List (SFWL) Programs, which are over
30 days old, will be entered into OMMS-NG or P-OMMS. SFWL
programs include EDL, MCAP, TSIMS and MODES. All SFWL jobs
over 30 days old not entered in either OMMS-NG or P-OMMS will be
counted as invalid work candidates during the 3MA. An exception to
the 30-day requirement will be made for MCAP and EDL deficiencies
identified from the Pre-Availability Materiel Condition Assessment
Inspection prior to a Planned Incremental Availability (PIA) or
Drydocking Planned Incremental Availability (DPIA) and through the
end of the PIA or DPIA, which do not require the ordering of repair
parts or the writing of a control work package. Thirty days after the

PIA or DPIA, all open MCAP and EDL deficiencies over 30 days old and not documented in either OMMS-NG or P-OMMS will be counted as invalid. All SFWL items identified and entered because of the duty FM or safety department evaluation are excluded from the 30-day policy and will be maintained in the SFWL program as open until completed. After 30 days these deficiencies still require entry into the CSMP. Final grade is not applied for 3MA scoring.

NOTE: **ALL ASSESSED GRADING CRITERIA THAT ARE NOT FIGURED INTO THE SHIP'S 3MA SCORE ARE FOR CALCULATING PURPLE-E POINTS FOR THE CALENDAR YEAR.**

    (6)   Below Standards Criteria. The 3MA will be considered below standards if:

        (a)   Ship does not meet the minimum for SCAR (85 percent) assessed by TYCOM.

        (b)   Greater than five percent omitted maintenance is discovered by TYCOM.

        (c)   The difference between the ship's evaluated SCAR and that assessed by the TYCOM is greater than 15 percent of the TYCOM value.

        (d)   A Plan of Action and Milestones will be submitted to the TYCOM within 30 days for all discrepancies noted in TYCOM's final report.

19-1.6.5 _3-M Inspections_. The goal of the 3MI is to evaluate the effectiveness of the ship's 3-M program. It is critical that the inspection be conducted in a similar fashion in every homeport and across the force. Inspections will be completed once commenced. Early below-standards indications will not be used to change an inspection into an assistance visit. Commands will receive notification of their 3-M Inspection prior to the arrival of the 3-M team. Coordination with the TYCOM staff will eliminate conflicts with other major evolutions. Internal ship evolutions will be coordinated with the team leader on arrival. Normally conducted in-port.

    a.   Frequency of Inspections. The TYCOM will conduct a complete inspection of each command under their cognizance as follows:

        (1)   When deemed necessary by the TYCOM.

        (2)   Not to exceed 36 months. The 36-month requirement can be waived by TYCOM on a case-by-case basis, normally when a ship is in a CNO availability longer than six months.

        (3)   Time spent in CNO Maintenance Availabilities will be counted when determining when inspections are to be scheduled. However, the availability of maintenance data required for review purposes needs to be considered prior to scheduling an inspection

    b.   Inspection Team Composition.

        (1)   Senior Member. The senior member will be the TYCOM 3-M OIC.

        (2)   Team Leader. The inspection team leader will be the TYCOM 3-M Representative who will concur with the assignment of inspection team

members. The team leader will ensure inspection attributes are evaluated in a manner consistent with current guidance and directives provided by Commander, Naval Air Force and provide guidance to the inspection team members to ensure a common process.

    (3)   Team Members. Team members will consist of the assigned Commander, Naval Air Force 3-M Mobile team who are adequately trained in the area to which they are assigned to assess. They will report findings to the Team Leader.

c.   Required Documentation. To be provided upon arrival of the inspection team.

    (1)   Shipboard Instructions:

        (a)   Command 3-M directives.

        (b)   Hazardous Material Instruction.

        (c)   Personnel Working Aloft Instruction.

        (d)   Electrical Safety Instruction.

        (e)   Tag-out instruction.

    (2)   Ship's most recent Self-Assessment.

    (3)   PMS alert details from SKED 3.2 for the designated 13-week period.

    (4)   SKED 3.2 back-up file on dates selected by TYCOM for selection of spot checks. This item may be requested earlier to facilitate spot check selection and coordination.

    (5)   Schedule promulgated by the ship for CSMP review and DIVO practical exams.

    (6)   List of WCs to include:

        (a)   WC noun name,

        (b)   WC designation,

        (c)   Location,

        (d)   Telephone number

        (e)   Name of WCS.

    (7)   List of WCs that have no PMS responsibilities.

    (8)   Copy of current CSMP (MJB516 Detailed CSMP Report with RPPO Log) and Ship Availability Listing. These reports will be kept with the work centers and brought with them to the CSMP review. Reactor department will also include a current copy of the MCAP log sorted by date, displaying the JCN field. This requirement can also be fulfilled by reviewing this report on-line prior to the CSMP review.

    (9)   Copy of the ship's split MIP log.

(10)   Current roster of D3MAs.

(11)   List of zone inspectors. (For that week's zone inspection)

d.   Formula Acronyms. Acronyms used in the various formulas are defined as follows:

(1)   CLER = Command Level Effectiveness Review

(2)   CTS = Command Total Score

(3)   CVS = CSMP Validity Factor

(4)   DTS = Department Total Score

(5)   MAR = Maintenance Accomplishment Rate

(6)   MDS = Maintenance Data System

(7)   MPR = MDS Performance Rate

(8)   PAR = Periodic Accomplishment Rate

(9)   PPR = PMS Performance Rate

(10)   SAR = Situational Accomplishment Rate

(11)   SEER = Scheduling and Execution Effectiveness Review

(12)   SCAR = Spot Check Accomplishment Rating

(13)   SRE = Self Repair Efficiency

(14)   ZIDL = Zone Inspection Deficiency List

e.   Final Grade Computation.

(1)   Approximately 250 spot checks are accomplished during a 3MI (100 of those are DCPO "40 Work Center" type checks). Every WC gets at least one (1) spot check. The CNAL or CNAP inspection team determines the number of spot checks to be conducted per WC based on PAR and SAR reports exported from the ship prior to inspection. Numbers reflect the WC accomplishment load. The five "majors" (Weapons, Combat, Air, Reactor and Engineering) receive the most while the rest are spread out according to the numbers.

(2)   CTS Formula: CTS = Average of DTS

DTS = Average of Work Center Score
Work Center Score= (PPR X .50) + (MPR X .50)
PPR = MAR X SCAR ÷ 100
MPR = MCF 20% + CVF 30% + RAF 5% + SRE 20% + ZIDL 25%

(3)   Ranking Standards.

(a)   Commands and WCs will be evaluated as "Above Standards" overall in 3-M if the unit's total score is 90% or higher.

(b)   Commands and WCs will be evaluated as "At Standards" overall in 3-M if the unit's total score is between 85% and 89.99%.

(c)   Commands and WCs will be evaluated as "Below Standards" overall in 3-M if the unit's total score is less than 85%.

(d)   All calculations will be rounded to two decimal places.

(4)   A ship that scores "below standards" for a 3MI will be awarded zero Purple-E points for that quarter in which the 3MI place.

f.   Below Standards Criteria. The 3MI will be considered below standards if:

(1)   Ship does not achieve an overall final grade (CTS) of 85 percent or greater.

(2)   Ship does not meet the overall minimum for MAR (85 percent), SCAR (85 percent), MPR (85 percent) or greater.

(3)   Two major departments fail to receive minimum MAR, SCAR or MPR. Major departments are Air, Combat Systems, Engineering and Reactor.

(4)   Ship does not meet the overall minimum SCAR (85 percent) for damage control.

(5)   Departmental Failure Criteria:

(a)   Department does not achieve a DTS of 85 percent or greater.

(b)   Department does not meet the overall minimum grade for MAR (85 percent), SCAR (85 percent) or MPR (85 percent) or greater.

(c)   A department that fails a 3MI will not be eligible for their departmental awards for the calendar year of the failure.

g.   Inspection Reporting. Significant deficiencies and numerical assessments are reported to the assessed unit's CO, and TYCOM using the format shown in Appendix E of this chapter. Reporting may be accomplished on the entire unit or on a departmental basis.

h.   Re-Inspection Criteria.

(1)   A ship that fails to meet minimum requirements for overall command or damage control criteria or both will require a re-inspection in the failed areas.

(2)   If a ship fails due to two or more major departments failing to meet minimum requirements, only the major departments that failed will be re-inspected in the failed areas.

(3)   3-M performance graded as "Below Standards" will be re-inspected, not to exceed six months, following the completion of corrective actions. Subsequent repeat "Below Standards" will include a CO summary discussing the inadequacy of applied corrective action in correcting the deficient area.

(4)   If a ship or department is re-inspected in an area that failed to meet the minimum criteria, then that area will only receive the minimum passing score for departmental award calculation.

i.   Inspection Data Retention. CNAL and CNAP are to maintain an inspection data file for each unit. As each command is evaluated, the individual evaluation standards and calculated values identified will be recorded in the data file with a copy of the inspection report provided to the inspected command. Sections I through VI of Appendix B of this chapter provide specific criteria to be used in the assessment of each command.

19-1.7 ENGINEERING TROUBLE CALL.

19-1.7.1 Purpose. To set forth the responsibilities and procedures for the trouble call program.

19-1.7.2 Background. Zone inspection discrepancies and trouble calls are the first lines of defense in eliminating small repairs. Seventy percent of trouble calls can be validated and completed when noted within 24 hours. Twenty percent are discrepancies that can be completed during SF Self Repair Program. Five percent are deferred and re-screened as beyond SF capable that need multiple skills and are material TA 1, 2 or 3 work candidates. The remaining five percent are found to be invalid.

19-1.7.3 Policy. The repair officer or a designated representative will assign qualified engineering personnel as Engineering Trouble Call Watch (ETCW). The ETCW will act on behalf of the repair officer in all trouble call matters and will be responsible for the security and proper functioning of the trouble call computer, logbook and records and materials in the space the watch is posted. The ETCW will know and understand the trouble call program and procedures and be able to correctly receive and distribute trouble calls. The ETCW will normally only perform the tasks specified in this section while in an on-watch status.

19-1.7.4 Duties and Responsibilities.

a.   Engineering Trouble Call Watch. The ETCW will be located in damage control central or MSC and will be manned continuously. The repair officer and his or her representatives are always available for assistance. The general duties and responsibilities of all ETCWs are set forth below but are not all encompassing. Good judgment is always expected to be exercised.

(1)   The ETCW will document all trouble calls into the MODES module located in the TSIMS program. Leaving this area requires a formal watch relief. The watch may be temporarily secured for the following reasons:

(a)   General Quarters.

(b)   In-port emergency team called away when the watch stander is a member of the response team.

(c)   Training team briefs when the watch stander is a member of the training team. Briefs are normally planned well in advance therefore the watch bill should be written to avoid this case if possible.

(2)   Answer the phone in a professional manner as the engineering department representative for trouble calls.

(3)   When receiving a trouble call, ask questions per flow charts for lighting and power, AC and ventilation, fan room flooding and toilets in Appendix C

Section III of this chapter. Record the following information per the MODES trouble call database:

(a)   Name, rank, WC and J-dial of person placing the trouble call.

(b)   Equipment description and location.

(c)   Priority and safety if required.

(d)   A detailed problem description of the trouble call.

(e)   The trouble call watch will process the trouble call to an engineering WC for correction or deferral.

(4)   Immediately call and forward trouble calls to the responsible repair shop for action.

(5)   Inform Chief of the Watch (COW) and Engineering Duty Officer (EDO) of repair "priority 1", critical trouble calls (e.g., issues that are a danger to personnel or equipment). Critical trouble calls require immediate attention and are defined as trouble calls made by any of the following:

(a)   Immediate danger to life or health.

(b)   Ship's CO or their representatives (i.e. ship's secretary, administration officer, CO's galley staff).

(c)   Flight deck issues affecting the ship's ability to launch or recover aircraft when underway.

(d)   Engineering issues that impact normal routine or ship's ability to perform the mission.

(6)   Inform COW or EDO of repair "priority 2", urgent trouble calls. Urgent priority is defined as trouble calls received requiring immediate attention due to hazards affecting crew health, safety, or having a direct impact on the ship's mission. Examples include:

(a)   Major habitability issues.

(b)   Galley issues affecting sanitation or ability to serve meals.

(c)   Ship's laundry.

(d)   Medical or dental issues that impact normal routine.

(7)   Repair "priority 3", routine trouble calls. Routine priority is defined as trouble calls made by an E-5 or above that present a minor material deficiency in a head, lighting, air conditioning, heat, or general habitability issue. Routine trouble calls will still receive prompt service. Examples include:

(a)   One water closet (toilet) or sink clogged.

(b)   Rack light or a passage-way light out.

(c)   Ventilation to non-vital space not operating.

(8)   When informing the cognizant repair WC of a trouble call, relay the nature and priority accurately. Print trouble call ticket and give to the repair WC that picks up the trouble call ticket.

(9)   Minimize the amount of time the watch station phone is in use.

(10)   When the repair WC has completed and returns the signed off trouble call ticket, the watch will:

       (a)   Close out the ticket, document total amount of hours taken and update the trouble call database ticket with all appropriate information.

       (b)   Enter signed trouble call ticket into divisional WC completed binder.

(11)   Report any problems with the trouble call computer or MODES trouble call program to the COW/EDO, repair officer, or repair officer designated representative.

(12)   Maintain the divisional trouble call binders in a neat and organized manner.

(13)   Conduct a daily audit of all open trouble call tickets; inform repair WCs of trouble calls older than seven days per this section. Report completion to the COW or EDO and annotate the audit in the watch station logs (i.e., daily audit entry in the Engineering Log indicating "An audit of the open engineering trouble calls was completed this date and time. A total of # trouble calls were completed and there are # of trouble calls seven days old.").

(14)   The first trouble call watch for the oncoming duty section will update the contact information for that day's Duty A, DC, E, R, and the COW/EDO.

(15)   Conduct watch relief in a formal manner. Any issues should be resolved prior to the oncoming watch relieving. Issues that cannot be resolved will be brought to the attention of the COW or EDO.

b.   Chief of the Watch and Engineering Duty Officer. The COW and EDO will conduct a daily audit of all open and closed trouble call tickets in MODES and in the divisional trouble call binders. Annotate the audit in the trouble call index sheet.

c.   Repair Officer. Every six months the repair officer or designated representative will e-mail the CNAL or CNAP N43 MDS Team a TYCOM report. This report is created through MODES trouble call reports. This report will be used by CNAL or CNAP N43 MDS Team for the off site assessment of the ship's trouble call program that runs concurrent with the Carrier Maintenance Efficiency Award. The repair officer must maintain a copy of this report for one year.

d.   Division Technical Assistants. Every Friday: A, DC, E, and R Division technical assistants will conduct an audit of the open trouble calls for their respective divisions. This audit will be annotated on the trouble call log index sheet. For trouble calls outstanding for more than seven working days:

(1)   Notify originating WC to submit a job through OMMS-NG.

(2)   Direct the watch to close the trouble call in the MODES database, detailing the reason it was not completed and that the originating WC was instructed to

submit a job through OMMS-NG or P-OMMS. The WC should provide a JCN to the watch for entry into MODES when closing the trouble call.

    (3)   Make an entry in the watch station logs that the audit was completed.

e.   Repair Work Centers. All repair WCs must document expended total man-hours on accomplished trouble calls every month. To do this a completed maintenance action item without prior deferral is entered into OMMS-NG with the repair WC as a lead or assist JCN.

    (1)   Table 19-1-4 identifies APLs created to assist the trouble call WC when entering these work candidates in OMMS-NG.

Table 19-1-4

APL	HSC	EFD	ESD
XSYSTEMITEM	89751SFADP	ADP TROUBLE CALL DESK	TROUBLE DESK
XSYSTEMITEM	89751SFALR	ALRE TROUBLE CALL DESK	TROUBLE DESK
XSYSTEMITEM	89751SFCSS	COMBAT SYSTEM TROUBLE CALL DESK	TROUBLE DESK
XSYSTEMITEM	89751SFENG	ENGINEERING TROUBLE CALL DESK	TROUBLE DESK
XSYSTEMITEM	13011SFZIP	ZONE INSPECTION PROGRAM	ZONE INSPECTION

    (2)   When a call is found to be beyond Ship's Force capabilities, the repair WC responding will assist the submitting WC on how to properly write the work candidate.

19-1.8 REPAIR SERVICES ORGANIZATION.

19-1.8.1 Purpose. To set forth the responsibilities and procedures for the aircraft carrier repair services program.

19-1.8.2 Background.

a.   To support carrier self-sufficiency and carrier SFIMA capabilities, this section standardizes maintenance screening procedures to be followed by CNAL and CNAP activities.

b.   In addition to those listed in references (a) through (k) the objectives of MDS are to provide aircraft carriers the tools and resources to accurately assess and report ship's material condition while performing corrective maintenance at the lowest echelon level.

c.   The shipboard MDS system is unique within the structure of the naval organization in that it is a program which encompasses the most junior personnel up to and including

senior directors. Overall fleet readiness can be directly affected by changes within MDS and how readily they are implemented.

d. Command involvement, process awareness and TYCOM oversight are driving factors in a successful program. The key components of a successful program are:

(1) Vibrant Ship's Force Self- Repair Program, driven by an engaged repair officer.

(2) Standardized work candidate screening process and clear communication by the SMM, RMO, repair organization and TYCOM.

(3) Recurring shipboard training program conducted by the SMM office in areas of OMMS-NG usage and CSMP management.

e. The ability of a ship to self-repair requires a continuous screening process. The repair officer develops a master repair schedule. The repair schedule provides a specific time frame for focusing on each department's needs approximately three times per year. Supply department typically is reviewed every quarter due to the volume of spaces and the fact that everyone uses their facilities for quality of life (i.e., messing, heads & beds, laundry, and other service spaces). Departmental emergent and or safety related work candidates outside of the master repair schedule are handled case by case and scheduled through the repair officer.

19-1.8.3 Aircraft Carrier CNO Availability Repair Teams. SMM screening of work candidates is designed to allow for the development of a CNO Availability, Ship's Force work package. Screening work candidates for the teams is continuous and concurrent with the Ship's Force Self Repair Availability Program. As the SMM conducts IUC screening, work candidates are categorized such as vent cleaning, door repair, and habitability using the local work candidate status drop down list. CNO team leaders review these deficiencies, tagged by the SMM. As the CNO availability draws closer, these lists can be exported into an Excel spreadsheet. The team leader checks and provides feedback to the SMM on any work candidate beyond Ship's Force capabilities. If found to be within team capability, the team leader assigns a specific PMXX WC as an assist WC code per reference (h).

19-1.8.4 Engineering Repair Mission. The mission of the Engineering Repair Organization is to provide facilities for accomplishment of high-quality maintenance onboard aircraft carriers and to provide repair services to conventionally powered surface ships while deployed. Aircraft carriers are equipped to provide organizational and intermediate level maintenance and services for almost all of their own requirements and those of surface ships including repair and maintenance of machinery and electrical and electronic equipment.

19-1.8.5 Meetings. The repair officer routinely holds the following meetings for respective department's repair period:

a. Self-Repair Arrival Conference. The repair officer conducts the conference, at a minimum, two weeks prior to the start of a department's repair availability period. The repair officer will provide a CSMP file from OMMS-NG of all organizational level work three weeks prior to the department's repair availability period. The department scheduled for the repair period will bring a copy of their eight o'clock report and a prioritized list of work to be accomplished. Personnel from each of the

WCs that are knowledgeable of their CSMP, usually PAs, LCPO or LPO and 3MA, and engineering repair organizations such as repair officer, repair division technicians and repair division LPOs will be present to discuss particular job needs, manpower, WC support and other items of interest to ensure job accomplishment.

b. Production Meetings. The repair officer will conduct production meetings daily for integration issues during the availability.

c. Departure Report. The repair officer at the end of each repair period will provide a completion report to the department. Work candidates which are not accomplished are deferred to a future repair period or re-screened to an external maintenance activity with IUC comments explaining reason that Ship's Force cannot accomplish. These comments allow a better understanding of the work that is to be re-screened and continue communications between the Ship's Force repair officer, SMM and the TYCOM MPM.

d. Daily Status and Liaison. Repair technicians routinely liaise with the repair officer on specific status of any work integration problems.

19-1.8.6 Maintenance Screening and Repair Organization.

a. CNAL or CNAP MDS Team. The MDS Team assists in the following:

(1) Advising commands in the administration of Ship's Force Continuous Maintenance Screening Program.

(2) Conducting review of work candidate processing in support of the continuous maintenance screening process.

(3) Conducting Ship's Force continuous maintenance screening training, assists, installations, and assessments.

(4) Monitoring the overall implementation and effectiveness of the Ship's Force Continuous Maintenance Screening Program on all aircraft carriers.

(5) Reviewing Ship's Force assessment results to identify trends and provide prompt support to ships as required.

b. Commanding Officer. The CO has overall responsibility for ensuring that maintenance of equipment and systems is accomplished per 3-M procedures contained in reference (a). The CO will ensure a program review conducted by the ship's repair officer is in place to effectively monitor the command's program.

c. Chief Engineer. The CHENG is responsible to the CO for execution and management of the Repair Service Organization. The CHENG will:

(1) Ensure maintenance personnel receive adequate Ship's Force continuous maintenance screening training.

(2) Conduct regular meetings with the XO, SMM, repair officer and DHs to discuss Ship's Force Self-Repair Continuous Maintenance Screening Program and provide necessary guidance and coordination.

(3) Ensure a program review conducted by the ship's repair officer is in place to effectively monitor the command's program.

d.   Ship's Maintenance Manager. The SMM is directly responsible to the CHENG. Responsibilities are assigned in writing. The SMM will:

   (1)   Monitor operation of the MDS to ensure correct documentation procedures are followed.

   (2)   Coordinate industrial maintenance during designated CNO Availabilities.

   (3)   Ensure all documentation deferring maintenance for outside assistance is reviewed and approved in a timely manner per the requirements of this manual.

   (4)   Conduct IUC screening.

e.   Repair Officer. The repair officer is normally a senior surface chief warrant officer or limited duty officer who is directly responsible to the CHENG. The repair officer works together with the SMM for all authorized screening, planning, scheduling, accomplishment, and inspection of Ship's Force self-repair periods and for ensuring timely and satisfactory completion of engineering repair work per prescribed methods and standards. The repair officer is also responsible for upkeep and maintenance of all Industrial Plant Equipment (IPE) and those spaces supporting the repair capabilities within the repair organization. The ship's repair officer will:

   (1)   Review all work candidates screened by the SMM. These work candidates are evaluated and either sent to the repair technicians – departmental LCPO or rejected back to the SMM. Rejected work candidates are accompanied by remarks documenting reason for rejection and will be rescreened to the TYCOM for accomplishment by an outside repair activity. A screened work candidate must be accepted or rejected by a ship's repair organization within seven working days.

   (2)   Coordinate all administrative facets of the Ship's Force Continuous Maintenance Screening Program (i.e., Trouble Call Program, SFIMA and Ship's Force Self-Repair Program) per TYCOM directives.

   (3)   Evaluate command's use of the Ship's Force Continuous Maintenance Screening Program and keep the CHENG advised of its operational effectiveness.

   (4)   Monitor an active, self-critical assessment program and report program effectiveness monthly to the SMM per self-assessment evaluation sheet.

   (5)   Advise and assist DHs, DIVOs, D3MAs and WCSs in matters concerning the Ship's Force Continuous Maintenance Screening Program including coordination and conduct of training and proper documentation of material deficiencies.

   (6)   Ensure planning list reports are generated prior to execution of the inactive utility in OMMS-NG. Reports will be submitted to CNAL or CNAP MDS Team upon request and retained onboard for a period of one year. CNAL or CNAP MDS Team will provide format.

f.   Engineering and Deck Repair Technicians. Billeted in auxiliary, deck, electrical and repair divisions, the repair technicians are responsible to the repair officer for all authorized non-nuclear screening, accomplishment, and inspection of repairs and for ensuring timely and satisfactory completion of engineering repair work per prescribed methods and standards. Duties include:

    (1)   Assign work candidates to repair WCs and coordinate with other technical assistants when multiple WCs are involved. Those work candidates found to be beyond Ship's Force capabilities are sent back to the SMM via the ship's repair officer with remarks per the requirements of this manual. A screened work candidate must be accepted or rejected by a ship's repair organization within seven working days.

    (2)   Continuously ensure their divisional repair WCs complete assigned work candidates and properly close out each item at the end of departmental repair periods.

    (3)   Serve as the primary liaison between their division and the applicable department or ship.

g.   Hull Repair Division. As per reference (i).

h.   Electrical Repair Division. As per reference (i).

i.   Outside Auxiliary Machinery Repair Division. As per reference (i).

j.   Deck Repair Division. As per reference (i).

k.   Lead Work Center Planners. Lead Work Center (LWC) planners work in the engineering department and are responsible for planning repairs to machinery, components and associated systems and preparing Controlled Work Packages and Formal Work Packages. The division works with the MSC in researching drawings and technical manuals. Functions include:

    (1)   Ship-checking, planning man-hours and developing detailed worksheets and ordering of propulsion plant non-nuclear work. Nuclear level work is not included in this process.

    (2)   Upon ship-checking the job, work candidate information will be verified.

    (3)   Evaluate all jobs as to work package requirements, such as Work Packages and Formal Work Packages, and identify the proper procedure to be used or develop one if necessary.

    (4)   Responsible for submitting Steam Plant Action Requests to obtain technical resolution after LWC or division composes.

l.   Maintenance Division. The MSC provides ship's maintenance technicians with the logistics support elements required to effectively plan, manage, and perform maintenance. MSC functions include:

    (1)   Managing and maintaining the ship's equipment configuration database via OMMS-NG. Additionally, MSC maintains the ship's technical documentation libraries, such as ship's drawing indexes, equipment

installation drawings, technical specifications and manuals, shipyard process instructions and technical repair standards.

(2) Providing customer assistance and support to research or troubleshoot Integrated Logistics Support issues or problems involving carrier maintenance requirements.

m. Quality Assurance Division. The QA Division, led by the ship's QA officer, is responsible to the XO for directing and administering the QA Program. The division performs Non-Destructive Testing services and provides QA training for supervisors and oversees divisional QA craftsman for ship's personnel. Services include:

(1) Non-Destructive Testing T Lab. Performs visual, ultrasonic, magnetic particle and dye penetrate testing of materials per applicable standards and specifications.

(2) QA Shop. Performs inspections, in-process surveillances, training, and audits to ensure that materials, workmanship, and testing are per plans, specifications, and technical directives. This shop supervises overall QA processes for all repair work and oversees LWC or divisional Quality Assurance Inspectors.

n. CNO Availability Team Leaders. Responsibilities are noted in the Aircraft Carrier Availability Planning Guide for Ship's Force resources. Work candidates are categorized using the Local Work Candidate Status drop down list. Process is documented in reference (a). Assignment to one of these categories enables the SMM to build the Ship's Force authorized work package.

o. Safety and Industrial Hygiene. The Safety Department provides comprehensive occupational health and safety support to the aircraft carrier and supports requests from accompanying ships. Services provided include:

(1) Industrial hygiene assessments.

(2) Navy Occupational Safety and Health Program Reviews.

(3) Sound level surveys.

(4) Asbestos identification.

(5) Respirator fit testing and training. It is imperative that personnel are medically qualified to wear respirators before fit testing is requested.

(6) Navy Occupational Safety and Health training.

(7) Ventilation measurement.

(8) Occupational safety and health technical assistance.

p. Safety Office. The Safety Office is manned during regular working hours. After working hours, questions or concerns should be forwarded to the Command Duty Officer.

q. Asbestos Analysis Laboratory. The asbestos analysis laboratory provides asbestos identification and fiber counting services to the aircraft carrier and tended ships. The

laboratory maintains ongoing proficiency through participation in Research Triangle Institute and Proficiency Analytical Testing programs.

19-1.8.7 <u>Program Assessment</u>. SRE assessments will be used to determine performance level of the Ship's Force Continuous Maintenance Screening Program. They will also provide data that will be used to develop an improvement plan to address program weaknesses per the CNAL and CNAP Aircraft Carrier Self Evaluation Check Sheet and Practical Exam.

a. Frequency. Ship's Force assessments will be conducted on the following occasions:

   (1) Semi-annually or when determined necessary by the ship's repair office.

   (2) One month prior to a scheduled CNAL or CNAP N43 MDS Team visit.

   (3) When directed by TYCOM.

b. Improvement Plan. Ship's Force assessment results that reveal areas where performance did not meet established standards will drive an improvement plan. After implementing the corrective actions developed in the improvement plan, Ship's Force will conduct another assessment to determine effectiveness of corrective actions.

c. N43 MDS Team Assessment. Two N43 MDS assessments will be conducted each year. SRE assessments will be scheduled and conducted by the CNAL or CNAP N43 MDS team to run concurrent with the Carrier Maintenance Efficiency Award off-site program assessment. If there is a 3-M assessment or inspection conducted during the calendar year, then one of two scheduled N43 MDS evaluations will be conducted onboard in conjunction with the 3-M assessment or inspection.

   (1) If the N43 MDS evaluation is conducted off site, Ship's Force will provide in electronic format:

      (a) Completed Ship's Force assessments as per paragraph 19-1.8.7 of this chapter.

      (b) The last six months MODES CNAL or CNAP Ship Trouble Call Program export report by the 1st and 3rd quarter of the year (January and July), before the 15th day of the month.

      (c) Planning list reports as directed by CNAL or CNAP N432.

   (2) No practical examinations will be required. Items that are unable to be evaluated off site will receive maximum points allowed during the evaluation. Ship's Force should still conduct practical exams to verify repair personnel maintain proficiency.

   (3) If the MDS evaluation is conducted onboard, CNAL or CNAP N43 MDS Team will meet with the SMM and repair officer to first evaluate the proper usage of the Ship Trouble Call and Self Repair programs. N43 MDS specialist will check tables and drop down lists in OMMS-NG to ensure conformity with CNAL or CNAP direction. CNAL or CNAP Aircraft Carrier Evaluation Check Sheet and Practical Examinations will be conducted during the assessment. The SMM and repair officer will provide the N43 MDS Team

a list of repair organization personnel and a schedule of where and when each member's practical examination will be administered.

(4)   Assessment results will be submitted to CNAL or CNAP N43 MDS Team Leader.

APPENDIX A

3-MTT GRADE SHEETS

APPENDIX A

SECTION I

3-MTT SPOT CHECKER FORM

Planned Maintenance System (PMS) 3-MTT, CNAL or CNAP Spot Check Form						
Ship	Depart	Equipment	Work Center	Date Performed	MIP	MRC

3-MTT Member		Spot Check Date:	

*If attributes are evaluated as unsatisfactory, all subsequent attributes will be graded as "0".
+If major safety violation (loss of life, limb, eyesight) deduct 5 pts and all subsequent attributes will be graded as "0". For minor safety violation, only deduct 5 pts.
NOTE: ASSESSMENT ATTRIBUTES WILL BE GRADED ZERO OR FULL VALUE. NO PARTIAL VALUE.

		Assessment Attribute	Value	Grade	Notes
1		**Observe the 3-MTT member conducting the spot check and determine the following by questions and personal observation.**			
*	a.	3-MTT member verified the MP PQS qualified to perform the MR?	2		
	b.	3-MTT member verified the MP presented the correct tools, Personal Protective Equipment (PPE) parts (NSN), material (Military Specification (MILSPEC) and test equipment (Calibrated).	3		
	c.	3-MTT member verified the MP identified the equipment (location, equipment validation).	4		
	d.	3-MTT member verified there were not any unauthorized changes or corrections to the MRC?	3		
	e.	3-MTT member verified the correct MRC for the equipment maintained?	3		
2*		**Observe all steps of MR including all notes, warnings and cautions according to the MRC.**			
*	a.	3-MTT member verified the MP followed all steps of the MRC.	5		
*	b.	3-MTT member verified the equipment Tagout.	5		
+	c.	3-MTT member verified all safety precautions.	5		
3		**Verify the equipment condition reflects accomplishment of the MRC?**			
	a.	3-MTT member assessed that maintenance was performed recently.	10		
	b.	3-MTT member observed proper use and disposal of Hazardous Material.	3		
	c.	3-MTT member verified the MRC was within the capability of the assigned individual to perform as written.	5		
4		**Verify PMS Reporting**			
	a.	3-MTT member verified the Maintenance person reported the status of the MR to the WCS if Completed or Not Fully Accomplished and makes appropriate updates.	2		
	b.	3-MTT member reviewed TFBR for any problem with MRC. (if applicable)	2		

			Points Available	Points Awarded	
	c.	3-MTT member verified material deficiencies detected by the PMS action were recorded in MDS. (if applicable)	2		
Totals (Attributes) evaluated as NA are not calculated			Points Available	Points Awarded	
3-MTT (SCAR) (Grade = Points Awarded ÷ Points Available)					SAT or UNSAT
Above Standards (90% or greater) At Standards (85-89.99%) Below Standards (less than 85%)					

_____ _____
CNAL or CNAP INSPECTOR (PRINT)   DATE

ADDITIONAL COMMENTS:

APPENDIX A
SECTION II
3-MTT ORGANIZATION EFFECTIVENESS CHECK SHEET

Ship:			Date:	

Planned Maintenance System Administration

#	Assessment Attribute	Value	Grade	Notes
1	Does the ship's XO serve as the 3-MTT Leader?	3		
2	Does the ship's 3-M Officer (3MO) serve as manager of the 3-MTT and designate members in writing?	3		
3	Does the ship's 3MO maintain copies of 3-MTT designation letters on file?	5		
4	Does the 3-M Coordinator (3MC) serve as the 3-MTT Coordinator?	5		
5	Does the 3MC maintain a matrix to select and track spot checks to be performed by the 3-MTT?	5		
6	Does the 3-M office track spot check trend data for Hazmat, PPE, Tagout, Safety, and keep this data for 24 months?	5		
7	Is the 3-MTT led by the XO with the 3MO and 3MC as primary assistants?	4		
8	Is the 3-MTT composed of a minimum of 30 members from officers, chiefs, and departmental 3-M Assistants?	6		
9	Are there a proportionate number of members from the 4 major departments?	4		
10	Are 3-MTT members qualified 3-M 304 LCPO or DIVO, and designated in writing?	7		
11	Do 3-MTT members provide divisional training and PQS support as requested or directed by the 3MO based on 3-MTT trends?	16		
12	Does the 3-MTT support the 3MO in conducting self-assessments?	5		
13	Does the 3-MTT meet monthly to discuss performance trends, improvement recommendations, and conduct training?	16		
14	Does the 3-MTT conduct quarterly training for the E-7 and above?	16		
Totals (Attributes evaluated as NA are not calculated.)		100		

Above Standards (90-100%)   At Standards (85-89.99%)   Below Standards (<85%)

Additional Remarks:

APPENDIX B

3-M INSPECTION CRITERIA

APPENDIX B

SECTION I-A

SCHEDULING AND EXECUTION EFFECTIVENESS REVIEW (SEER)

Complete the SEER checklist below for each WC. Enter a numeric evaluation of each inspection attribute and provide amplifying information to describe the deficiencies driving point deductions on the "Remarks" page provided. Significant deficiencies will be reported via the final inspection report.

Command	Department	Division	Work Center	Date	
General Attributes				Value	Points
1.		Does the WC PMS file contain:			
	a.*	Current Service Brief?		1	
	b.*	Current and applicable 3-M messages and notices?		2	
2.		Do MIPs and MRCs accurately reflect equipment configuration; are non-applicable MRCs correctly lined out and are applicable MRCs active? (May be MIP standardization violations)		10	
3.	*	Does the WC retain an auditable record of personnel PMS qualifications and designation letters?		5	
Maintenance Requirement Card (MRC) Deck					
4.	*	Is the WC deck of MRCs, including classified MRC locator cards, complete and current? (Per TYCOM direction)		2	
5.		Are classified MRCs complete and current?		3	
6.		Are blanks requiring Ship's Force data filled in prior to use?		3	
Chain of Command SKED Administration					
7.		Are all administrative changes approved at the appropriate level?			
	a.	Is the FR approved by DH? (Verify using journal tab.)		2	
	b.	Are weekly Closeouts performed by COB on the first day of the week at the appropriate level?		2	
	c.	All lineouts and MRC customization approved at the appropriate level.		2	
	d.	Check notes reviewed and alerts approved by the DIVO?		2	
Location Guide Lists					
8.	a.*	Do LGLs contain required information (e.g., equipment name, equipment location, equipment serial number or unique identifier)?		3	
	b.*	Are maintenance items in SKED associated to the existing equipment configuration?		3	
Situational Requirements					
9.	*	Are all situational (states, triggers, metered) events being scheduled and executed in SKED?		8	
PMS Execution and Accountability					
10.		Are check note entries accurate, valid, and complete?		3	
11.	*	Was maintenance assigned only to qualified maintenance personnel?		4	

12.		Was currently scheduled, previously completed, situational requirements and unscheduled maintenance entered into SKED?	10	
13.		Is a unique identifier or tag-out serial number recorded in "check notes" for maintenance actions marked as complete that required Tag-outs?	2	
14.		Have the minimum number of spot checks and monitored checks been accomplished?	3	
FBR File				
15.		Are FBRs being tracked in SKED, "Action Taken" block update by WCS?	2	
Inactive Equipment Maintenance (IEM)				
16.		Is the start of an inactive period correctly annotated and approved by DH?	2	
17.		Are IEM requirements properly scheduled?	5	
18.		Is the completion of the inactive period correctly annotated?	2	

Totals (Attributes evaluated as "NA" are not calculated)	Total Points Available: **81**	Total Points Awarded _____
SAT ☐		UNSAT ☐
Inspector Name and Command (Print and Sign)		

* Electronic Versions Acceptable   Sat = 85 percent or better

Attribute Scoring:

> 85% = Satisfactory = Full Credit

< 85% = Unsatisfactory = No Credit

Example - Attribute 17: If 85% or better of IEM requirements were properly scheduled, points awarded would be five (5). If less than 85% of IEM requirements were properly scheduled, points awarded would be zero (0).

SEER REMARKS

Provide amplifying information to describe the deficiencies driving point deductions. Significant deficiencies must be reported via the final inspection report.

Attribute #	Amplifying Information
Print Name:	Signature:
Command:	Date:

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APPENDIX B

SECTION I-B

COMMAND LEVEL EFFECTIVENESS REVIEW (CLER)

Using the attributes and grading criteria described here, conduct the CLER for the ship. Provide amplifying information for deficiencies causing point reduction on the remarks page.

Command:			Date:	
General Attributes			**Value**	**Points**
1.		Does the 3MC: maintain:		
a.		A Change Accountability Log?	2	
b.	*	A log (approved by the XO) tracking the assignment of MRCs from split MIPs to ensure all applicable MRCs are assigned?	3	
c.		A master classified MRC file?	2	
d.	*	A current PMS (and where applicable TFR) DVD or downloaded file?	3	
2.		Does the command have a reliable system for backing up MDS and PMS data?	5	
3.	*	Does the 3MC have an effective system in place to track, route, and explain externally provided PMS changes?	3	
4.		Is there an effective system in use (Spot Check Program) whereby supervisory personnel periodically and routinely monitor PMS performance?	8	
5.		Have all FBRs entered in SKED been properly reviewed by the CoC and submitted off hull within seven (7) days?	3	
6.	*	Does the ship or activity conduct internal audits (Quarterly Self-Assessments) of all WC? (Retain latest copies of deficiencies, corrections, and abatement for current and previous quarter)	15	
7.	*	Does the 3MC provide weekly status reports to the XO per specific TYCOM directive?	3	
8.	*	Does the 3MC have an approved master copy of 3-M PQS specifically tailored for the command?	3	
9.	*	Does the 3MC maintain an auditable record of PMS PQS for the command (e.g., copy of service record entries, signed copy of PQS cover letter, officer verified divisional training record, RADM)?	3	
10.		Does the 3MC maintain the status of command FBRs, responses and follow up actions taken in SKED?	3	
11.		Does the 3MC track assessment MRCs (800/AP series) and verify completion with the local agency?	10	
12.		Is the 3MC triggering GLOBAL events and STATES across the unit? Does the 3MC have an updated major event listing?	10	
13.		Does the ship or activity conduct 3-M program training per directives?	8	
3-M Training Team				

14.		Does the ship's 3MO serve as manager of the 3-MTT and designate members in writing?	3	
15.		Does the ship's 3MO maintain copies of 3-MTT designation letters on file?	3	
16.		Does the 3MC serve as the 3-MTT Coordinator?	3	
17.		Does the 3MC maintain a matrix to select and track spot checks to be performed by the 3-MTT?	4	
18.		Does the 3-M office track spot check trend data for Hazmat, PPE, Tag-out, Safety, and keep this data for 24 months?	4	
19.		Is the 3-MTT led by the XO with the 3MO and 3MC as primary assistants?	3	
20.		Is the 3-MTT composed of a minimum of 30 members from officers, chiefs, and departmental 3-M Assistants?	5	
21.		Are there a proportionate number of members from the 4 major departments?	4	
22.		Are 3-MTT members qualified 3-M 304 LCPO or DIVO, and designated in writing?	7	
23.		Do 3-MTT members provide divisional training and PQS support as requested or directed by the 3MO based on 3-MTT trends?	10	
24.		Does the 3-MTT support the 3MO in conducting self-assessments?	5	
25.		Does the 3-MTT meet monthly to discuss performance trends, improvement recommendations, and conduct training?	10	
26.		Does the 3-MTT conduct quarterly training for the E-7 and above?	10	

Totals (Attributes evaluated as "NA" are not calculated)				
Total Points Available **155**		Total Points Awarded		
SAT ☐		UNSAT ☐		
Inspector Name and Command (Print and Sign)				

* Electronic Version Acceptable   **Sat = 85 percent or better**

Attribute Scoring:

All scoring will be done in a "yes" or "no" format.

Example: If yes to the block all points will be awarded. If no to the block, zero points will be awarded.

CLER REMARKS

Provide the attribute number and amplifying information describing the deficiency that has caused a deduction of points.

Attribute #	Amplifying Information

Print Name:	Signature:
Command:	Date:

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APPENDIX B

SECTION II-A

SPOT CHECK ACCOMPLISHMENT RATING (SCAR)

Using the basic definitions and guidelines described, determine the PMS Spot Check Accomplishment Rating (SCAR) for each WC. Enter the values determined on the SCAR Check Sheet, section II-A of this Appendix.

Approximately 250 spot checks are accomplished during a 3MI (100 of those are DCPO "40 Work Center" type checks). Every WC gets at least one spot check. The CNAL/CNAP inspection team determines the number of spot checks to be conducted per WC based on PAR and SAR reports exported from the ship prior to inspection. Numbers reflect the WC accomplishment load. The five "majors" (Weapons, Combat, Air, Reactor and Engineering) receive the most while the rest are spread out according to the numbers.

1. Complete an MRC evaluation, SCAR Check Sheet, section II-A of this Appendix, for each MRC selected. Based on the results, evaluate the overall effectiveness of the accomplishment of each MR selected. Enter a numeric evaluation of each assessment attribute (zero or full credit) and provide amplifying information to describe the deficiencies. Significant deficiencies must be reported via the final inspection report.

2. The SCAR Check Sheet is a series of inspection attributes to determine the accomplishment status of an MRC that had previously been reported as accomplished. Although the sheet may be used as a reference for conducting a real time monitored MRC evaluation, for the purposes of conducting a 3MI, all spot checks will be conducted on accomplished (historic) MRCs.

3. Due to the nature of MRC completion, supporting programs such as Tag-Outs and HAZMAT are encountered. Care should be taken to avoid expanding the spot check to a review of the processes of those programs thereby preventing the assessor from determining the accomplishment status of the MRC under review.

4. The following is expanded guidance for completion of the SCAR Check Sheet. Best practices or other policies not supported by source documentation must not be included in evaluating compliance:

    a. (1.a) Determine if the MP is qualified to perform the maintenance task. PQS 301 is required for all MRCs but attention should also be paid to other qualifications required such as Quality Maintenance. See Volume 5, Part I, Chapter 3, paragraph 3.4 of this manual or graduation from a required school such as gage calibration technician.

    b. (1.b) Determine if the correct TPMTE were used during the performance of the MRC. If the MP did not have the required TPMTE, it is unlikely that they would have been able to complete all the procedural steps of the MRC as required. If an item of TPMTE was required to perform a conditional step and that step was not required to be accomplished, it is not considered deficient. If the required test equipment required calibration, ensure that the calibration is within date and the equipment is of sufficient scale to accomplish the MRC.

c.   (1.c) Determine if the MP maintained the correct equipment.

d.   (1.d) Examine the MRC to determine that any locally applied changes are authorized by procedural notes, external correspondence or allowed by reference (a).

e.   (1.e) Determine applicability of the MRC to the component that the MP signed for completion.

NOTE: **IF A PROCEDURAL STEP WAS NOT COMPLETED, THE MRC SHOULD NOT HAVE BEEN REPORTED AS COMPLETE AND THEREFORE THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

f.   (2.a) From a variety of potential techniques, determine if the MP performed all the required steps of the MRC. This may be accomplished via re-enactment, or re-performance. The inspector should come away with a clear impression that all the steps of the MRC were either fully accomplished or not.

NOTE: **IF A REQUIRED TAG-OUT WAS NOT CONDUCTED IN SUPPORT OF ACCOMPLISHING THE MRC, THE MRC SHOULD NOT HAVE BEEN CONDUCTED AND REPRESENTS A SERIOUS SAFETY VIOLATION. THEREFORE, THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

g.   (2.b) If required by the MRC, verify that a tag-out was hung before the maintenance was performed. Ensure the isolation boundaries were appropriately identified and correctly positioned to ensure complete isolation of the maintained equipment. If no tag-out was required, write NA on the sheet.

NOTE: **FAILURE TO ADHERE TO A SAFETY PRECAUTION PROVIDED ON THE MRC CONSTITUTES A SERIOUS SAFETY VIOLATION AND THE FAILURE TO PERFORM THE MRC AS WRITTEN. THE ATTRIBUTE GRADE WILL BE ZERO AND ALL SUBSEQUENT ATTRIBUTES WILL ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

h.   (2.c) Determine compliance with all specific safety precautions listed on the MRC. If no safety requirements were invoked, write NA on the sheet.

i.   (3.a) By physical examination of the maintained equipment, determine if maintenance of the nature required by the MRC had been performed. Take note of fasteners that would have had to be disturbed, dirt in filters, fresh oil, etc., to make a judgment as to whether the maintenance has been performed.

j.   (3.b) Determine through questioning and record verification that HAZMAT was properly used and disposed of as a means of determining whether the MRC was accomplished. Once the inspector has determined that the HAZMAT was used and disposed of correctly, this attribute is considered fulfilled. If no HAZMAT was required to be utilized, write NA on the sheet.

    k.   (3.c) Determine if the MP could have performed the MRC from a standpoint of being trained and proficient in the tasks called out for by the procedure.

    l.   (4.a) Determine if the MP filled out the 13-Week Accountability Log or annotated proper disposition of maintenance in SKED correctly for the accomplished MRC with the appropriate accomplishment date. Ensure if a tag-out isolation was used, the tag serial number is recorded in the space allowed or as a check note in SKED. Ensure that the printed name and legal signature of the MP who performed the maintenance is recorded or, in case of group performed PMS, the MP in charge of the group.

    m.   (4.b) From reviewing the discussions and findings during the spot check, determine if an FBR had been submitted if required. If no FBR was required, write NA on the sheet.

    n.   (4.c) Determine if a material deficiency was noted during the PMS; if so, examine the CSMP to ensure the deficiency was documented. If no material deficiency was noted, write NA on the sheet. If material discrepancies are properly documented in the CSMP attribute graded as a two (2). Material discrepancies that are not documented in the CSMP will receive an automatic grade of zero.

5. When a Spot Check is determined to be below standards, the command undergoing inspection is likely to have numerous questions. To facilitate root cause analysis and the formulation of an effective corrective action plan, care should be taken to clearly identify factors contributing to deficiencies that led to the conclusion that the MRC was not conducted as written or not conducted at all.

APPENDIX B

SECTION II-B

SPOT CHECK ACCOMPLISHMENT RATING (SCAR) CHECK SHEET

Planned Maintenance System (PMS) 3-M Spot Check Form						
SHIP	DEPARTMENT	EQUIPMENT	WORK CENTER	DATE PERFORMED	MIP EVALUATED	MRC EVALUATED

Maintenance Person:		Spot Check Date:

NOTES:
"*" is evaluated as unsatisfactory, all subsequent attributes will be graded as "0".
"+" If major safety violation (loss of life, limb, eyesight) deduct 5 pts and all subsequent attributes will be graded as "0". For minor safety violation, only deduct 5 pts.
Inspection Attributes will be graded zero or full value. No partial value.
Inspection Attributes that are Not Applicable will be marked NA and no value given.

Inspection Attribute			Value	Grade	Notes
Contact the MP assigned responsibility for the accomplishment of the MRC, have the individual deliver MRC, and determine the following by questions, personal observation, or both.					
1.	a.*	Is the MP qualified (PQS) to perform the MR?	2		
	b.	Did the MP present the correct tools, Personal Protective Equipment (PPE), parts (NSN), material (Military Specification) and calibrated test equipment?	3		
	c.	Did the MP properly identify the equipment (location, equipment validation)?	4		
	d.	Are there unauthorized changes or corrections to the MRC?	3		
	e.	Is the MRC correct for the equipment maintained?	3		
Demonstrated all steps of MR including all Notes, Warnings and Cautions according to the MRC.					
2.	a.*	Followed all steps of the MRC.	5		
	b.*	Correctly performed equipment Tag-Out.	5		
	c.+	Followed all safety precautions.	5		
Does the equipment condition reflect accomplishment of the MRC?					
3.	a.	Is it apparent that maintenance was performed recently?	10		
	b.	Correctly demonstrated use and disposal of Hazardous Material.	3		
	c.	Was the MRC within the capability of the assigned individual?	5		
PMS Reporting					
4.	a.	MP reported status of MR to the WCS if Completed or Not Fully Accomplished and made appropriate updates.	2		

	b.	**WC generated FBR for any problem with MRC.**	**2**		
	c.	**Material deficiencies detected by the PMS action were recorded in MDS.**	**2**		

Attributes Evaluated as "NA" are not Calculated

Total Points Available: **Total Points Awarded:**

Spot Check (SCAR) (Grade = Points Awarded ÷ Points Available): SCAR =

Above Standards (90% or greater)	**At Standards (85-89.99%)**	**Below Standards (less than 85%)**
☐ **Above Standards**	☐ **At Standards**	☐ **Below Standards**

Below Standard grade requires immediate accomplishment (if 3-M Manager determines re-performance is required) monitored by a Chief Petty Officer

Additional Remarks:

Printed Name: _____ Signature: _____

Command: _____ Date: _____

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SECTION III

MAINTENANCE ACCOMPLISHMENT RATE (MAR)

1. The Maintenance Performance formula captures maintenance that was not scheduled.

2. The PAR and SAR reports are automatically generated by SKED.

3. The MAR grade will be determined utilizing the formula reflected in a specified date range.

$$MAR = \frac{PAR\ COMP + SAR\ COMP}{PAR\ COMP + SAR\ COMP + ALERTS + LOST + OMITTED}$$

4. "Omitted" is defined as any maintenance action that should have been performed on any and every maintenance item and no matter the reason did not get scheduled. For example:

   a. Situational or state maintenance that did not get scheduled when the situation dictated.

   b. Improperly lined out periodic checks.

   c. Non-accomplished IEM checks.

   d. Non-accomplished maintenance added via ACN, FBR, Preliminary PMS, etc.

APPENDIX B

SECTION IV-A

**CURRENT SHIP'S MAINTENANCE PROJECT VALIDITY FACTOR (CVF)
WORK CANDIDATE WORKSHEET**

WC	JSN	EQUIP	CASREP	MCAP	1	2	3	4	5	6	7	8	9	10	11	12	Score
CVF	**Totals**																

Reference: CNAL or CNAP OMMS-NG Users Guide.
Automatic Failure – Active CASREPs – Does the associated JCN reflect the CASREP and have the related data filled in?
Automatic Failure – SFWL (MCAP-MODES). Program logs reviewed, those found not per COMFLTFORCOMINST 4790.3 Volume VI Chapter 19-7 will be used as part of the total JSNs to be evaluated for the WC.

CSMP was reviewed with the following results:		**Deduct**
1.	Problem description inadequate.	10
2.	Recommended solution inadequate.	10
3.	Write up does not match maintenance level requested by the originating WC.	10
4.	1st and 2nd contacts incorrect.	2
5.	CSMP summary incorrect (does not state problem).	2
6.	Configuration item does not match equipment in the narrative.	20
7.	Equipment Operational Code (EOC) does not match description in the narrative.	15
8.	Safety code (if used) incorrect or not described in narrative.	5
9.	Deferral reason code incorrect.	2
10.	Deadline date invalid or missing for TA 2 or TA 3.	2
11.	Priority code incorrect.	2
12.	Ship's Force did not demonstrate knowledge of deficiency or current status.	
	a. Not familiar with JCN and current repair status.	2
	b. Could not identify what "Maintenance Level" was originally requested by WC.	2
	c. Did not know who conducts the IUC and TYCOM screening and what the codes represent.	2
	d. Did not know where the availability code is listed on the CSMP report and what it represents.	2
	e. Did not have the ship's availability listing to use as a reference tool.	2
	f. MJB516 CSMP report printed incorrectly, missing information or did not have RPPO Log. (MJB512 Report or parts status included on MJB516)	2
	g. Was not aware of any IUC or TYCOM remarks on CSMP report.	2

h.	Was not aware that a lead or assist WC had been assigned.	2
i.	Was not proactive in seeking repair (an extended period on the CSMP with no action taken).	2
j.	No parts on order for Ship's Force JSN within a reasonable amount of time. (1 week)	2

Notes: (1) TYCOM Off-Site Evaluation: Items 1 – 11 apply to each JCN evaluated.

(2) TYCOM On-Site Evaluation: Items 1 – 12 apply to each JCN evaluated.

Ships Force - Name and Rank

Work Centers: _____ _____ _____ _____ _____ _____

This is a targeted review of shipboard CSMP entries - 10 percent of every WC's CSMP (minimum of 2, maximum of 15 JCNs) and accomplished ashore prior to a visit by TYCOM MDS specialists. Targeted JCNs consist of TA 1, 2 and 3, Safety and EOCs of 2, and TA 4s. As per the items listed on the CVF form, the TYCOM inspection team shall check for accuracy to include problem description, recommended solution blocks, does the maintenance level requested match the write up, EOC and Safety codes match write up, etc. Finally, for each JCN selected, the ship is required to demonstrate knowledge of the deficiency and status. This is accomplished by asking a series of questions to all WCS and DIVO as listed on the CVF form. The answers to these questions (presented as an open book practical exam) are listed on the CSMP, MJB516 report, Repair Parts Petty Officer (RPPO) log or ships availability listing.

CSMP Validity Factor (CVF). CVF is the overall qualitative measure of the accuracy and completeness of ship's material deficiencies and deferred corrective maintenance as represented by the complete CSMP. CVF is defined by the following formula:

$$CVF = \frac{Total\ Number\ of\ Valid\ Entries}{Total\ Number\ of\ Entries\ Sampled}$$

All jobs in Ship's Force Work List (SFWL) Programs, which are over 30 days old, will be entered into OMMS-NG or P-OMMS. SFWL programs include Equipment Deficiency Log (EDL), Material Condition Assessment Process (MCAP) and TSIMS/MODES. All SFWL jobs over 30 days old not entered in either OMMS-NG or P-OMMS will be counted as invalid work candidates during the 3-M inspection. An exception to the 30-day requirement will be made for MCAP and EDL deficiencies identified from the Pre-Availability Materiel Condition Assessment Inspection prior to a PIA or DPIA and through the end of the PIA or DPIA, which do not require the ordering of repair parts or the writing of a control work package. Thirty days after the PIA or DPIA, all open MCAP and EDL deficiencies over 30 days old and not documented in either OMMS-NG or P-OMMS will be counted as invalid. All SFWL items identified and entered because of the Duty FM or Safety Department evaluation are excluded from the 30-day policy and will be maintained in the SFWL program as open until completed. After 30 days these deficiencies still require entry into the CSMP.

CSMP Validity Factor (CVF) grade sheets are subject to change as new versions of automated maintenance management systems are implemented on-line.

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APPENDIX B

SECTION IV-B

SELF-REPAIR EFFICIENCY (SRE) REVIEW

	ADMINISTRATIVE SECTION GUIDELINE FOR PROGRAM EVALUATION:		
	Trouble Call Program (TCP) 30%		
		Points Available	**Points Awarded**
1.	Total Number of trouble calls submitted from last evaluation _____ Total Number of trouble calls completed from last evaluation _____	**20**	
	NOTE: TCP – THE CONVERSION OF DELINQUENT TROUBLE CALL DISCREPANCIES MUST NOT EXCEED 5 PERCENT OF THE TOTAL OPEN TROUBLE CALL DISCREPANCIES EVALUATED DURING THE INSPECTION PERIOD PER 4790.1 INST, GUIDELINES.		
2.	Are any trouble calls older than 7 days?	**20**	
3.	Are repair technicians creating a work candidate at least monthly to account for trouble call hours? (Repair officer maintains 6 months)	**20**	
4.	Are repair technicians reviewing open and completed trouble calls in MODES daily?	**20**	
5.	Are EDOs conducting daily audits?	**10**	
6.	TC MODES database has adequate information describing the deficiency or problem of the equipment. Fields display the correct type of information required.	**10**	
	TCP	■■■■■	
	Ship Self Repair Periods (SSRP) 50%		
1.	Are JCNs completed at ship level approval with lead and assist hours taken?	**15**	
2.	Are JCNs in the repair organizations queue, reviewed within 7 days of SHIP level approval?	**15**	
3.	Are WC codes (SHOP) listed on the planning list, correct?	**15**	
4.	Are completed work candidates signed and kept by repair organization for one quarter?	**5**	
5.	Is there a long-range master repair schedule developed?	**5**	
6.	Are repair period EXCEL spreadsheets kept by the repair officer for one quarter?	**5**	
7.	Is the repair officer conducting arrival conferences two (2) weeks prior to the start of a department's availability period that includes training on proper documentation of material deficiencies and assigning priority to the work request?	**20**	
8.	Is the repair officer conducting daily production meetings with departments in avail to include discussions of scheduling of work, parts status, completion, and acceptance of work?	**20**	
	SSRP	■■■■■	
	NOTES:		
	Practical (PRAT) 20%		

	1	2	3	4	5	6	7	8	9	10		

ADCA or **Fire Marshall**												100	
A-Tech												100	
E-Tech												100	
R-Tech												100	
Deck Bos'n or **Tech**												100	
EA Repair Work Center												100	
EE Repair Work Center												100	
ER Repair Work Center												100	

PRAT ▮▮▮▮	
1. Create list of assigned JCNs using the Maintenance Assignment filter.	**10**
2. Process JCNs utilizing the Maintenance Assignment drop down list.	**10**
3. Add, update and complete lead and assist WC data.	**10**
4. Reject JCNs with rejection remarks.	**10**
5. Generate and print single and multiple AWRs	**10**
6. Create planning list based on repair WC assigned.	**10**
7. Export a planning or work candidate list.	**10**
8. Utilize Variations Tab to add planning information when creating list.	**10**
9. Identify ship level approved, completed JCN's with no task total MN-HRS documented.	**10**
10. Utilize Parts Tab to review part status.	**10**
SRE Total = (TCP x .3) + (SSRP x .5) + (PRAT Avg. x .2) SRE = _____	

ADMINISTRATIVE SECTION GUIDELINE FOR PROGRAM EVALUATION:

EFFECTIVE: PROGRAM IS WORKING CORRECTLY WITH FEW MINOR DEFICIENCIES AND IS ADMINISTERED BY PERSONNEL COMPLETELY FAMILIAR WITH THEIR RESPONSIBILITIES.
(GRADE > 90%)

PARTIALLY EFFECTIVE: PROGRAM HAS A FEW SIGNIFICANT DEFICIENCIES BUT IS MEETING THE BASIC GOAL OF THE PROGRAM.
(GRADE 85 – 89.99%)

NOT EFFECTIVE: PROGRAM HAS NOT BEEN PROPERLY IMPLEMENTED; A PROGRAM THAT HAS THE APPROPRIATE DIRECTIVES PUBLISHED WITH SHIPBOARD INFRASTRUCTURE IN PLACE, BUT NOT CORRECTLY EXECUTED, OR A PROGRAM WITH SIGNIFICANT DEFICIENCIES.
(GRADE < 85%)

Ships Information Management System. Within this program is a module called MODES. MODES is a program on the ships LAN that provides command wide visibility and tracks all shipboard trouble calls through a central watch. This watch prescreens all trouble calls, and if determined to be valid, is entered into MODES and farmed out to a repair WC for disposition. If trouble calls cannot be rectified within 30 days, they must be entered on the CSMP. TSIMS tracks material deficiencies by displaying past repairs that would not normally be entered in the CSMP (SFWL). Man-hours are captured by entering a man-hour roll up at the end of the month, utilizing special XSYSTEMITM APLs created by CNAL and CNAP. This input to the CSMP is captured and graded using an SRE grading form.

APPENDIX B

SECTION IV-C

REPORTING AND ASI PROCESSING CONFIDENCE FACTOR (RAF) REVIEW

	OMMS-NG OR P-OMMS SYSTEM MAINTENANCE REVIEW	Points Available	Points Awarded
1.	Is the Import Correction queue empty?	5	
2.	Has Archive been run in the last 15 days?	5	
3.	Has Inactive been run in the last 15 days?	5	
4.	Have work candidates been removed from past availabilities C+30 days?	5	
5.	Is the REJ availability used to track jobs rejected or questioned by the TYCOM TRIAD empty?	5	
6.	Have old availabilities been removed from OMMS-NG or P-OMMS?	5	
7.	Is a current, up to date, Ship Availability Listing readily available to the ship?	5	
8.	Does FAS have a tracking system for up-line reporting? Is last 13 weeks of .uru and .pts on file?	5	
9.	Does FAS have a tracking system for bulk loaded MM0001 files? Is last 13 weeks of bulk loads on file?	5	
10.	Does FAS have a tracking system for customer feedback files? Is last 13 weeks of feedbacks on file?	5	
11.	Does FAS maintain a log tracking significant OMMS-NG or P-OMMS down time?	5	
12.	Are current OMMS DAPs installed, and does the FAS know under what conditions they are utilized?	5	
13.	Is the Reports Release queue being managed and cleared of obsolete reports? (Any reports over 14 days)	5	
14.	Are values in the Site Parameter set per TYCOM directives?	5	
15.	Is the Maintenance Assignment dropdown list populated per TYCOM directives?	5	
16.	Is the Work Candidate Status dropdown list populated per TYCOM directives?	5	
17.	Are WCs per the Standard Work Center Codes identified at https://www.navsea.navy.mil/Home/SUBMEPP/Products/JFMM/TYCOM/	5	
18.	Is there an effective process in place that deletes users as they transfer from the command?	5	
19.	Does the Review and Approval queue have work candidates older than seven days below Ship Level Approval?	5	
20.	Does the FAS have the current TYCOM directives and are they readily available to the ship? (i.e., Current CNAL User Guide, CNAP OMMS-NG User Guide, Ship's Force Resource Manual for Aircraft Carrier Availability Planning, TSIMS/MODES User Guide, CNAF 3M Gazette Newsletter (4 Quarters)).	5	
	Total Points Available	**100**	
	Total Points Awarded		

Inspector Notes:

Reporting and Automated Shore Interface (ASI) Processing Confidence Factor (RAF). RAF is the ability of ship's maintenance and logistics personnel to make sure up-line reporting and ASI processing are done correctly and promptly, and system management of OMMS-NG is within CNAL/CNAP parameters.   RAF is defined by the following formula:

$$RAF = \frac{\text{Total Number of Points Awarded}}{\text{Total Possible Points}}$$

Determining RAF: RAF will be evaluated following the guidelines of appendix A (Engineering/Reactor Reporting ASI Processing Confidence Factor (RAF)). P-OMMS will be evaluated using a separate RAF sheet on those ships configured with P-OMMS. Reactor department will receive the P-OMMS RAF grade.

APPENDIX B

SECTION IV-D

ZONE INSPECTION ASSESSMENT

OVERALL PROGRAM EVALUATION: Each attribute valued at four points.

GUIDELINE FOR PROGRAM EVALUATION:

ABOVE STANDARDS: Program is working correctly with few minor deficiencies and is administered by personnel completely familiar with their responsibilities (scoring 90 – 100%).

AT STANDARDS: Program has a few significant deficiencies but is meeting the basic goal of the program (scoring 85-89.99%).

BELOW STANDARDS: Program has not been properly implemented; a program that has the appropriate directives published with shipboard infrastructure in place, but not correctly executed, or a program with numerous significant deficiencies (scoring < 85%).

NOTES:

1. The CNAF 3-M Team senior inspector can determine BELOW STANDARD based on a single major repair level-one safety discrepancy noted during assessment.

2. The conversion of delinquent zone inspection discrepancies to work candidates will not exceed 5% of the total open zone inspection discrepancies evaluated during the inspection period per 4790.1 guidelines.

3. CNAF 3-M Team will randomly select zone inspectors for observation during the zone inspection. Eighty percent (80%) of the selected inspectors and spaces should meet the criteria required to receive a satisfactory in line items 9, 13, 14, 15, 20 and 21.

#	ATTRIBUTE	SAT	UNSAT
1.	Are all spaces of the ship inspected at least once a quarter?		
2.	Does the CO participate in zone inspections as an inspector?		
3.	Are the ZIDLs in TSIMS/MODES database correctly prioritized?		
4.	Are ship's officers and CPOs trained in the conduct of zone inspections?		
5.	Does the XO participate in zone inspections as an inspector?		
6.	Does the XO maintain an auditable record for the last 12 months indicating that all spaces have been inspected at least once a quarter?		
7.	Does the 3MO designate zones, zone boundaries, number of zones and the spaces assigned to each zone?		
8.	Does the 3MO furnish inspecting party with inspection binders containing blank ZIDLs appendix C section I, zone inspection material guide appendix C section II, and a copy of the last inspection ZIDLs?		
9.	Are all compartments, gear lockers, drawers, stowage lockers & other enclosures unlocked?		
10.	Do XO, DCA, safety officer, electrical officer (ELO) or designated representative (E-7 or above) provide specific direction on points of interest or other inspection criteria prior to commencement of zone inspection?		
11.	ZIDLs in MODES database have adequate information describing the deficiency or problem of the equipment (s).		
12.	Do DHs, DIVOs or LCPOs ensure all repair level one safety discrepancies are resolved immediately and reported to XO within 24hrs?		
13.	Do inspectors document all discrepancies on ZIDL?		
14.	Do inspectors show up on time with flashlight and conduct inspection properly?		
15.	Do inspectors understand inspection criteria?		
16.	Does the 3-M Office collect, review, and maintain completed ZIDLs and enter them into MODES module located in TSIMS program?		
17.	Does the 3-M Office and D3MAs correctly document discrepancies into MODES?		
18.	Are open ZIDLs in MODES older than 30 days for originating WC deficiencies or older than 7 days for discrepancies beyond the division's capabilities?		
19.	Does the 3-M Office and 3MAs take hours on closed ZIDLs in MODES?		
20.	Does each division have a ZIDL folder or binder containing ZIDLs from the last year's inspections and blank ZIDL forms for each space assigned?		
21.	Does each division have a CSMP that reflects current condition and discrepancies for each space assigned?		
22.	Does the 3MO forward the MODES and the Zone Inspection Discrepancy Report to the XO, DHs, PAs DCA, ELO, Safety Officer, DEPT LCPOs, DIVOs and LCPOs for review?		
23.	Does the XO, DHs, DCA, ELO and Safety Officer review MODES and the Zone Inspection Discrepancy Report for action routed by the 3-M Officer?		
24.	When corrections are complete, does the department ensure the MODES database is routinely updated to reflect the status of corrective action via the 3-M Office?		
25.	Does the ship maintain a copy of the Ship's Force assessment for one year and the last three (3) CNAF assessments?		

FINAL GRADE

Printed Name: _____ Signature: _____

Command: _____ Date:_____

Zone Inspection Program Evaluation determines the ship's ability to conduct thorough space inspections, and document and fix deficiencies. ZIPE is defined by the following formula:

$$ZIPE = \frac{\text{Total Number of Satisfactory Questions X 4 Points}}{\text{Total Number of Points Available (100)}}$$

Determining ZIPE: ZIPE program is evaluated as per Zone Inspection Program Check Sheet. Final grade is applied across all departments.

APPENDIX B

SECTION V

OMMS-NG PRACTICAL (MCF)

SHIP:		DEPARTMENT:		
WORK CENTER:		**LEVEL of ACCESS:**		
If the results of line item 1 or 2 = NO, Automatic Failure ZERO points awarded.				
1. 3-M PQS Qualified.			YES	NO
2. Can user log into OMMS-NG or P-OMMS application using own login?			YES	NO
			Points	Awarded
3. Display a list of configuration items (equipment).			10	
4. Display a list of work candidates.			10	
5. Demonstrate adding a work candidate.			10	
6. Demonstrate changing or updating a work candidate.			10	
7. Demonstrate closing a work candidate.			10	
8. Review work candidate history.			10	
9. Order and approve maintenance parts.			10	
10. Generate and print CSMP reports.(MJB516 or MJB512)			10	
11. Review and approval of work candidates - able to distinguish the following:				
a. Configuration item - is JCN written against correct configuration item? Does it match the write up?			2	
b. Problem description and recommended solution - Remarks sufficient?			2	
c. Maintenance level - Does it match what was requested by OWC in the write up?			2	
d. Deferral reason code - Appropriate (justified in the write up)?			2	
e. 1st and 2nd contacts - Correct?			2	
f. EOC - Appropriate and accurate?			2	
g. CSMP summary – Does the summary state a problem?			2	
h. Deadline date - Invalid or missing for TA 2 and 3, invalid for TA 1 or 4 if assigned?			2	
i. Safety Code - Appropriate (justified in the write up)?			2	
j. Priority Code - Appropriate (justified in the write up)?			2	
		Totals	100	
			Percentage	

Ship's Force Name and Rate:

Inspector's Name: _____   Date:_____

MDS Confidence Factor (MCF). The cornerstone of the program is the ability of ship's maintenance personnel to initiate complete and accurate MDS documents. MCF will be determined based on a practical test of a user's skill in basic OMMS-NG or P-OMMS system navigation. MCF is defined by the following formula:

$$MCF = \frac{\text{Total Number of Satisfactory Practical Exams}}{\text{Total Number of Practical Exams}}$$

Determining MCF: An MDS practical will be conducted for each work center. The work center test sample will include maintenance personnel, RPPOs, WCSs, LCPOs, DIVOs, DHs, and MSC personnel. Those personnel tested who have access levels above WCS will have their grade applied to all WCs under their cognizance.

APPENDIX B

SECTION VI

3-M INSPECTION COMMAND TOTAL SCORE

1. The FINAL GRADE consists of two parts. (PPR x .50) + (MPR x .50). A minimum grade point of 85 is required for a passing score. In addition, a CVN **WILL FAIL** if any of the following are true:

   a. Two or more "major departments" (Combat, Air, Reactor, Engineering) fail.

   b. The overall RAR, SCAR or MPR score is under 85.

   c. The overall Damage Control (DCPO type checks in "40" Work Centers) SCAR is under 85.

2. PPR (PMS Performance Rate). PPR = (MAR x SCAR) divided by 100. This is the overall MAR (combination of PAR and SAR) multiplied by total SCAR (spot check validation) divided by 100 and expressed as a RATE. In other words, if a ship is properly scheduling only 90% of the checks assigned from NAVSEA, and then properly accomplishing those checks at a grade of 90%. Then PPR would be 90 x 90= 8100 divided by 100= 81 PMS Performance RATE. The PMS side counts as HALF of the overall grade.

3. MPR (MDS Performance Rate). The MDS portion gets an overall 50% weight of the overall 3-M Inspection grade. This comes from the weight fleet commanders (CNAL or CNAP) place on CSMP accuracy and validity. This leads to proper planning and budgeting for complex refueling overhauls, extensive yard periods, and getting CVNs out on time and at the lowest cost. The 5 sections detailed in section IV are weighted as:

   MPR = (MCF x .20) + (ZIDL x .25) + (CVF x .30) + (SRE x .20) + (RAF x .05).

4. OVERALL GRADE is computed as

   CTS Formula: CTS = Average of DTS

   DTS = Average of Work Center Score
   Work Center Score = (PPR X .50) + (MPR X .50)
   PPR = MAR X SCAR ÷ 100

APPENDIX C

**ZONE INSPECTION DEFICIENCY LIST, ZONE INSPECTION
MATERIAL GUIDE AND FLOW CHARTS**

APPENDIX C

SECTION I

ZONE INSPECTION DEFICIENCY LIST (ZIDL) FORM

LOCATION: **Page: of**

ZONE: **DATE:**

WORK CENTER   **INSPECTOR**   **PRESENTER**   **RECORDER**

OVERALL GRADE: Outstanding   Excellent   Satisfactory   Unsatisfactory

An UNSAT grade requires inspection with the DH and DEPT LCPO present. Reinspection will be conducted on a new ZIDL form.

Category Codes: S=Safety, D=Damage Control, M=Material, H=Habitability, P=Preservation, C=Cleanliness
Priority Codes: 1=Repair Immediately/Critical,   2=Some Repair/Attention Required/Urgent,
                              3=Routine Repair

Item	Cat	Pri	Deficiency	JCN or TRBL CALL # & DATE	DIVO INIT

_____   _____

DEPT LCPO Signature and Date   DEPT Head Signature and Date

ZIDL Flow Chart

**3-M Office
Provide ZIDLs**

↓

3MA picks up ZIDLs
from 3-M Office.

↓

3MA inputs ZIDL
information into
the MODES.

↓

3MA delivers
folders to respective
Division Officers
(i.e. A-E, DC, R, etc).

↓

Division Officer
receives ZIDL
folder for review.

↓

Division Officer
reviews and forwards
ZIDL folder to LCPO/LPO
for work completion,
assigning JSN, etc.

↓

LCPO/LPO returns
ZIDL folder to Division
Officer for corrective
action review and initials.

→

Division Officer
forwards ZIDL folder
to PA for review.

↓

PA reviews and forwards
to Departmental LCPO for
review and signature.

↓

Departmental LCPO
reviews and forwards to
Department Head for
review and signature.

↓

Department Head
reviews, signs and
forwards to the
DEPT ADMIN.

↓

DEPT ADMIN personnel
notify 3-M Office and
3MA ZIDL folder is ready
for pick-up.

↓

3MA makes a copy
of ZIDL folder with
signatures and provides
to Division Officers
for filing.

→

3MA turns ZIDL
folder with signatures in
to 3-M Office for filing.

↓

3-M Office
files ZIDLs.

APPENDIX C

SECTION II

ZONE INSPECTION MATERIAL GUIDE

This is provided as a general guideline for inspections and is not all-inclusive. It is not intended and cannot replace experience, expertise, and good common sense.

Material Checklist		Grade		
1. Bull's-Eye Visible and Correct		**SAT**	**UNSAT**	**N/A**
a.	Compartment number matches CCOL.			
b.	Forward frame number (1st line) matches frame number (2nd line).(Some passageways may be an exception.)			
c.	Accurate dimensions (12" high X 15" wide).			
d.	Photo luminescent paint (with exception of spaces open to topside).			
e.	Frame numbering accurate and visible at each access.			
2. Egress Markings		**SAT**	**UNSAT**	**N/A**
a.	Photo luminescent escape.			
b.	No obstruction.			
3. NTD Doors		**SAT**	**UNSAT**	**N/A**
a.	Compartment information and number on both sides of door.			
b.	Listed on CCOL.			
4. DC Equipment		**SAT**	**UNSAT**	**N/A**
a.	CCOL(s) are computer generated, current and inside a CCOL holder (single, duplicate, and partial).			
b.	CCOL posted and visible at each entrance.			
c.	Compartment number on Bull's-Eye and CCOL match.			
d.	CCOL is stamped duplicate or partial (as applicable).			
e.	Partial CCOL item numbers match CCOL.			
f.	All DC fittings in space listed per NSTM 079 Vol II.			
g.	Valve hand wheels color coded, properly labeled, DC classified with frame number and listed on CCOL per NSTM 505 and 079 Vol II.			

			SAT	UNSAT	N/A
h.	Valves properly lubricated and remote operators connected and operable.				
i.	Deck drains open and close properly, T-wrench available as required, labeled and DC classified, posted on CCOL, all screws must be installed and properly maintained.				
5. Lighting			**SAT**	**UNSAT**	**N/A**
a.	Lighting fixtures are properly mounted, and all fasteners are installed.				
b.	Lighting covers are not cracked, covered with paint and all fasteners installed.				
c.	No frayed wiring.				
d.	Darken ship switches work properly.				
e.	No deteriorated gaskets.				
f.	All red and white lights work.				
g.	Check for light leaks throughout space (turn lights off to inspect).				
6. Additional Items			**SAT**	**UNSAT**	**N/A**
a	Lagging intact, painted.				
b.	Air test fitting caps secured.				
c.	Fire main jumper hoses hydrostatically tested per MRC.				
d.	Sounding tube fittings, classification, and numbering.				
e.	First aid, decontamination and traffic markings are clearly visible.				
f.	Porthole, hatch, dogging wrench, T-wrenches, and ventilation weather closure open or closed, end wrenches on station (as applicable).				
g.	Damage control shoring, present and in good condition.				
h.	Medical stretchers properly stowed (if applicable).				
i.	Posted safety precautions, warning signs, and operating instructions.				
j.	Posted First Aid instructions (4 step).				
k.	Safety nets installed, properly tagged, no tears or worn straps and all hooks or eyes in place.				
l.	First aid boxes are properly marked, tamper-proof seal intact.				
m.	Inspect for unauthorized flammable materials.				
n.	Frame numbering at least once in a compartment < 24 ft in length and every 24 ft in compartments > 24 ft in length.				
o.	Installed and portable eye-wash stations operational, PMS current, alarms operational.				

			SAT	UNSAT	N/A
p.		Verify any Danger and Caution tags are filled out properly per TUMS and JFMM.			
7. Battle Lanterns			**SAT**	**UNSAT**	**N/A**
	a.	Rubber boot free of cracks and tears.			
	b.	Operates, in good physical condition.			
	c.	Correctly positioned to illuminate vital gage boards and escape routes.			
	d.	Properly mounted (fixed units not able to be removed from bracket).			
	e.	Battery power sufficient, no leaks.			
8. CO₂ Bottle			**SAT**	**UNSAT**	**N/A**
	a.	Record tag attached and correctly filled out.			
	b.	Tamper seal intact and snug.			
	c.	Bracket secured to bulkhead.			
	d.	CO_2 decal in place.			
	e.	Horn and hose assembly free of paint, no deterioration.			
	f.	No electrical tape on metal fitting at valve.			
9. PKP Bottle			**SAT**	**UNSAT**	**N/A**
	a.	Record tag per MRC.			
	b.	Tamper seal intact and snug.			
	c.	Hinged securing strap with lanyard and pin are attached to mount.			
	d.	Bracket secured to bulkhead.			
	e.	PKP decal in place.			
10. Fire Station			**SAT**	**UNSAT**	**N/A**
	a.	Hose neatly stowed 6" off deck, on camel.			
	b.	No verdigris on interior or exterior of nozzles, strainers, hose couplings and Y- gates.			
	c.	Current hydrostatic date stenciled on hose per MRC.			
	d	Fire plug (FPL) bull's-eye correct, red and white characters only (8-1/2"H X 18"W) and lists FPL and all COVs for FPL.			
	e	Navy Vari-Nozzle on hose and in bracket.			
	f	Y-gate connection to hose is secured and connection without hose is open.			
	g	Necessary equipment to operate FPL must be on station per MRC.			

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11. Bulkheads and Decks		SAT	UNSAT	N/A
a.	General cleanliness and no rust.			
b.	Paint condition (no runs, good condition).			
c.	No holes or missing rivets.			
d.	Angle irons clean.			
e.	No unused brackets.			
f.	Penetrations sealed properly (turn lights off to inspect).			
g.	Proper insulation and lagging for hot or cold (as applicable).			
h.	Tanks and voids properly DC classified, marked, closed, and safety precautions posted (as applicable); listed on CCOL.			
i.	Deck covering material intact and maintained.			
j.	Pad-eyes weight test data plate installed and within periodicity.			
12. Berthing		SAT	UNSAT	N/A
a	All lockers and bunk drawers locked.			
b	TV(s) operational.			
c	Watch, Quarter and Station Bill posted.			
d	Racks made.			
e	Rack curtains installed, clean and in good condition.			
f	Bedding and linen clean.			
g	Rack lights in working order (no unauthorized modifications).			
h	No personal gear adrift.			
i	Ironing board and legal iron present.			
j	Tables and chairs in good condition.			
k	General cleanliness.			
l	Space secured for sea.			
13. Archways and Ladders		SAT	UNSAT	N/A
a.	Three nonskid strips (no gaps) on the deck of both sides of archways and on the deck above and below each ladder.			
b.	Hand-rails and chains in good condition.			
c.	Photo luminescent paint along frame of ladder per NSTM.			
d.	Ladder treads not worn.			

		SAT	UNSAT	N/A
e.	Handrail and ladder pins intact.			
14. Machinery Spaces		**SAT**	**UNSAT**	**N/A**
a.	Valve hand wheels attached, labeled, painted appropriate color, and not leaking.			
b.	Valves, piping vents properly marked.			
c.	Flange shields properly installed.			
d.	Noise hazard warning signs posted.			
e.	Deck grating, hand-rails clean, in place and secured.			
f.	Deck free of grease.			
g.	No equipment lubricants leaking.			
h.	Lagging intact and painted.			
i.	Flexible hoses have correct hydrostatic test data tag, in periodicity, and correctly filled out.			
j.	All panel indicator lights working.			
k.	No excess HAZMAT.			
l.	Fixed firefighting equipment properly maintained for type of space.			
m.	Bilges dry.			
15. Overheads, Piping and Ventilation		**SAT**	**UNSAT**	**N/A**
a.	Pipes stenciled with functional name of system, have appropriate color and flow arrow every 15' but at least once in space per NSTM (arrows will be no less than 4" in length, pipes with outer diameter greater than 2" will be stenciled with 1" characters, pipes smaller will be stenciled but will not use 3/8" characters or smaller. Pipes too small will have label plates or tags indicating system).			
b.	Cableways clean.			
c.	All penetrations sealed.			
d.	General cleanliness, no rust.			
e.	Vent ducting properly lagged (cold or hot), properly stenciled with functional name of system and flow arrow every 15' but at least once in space per NSTM.			
f.	Ventilation filters and screens clean and all fasteners installed.			
g.	Pad-eyes and mono-rails weight test data plate installed and within periodicity.			
16. Equipment and Gear		**SAT**	**UNSAT**	**N/A**

		SAT	UNSAT	N/A
a.	No oily, combustible material or excess gear adrift.			
b.	Flammable liquids in proper stowage, labeled "FLAMMABLE/COMBUSTIBLE LIQUIDS", will have inventory posted, only one week's worth, and cans properly sealed.			
c.	Space secure for sea.			
d.	Equipment foundations and supports properly preserved.			
e.	Gage calibration within periodicity.			
f.	Gage pointers properly set (red).			
g.	LP air station oil lubricator filled.			
17. Electrical Safety		**SAT**	**UNSAT**	**N/A**
a.	Extension cords, appliance and tools safety checked.			
b.	High voltage warnings posted (as applicable).			
c.	Casualty power terminals posted and T-wrenches available.			
d.	Emergency casualty power cables properly identified with number of cables, lengths and stowed.			
e.	No frayed or exposed dead ended electrical cables.			
f.	Electrical outlets labeled and intact.			
g.	Sound powered phone receptacles covered, labeled, intact and wire lanyard installed to cover.			
h.	Stuffing tube packed.			
i.	One wire per stuffing tube, cables penetrate via stuffing tubes only.			
j.	Power and lighting distribution panels labeled and intact.			
k.	No unauthorized electrical or electronic equipment (refrigerators, coffee pots, fans, air conditioners, microwave, water cooler, etc. without proper authorization forms).			
m.	Power panel megger holes plugged.			
n.	Circuit breaker boxes have no voids.			
o.	Vent controllers DC classified and listed on CCOL.			
p.	Electrical panels, controllers, boxes cover bolts in place.			
18. EEBDs		**SAT**	**UNSAT**	**N/A**
a.	Sufficient number in space. 100% in work-spaces and berthing. 150% in main spaces.			
b.	Inspection port shows BLUE.			

			SAT	UNSAT	N/A
c.	One per rack in berthing areas.				
19. Office and Work Shops			**SAT**	**UNSAT**	**N/A**
a.	Chairs in good condition, arms and backs intact.				
b.	Cabinets open properly, door handles intact.				
c.	Shelving installed properly, holding bar in place.				
d.	Desk installed or mounted, drawers operate properly and in good condition.				
e.	All lockers open and accessible.				
f.	Space secured for sea with no horizontal or vertical movement.				
g.	Rubber matting or dielectric sheet associated electrical gear and or testing equipment.				
h.	Electrical or electronic equipment safety checked.				
i.	HAZMAT stowed in proper locker.				
20. Heads			**SAT**	**UNSAT**	**N/A**
a.	All plumbing operable and pipes have no cracks or leaks.				
b.	No odors.				
c.	General cleanliness.				
d.	Toilets must be clean, free of buildup and toilet paper available.				
e.	Shower curtains and stalls clean and free of mold.				
f.	Hand soap dispenser available and filled.				
g.	Electric hand dryer or paper towel dispenser filled and operational.				
21. Access Closures			**SAT**	**UNSAT**	**N/A**
a.	All dogs on center of strike plates on WTDs or QAWTDs when secured.				
b.	All dogs present and able to be secured on WTHs.				
c.	Hand wheels tight within ¼ turn of WTSs when secured.				
d.	No paint on knife edges or gaskets, dogs, and striker plates.				
e.	No loose dogs when WTH or WTD secured.				
f.	No gap on gasket.				
g.	No paint on moving parts.				
h.	DC classification on both sides of door.				
i.	Photo luminescent paint outlining door leading to egress.				

j.	Photo luminescent exit sign on bottom of door and within 5' of access.				
k.	Label on both sides of hatch or scuttle.				
l.	Door opens and shuts completely.				
m.	Adequate non-skid strips (no gaps) on the deck on both sides of door.				
n.	Listed on CCOL.				

APPENDIX C

SECTION III

LIGHTING TROUBLE CALL FLOW CHART

Lights Out

How many lights are in the space?

Are all lights out?

NO → YES

Are there any darken ship switches in the space?

NO → YES

Were they checked today?

YES → NO

How many lights are in the space and how many are out?

Were bulbs and starters replaced?

NO → YES

Enter E-DIV Trouble call.

Go back and check switch.

Is the entire fixture out? **OR** Is there just one bulb out?

Go back and replace.

Type 4 ORG JSN required to replace ballast.

AIR CONDITIONING (A/C) NOT OPERATING TROUBLE CALL FLOW CHART
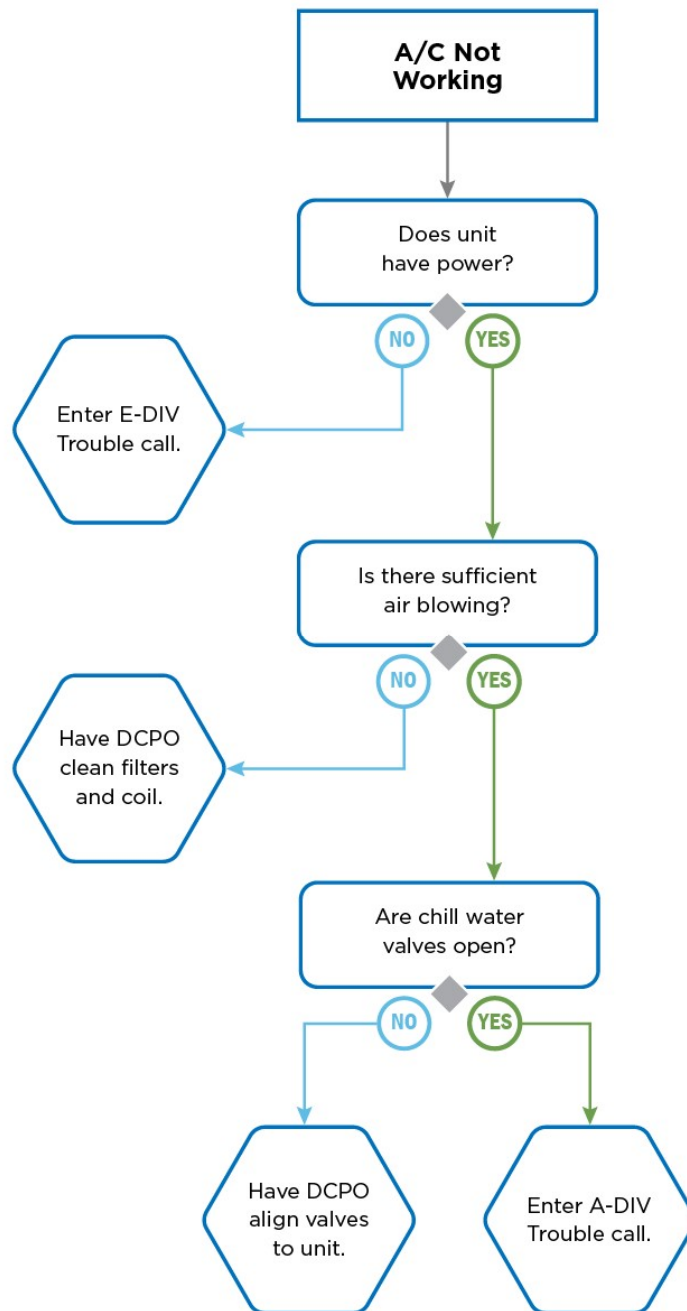
FAN ROOM FLOODING TROUBLE CALL FLOW CHART

Fan Room Flooding

What color is
the water?

GREEN | CLEAR

Enter A-DIV
Trouble call.

Is there a deck drain
in the space?

NO | YES

Have DCPO check
if deck drain is
clean/clear of debris
and/or if deck drain
has a valve and
it is open.

Is drain
pan clogged?

NO | YES

Enter A-DIV
Trouble call.

Have DCPO
clear clog.
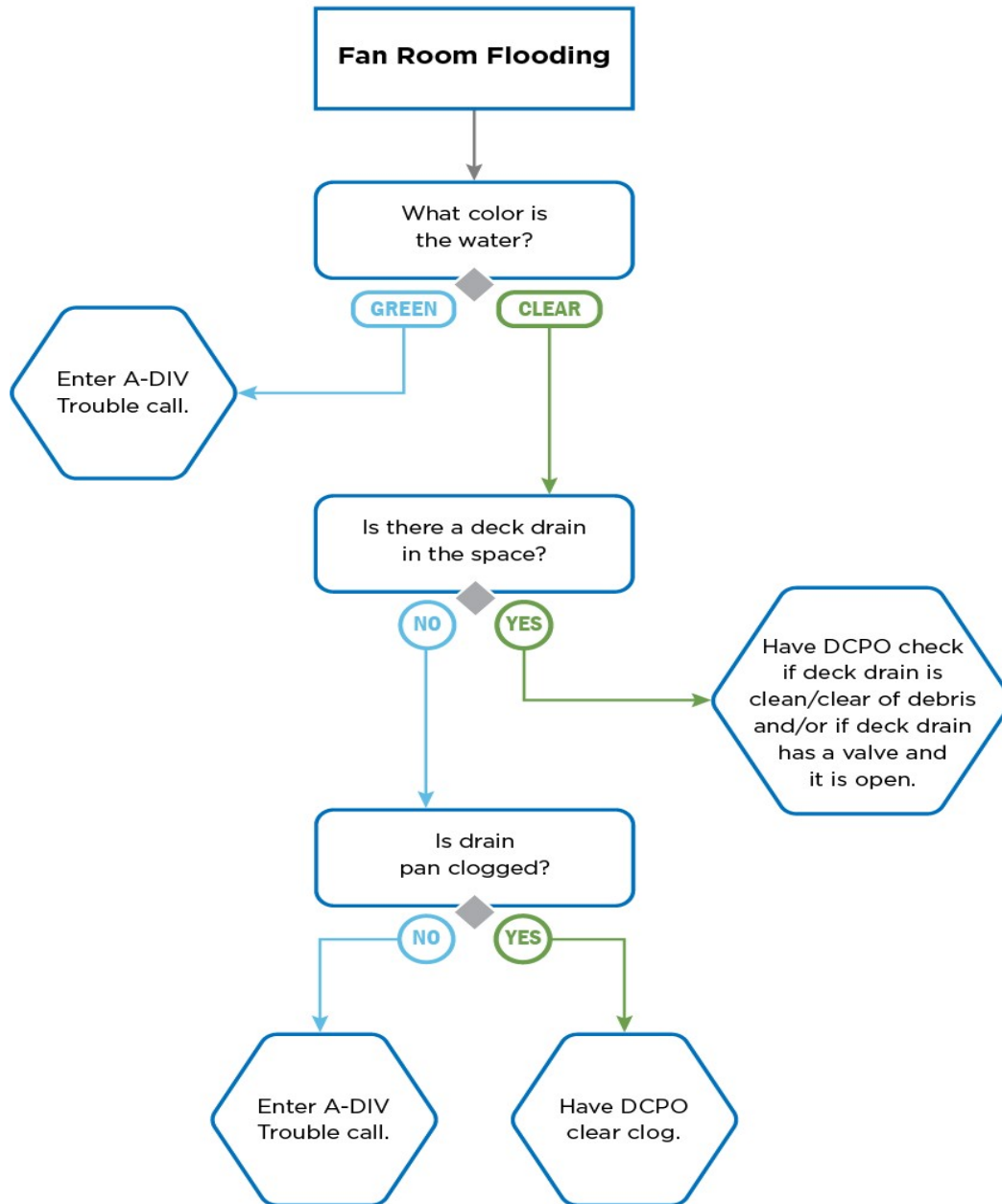
WATER CLOSET (TOILET) CLOG TROUBLE CALL FLOW CHART
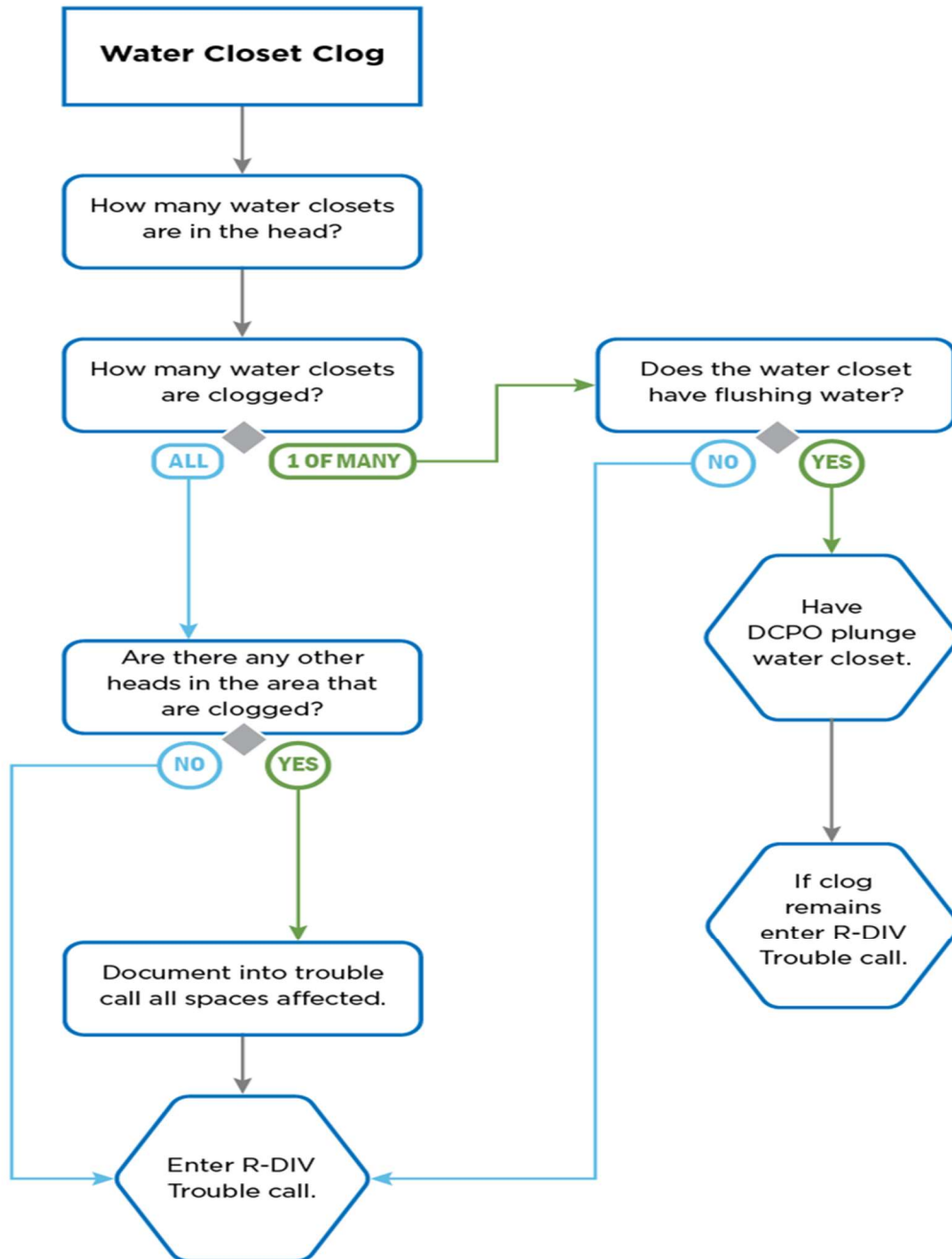
APPENDIX D

SKED 3.2 SETTINGS AND PREFERENCES

SKED 3.2 SYSTEM USER SETTINGS

The following SKED system user settings are detailed in the table below. Commands will configure user roles as listed below.

Permission	Primary Tab	ADMIN	3MC	DH	DIVO	WCS	LCPO	D3MA	CREW
Create FBR	FBR		X	X	X	X	X	X	
Delete FBR	FBR		X	X	X		X		
Delete Feedbacks	FBR		X						
Export Approved Feedbacks	FBR		X						
Set Feedback Preferences	FBR		X						
Sign FBR	FBR		X	X	X	X	X		
Add Equipment to a MJC Task	General		X	X	X	X	X	X	
Add or Modify User Accounts	General	**	X						
Create User Report	General		X	X	X	X	X	X	
Create, Delete, Modify Local Report	General		X	X	X				
Disable User Accounts	General		X						
Import and Export Equipment	General		X						
Load Navy PMS Compact Disc (CD)	General		X						
Modify the CoC	General		X				X		
Print MIP and MRC Documents	General		X	X	X	X	X	X	X

APPENDIX D

SKED 3.2 SYSTEM USER SETTINGS

Permission	Primary Tab	ADMIN	3MC	DH	DIVO	WCS	LCPO	D3MA	CREW
Record Spot Check Results	General		X	X	X	X	X	X	
Schedule Spot Checks	General		X				X	X	
Schedule Training Assignments	General		X	X	X		X		
Set Global Preferences	General		X						
Set UIC Preferences	General		X						
Trigger MJC Work Candidate	General		X	X	X	X	X	X	
Update Global Events	General		X						
Admin Tab Visible	General		X	X	X	X	X	X	
Acknowledge Weekly Closeout	Work Center		X	X	X		X	X	
Add Work Center Journal Entry	Work Center		X	X	X	X	X	X	
Approve MRC Lineout Customizations	Work Center		X	X	X		X		
Assign Check and MRC Crew Assignments	Work Center		X	X	X	X	X	X	
Create Work Center	Work Center		X						
Delete Work Center	Work Center		X						
Edit Check Note	Work Center		X	X	X	X	X	X	
Enable and Disable IEM	Work Center		X	X	X	X	X	X	

APPENDIX D

SKED 3.2 SYSTEM USER SETTINGS

Permission	Primary Tab	ADMIN	3MC	DH	DIVO	WCS	LCPO	D3MA	CREW
Open 2K (Work Candidate)	Work Center		X	X	X	X	X	X	
Perform MRC Lineout Customizations	Work Center		X	X	X	X	X	X	
Perform Work Center Revisions	Work Center		X				X		
PMS Alert Confirmation	Work Center		X	X	X		X	X	
Print PMS Deck	Work Center		X	X	X	X	X	X	
Reschedule Checks	Work Center		X	X	X	X	X	X	
Update Check Status	Work Center		X	X	X	X	X	X	X
Update Local Events	Work Center		X	X	X	X	X	X	
Update Situational Measurements	Work Center		X	X	X	X	X	X	
Update Work Center Crew List	Work Center		X	X	X	X	X	X	
Weekly Closeout	Work Center		X	X	X	X	X	X	

SKED 3.2 GLOBAL PREFERENCES

SKED 3.2 Global Preferences will be set as referenced in the tables below:

PMS Art Path	(as per system installation)
OMMS .INI File Path	(as per system installation)
OMMS Mode	OMMS
Download Open work candidate?	No
Submit Completion work candidate?	Yes
Submit Open work candidate?	Yes
Download Stock Check	Yes
OMMS Download Equipment	Yes
OMMS PMS work candidate Discovery Code	9
Training Path Root	(as per system installation)
Distance Support Inbox Path	(as per system installation)
Distance Support Outbox Path	
Archive Path	(as per system installation)
Allow CDM Import	
Document Path	(as per system installation)
FBR Path	(as per system installation)
Update Path	(as per system installation)

SKED 3.2 UIC PREFERENCES

SKED 3.2 UIC Preferences will be set as referenced in the table below:

Default Training Due Date in Days	60
Weekly Closeout Limit (Days)	1
FBR Approval Limit (Days)	4
Lineout Approval Limit (Days)	7
PMS Alert Acknowledge Limit (Days)	7
PAR Admin Pass or Fail Threshold	85
PAR Periodic Pass or Fail Threshold	85
PAR Situational Pass or Fail Threshold	85
Serial Number Index	As per system installation.

APPENDIX E

FORMAT FOR REPORTING 3-M INSPECTIONS

4790
Ser
Date

From: Accomplishing Activity

To: Commanding Officer (Command Name and Hull Number (if applicable.)

Subj: REPORT OF 3-M INSPECTION OF

Ref: (a) NAVSEAINST 4790.8 (series); Ships' Maintenance and Material Management (3-M) Manual

(b) COMUSFLTFORCOMINST 4790.3; Joint Fleet Maintenance Manual, Volume VI, Chapter 19

Encl: (1) (as required)

1. Per references (a) and (b), a 3-M Inspection of (_____) was conducted during the period (Date) to (Date).

2. During this inspection, the following significant deficiencies were discovered:

a. (List)

Specific department and WC deficiencies are provided in enclosure(s) (1) through ( ).

3. The following overall ship or department numerical assessments are assigned:

a. 3-M Total Score   _____

b. 3-M Inspection   _____

(Above, At or Below Standards)

Copy to:
Type Commander (with enclosures)

VOLUME VI

CHAPTER 19-2

NAVY EXPEDITIONARY COMBAT COMMAND

REFERENCES.

(a) NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual
(b) NAVEDTRA 43241 - Personnel Qualification Standard for Ship's Maintenance and Material Management (3-M) System
(c) NAVEDTRA 43523 - Personnel Qualification Standard for Quality Maintenance Program

LISTING OF APPENDICES.

A   3-M Inspection Criteria
B   Format for Reporting 3-M Inspections

19-2.1 ROLES AND RESPONSIBILITIES.

a.   Type Commander. Exercises primary responsibility for the effective operation and support of the Ships' Maintenance and Material Management (3-M) System. Areas of responsibility include but are not limited to the following:

(1)   Ashore Maintenance Data System (MDS).

(a)   R-Supply, Organizational Maintenance Management System – Next Generation (OMMS-NG).

(b)   Validation, Screening and Brokering (VSB).

(2)   Planned Maintenance System (PMS) Scheduling (SKED) software.

(3)   Current Ship's Maintenance Project (CSMP).

(4)   The screening and processing of Feedback Reports (FBR).

(5)   Maintaining an inspection data file per 19-2.4.2.e of this chapter.

(6)   Providing program enhancement requirements to the respective Fleet Commander via N43.

(7)   Ensuring units are manned with Navy Enlisted Classification (NEC) qualified Type Commander (TYCOM) 3-M Coordinators (3MC) via N1.

(8)   Analyzing 3-M Inspection (3MI) and Self-Assessment data, identifying common concerns, conducting root cause analysis, with the development, and implementation of solutions.

(9)   Ensuring TYCOM inspection team members are qualified to inspect assigned areas.

b.   Immediate Superior In Command. The Immediate Superior in Command (ISIC) is responsible for the routine monitoring and evaluation of the 3-M System for all

assigned activities. Areas of responsibility include but are not limited to the following:

    (1)   Designating a 3-M Officer in writing. The 3-M Officer is responsible for the satisfactory administration of 3-M Programs, per reference (a) and this section, for subordinate commands or activities

    (2)   Monitoring and evaluating 3-M Program for all assigned units.

    (3)   Ensuring 3MIs are current.

    (4)   Ensuring subordinate commands conduct rigorous quarterly 3-M Self-Assessments and report results to the 3MC.

    (5)   Monitoring the status of troubled systems and Top Management Attention items using the quarterly 3-M Self-Assessment.

    (6)   Ensuring subordinate commands comply with standard Work Center (WC), division and department structure.

    (7)   Tracking and monitoring 3-M major milestones and training events, overseeing, or providing inspection teams and conducting 3-M Spot Checks during ISIC or staff visits.

c.   Inspection Teams. Areas of responsibility include but are not limited to the following:

    (1)   Scheduling and conducting 3MIs and training events as directed.

    (2)   Reporting of training status and certification recommendations to the TYCOM to include any perceived barriers to effective and timely completion of 3-M events.

    (3)   Ensuring material failures are adequately examined to detect 3-M System inadequacies.

d.   Commanding Officer and Officer In Charge. The Commanding Officer (CO) or Officer in Charge is responsible for establishing an aggressive Self-Assessment Program that validates the administration and execution of maintenance and detects improperly conducted maintenance or falsely reported accomplishments.

e.   Executive Officer. The Executive Officer (XO) is the command's 3-M System Manager responsible to the CO for the overall management of the 3-M Program. The XO will:

    (1)   Chair quarterly 3-M System meetings with Department Heads (DH) and the 3MC.

    (2)   Brief the CO on the status of 3-M.

    (3)   Integrate 3-M System training into the command's training and qualification program.

    (4)   Ensure personnel receive adequate and effective 3-M System training.

    (5)   Ensure the effectiveness of the command's 3-M Self-Assessment Program.

(6)   Act as the final review officer for shifts of maintenance responsibility between departments.

(7)   Establish a command Zone Inspection Program.

f.   Command Master Chief. The Command Master Chief (CMC) will:

(1)   Attend the XO's quarterly 3-M system meetings providing senior enlisted feedback.

(2)   Conduct PMS Spot Checks following the command's policy to ensure required maintenance is being properly performed and documented.

g.   Command 3-M Coordinator. The 3MC will:

(1)   Serve as the key 3-M System assistant to the XO.

(2)   Maintain a file of 3-M System directives, newsletters, notes, and correspondence containing current 3-M Program information and ensure distribution to WC personnel.

(3)   Maintain copies of the current Force Revision (FR) NAVY PMS Digital Video Disk (DVD), List of Effective Pages (LOEP) for every WC, changes issued between FRs in their original format and classified Maintenance Requirement Cards (MRC). Digital copies are allowed unless there have been changes between FRs.

(4)   Advise, monitor, and assist Department Heads (DHs), Division Officers (DIVO), Leading Chief Petty Officers (LCPO) and Work Center Supervisors (WCS) in matters concerning the 3-M System.

(5)   Monitor the Ship's 3-M Personnel Qualification Standard (PQS) Program and maintain an auditable record of personnel qualified in 3-M PQS.

(6)   Maintain a master accountability log of all PMS changes.

(7)   Develop and maintain a split Maintenance Index Page (MIP) Log.

(8)   Administer the configuration management program.

(9)   Supervise the command's 3-M Self-Assessment Program and provide a weekly status to the XO.

(10)   Develop and administer the PMS Spot Check Program.

(11)   Generate a weekly PMS spot check assignment matrix for officers, Chief Petty Officers (CPOs), and designated supervisory personnel.

(12)   Ensure corrective actions are taken on all unsatisfactory PMS Spot Checks and report same to the XO as part of weekly PMS reporting.

(13)   Ensure a complete back-up of the SKED system is made on removable media (i.e., DVD or Compact Disk (CD) following completion of the FR update and retain as part of the PMS Master File.

(14)   Ensure situational requirements are triggered in SKED and completed based on unit events.

(15)   Ensure that Global States and Triggers are properly set at the command level.

(16)   Screen all FBRs, verify content, validity, serialize and forward within seven days of origination.

(17)   Maintain accountability of all submitted FBRs and actions taken until corrected or new PMS documentation is received.

(18)   Ensure the FBR originator and all applicable WCs are apprised of action taken and that changes or corrections are implemented when received.

(19)   Ensure 3-M documents such as Ship's Maintenance Action Form OPNAV 4790/2K, Ship's Configuration Change Forms OPNAV 4790/CK (CKs), etc. that require forwarding to a data processing activity are forwarded within seven days of origination or as operationally feasible.

(20)   Validate 3-M MDS data elements following the 3-M validation specifications.

(21)   Ensure 3-M documents returned for the correction of data are promptly revised and resubmitted.

(22)   Track the reporting of completed maintenance actions related to an alteration or because of a configuration change with timely processing of Automated Shore Interface (ASI) configuration and logistic data.

(23)   Report up-line CSMP maintenance transactions and command's equipment file corrections at least twice a month.

(24)   Ensure current external backups of the command's Configuration Management Database are created on removable media (i.e., DVD or CD).

(25)   Maintain any outstanding paper copies of message work candidates and OPNAV 4790/2L, either paper or electronic.

h.   Maintenance Officer. The command Maintenance Availability Coordinator will be responsible for the coordination of all Fleet Maintenance Activity (FMA) repairs and coordinate closely with the 3MC. The Maintenance Availability Coordinator will also provide a single working level point of contact and coordinate the command's requirements with the requirements of the FMA. These duties include:

(1)   Technical review of work requests submitted for FMA accomplishment.

(a)   Ensure readability and technical correctness.

(b)   Prevent duplication of work requests for ship alterations, and other Master Job Catalog (MJC) originated deferrals.

(c)   Collect supplemental 4790/2L requests for routine work (i.e., lagging, painting, label plates, tiling, etc.) from all WCs and prepare an integrated priority list for each type of routine work to maximize the FMAs effectiveness.

(2)   Ensuring command preparations for an FMA availability are conducted per Volume II, Part I, Chapter 4 of this manual.

(3)   Meeting daily during an availability with the assigned Ship Superintendent to discuss the status of all active jobs.

(4)   Attending all FMA production, night work and management meetings.

(5)   Provide a daily FMA job status to each DH, DIVO and Leading Petty Officer (LPO).

(6)   Establishment of a Planning Board for Maintenance (PB4M).

i.   Department Head. The DH is responsible to the XO for the operation and execution of the 3-M System within the department. Duties and responsibilities assigned to the DH are not to be delegated. The DH will:

(1)   Designate departmental 3-M personnel as applicable.

(2)   Ensure maintenance is prioritized to facilitate accomplishment.

(3)   Review and approve all department PMS schedules and revisions.

(4)   Review maintenance action annotations.

(5)   Acknowledge weekly alerts.

(6)   Implement a Self-Assessment Program within the department to validate properly accomplished and reported maintenance.

(7)   Take corrective action on all "Unsatisfactory" PMS Spot Checks and report to the XO via 3MC as part of weekly PMS reporting.

(8)   Ensure all material deficiencies are documented and promptly reported.

(9)   Review and verify the content and validity of all FBRs, digitally sign FBRs within five days of origination.

(10)   Ensure the Configuration Management Database accurately reflects equipment changes whether the action is performed by command personnel or outside activities.

(11)   Authorize placement of equipment into an Inactive Equipment Maintenance (IEM) status, ensure PMS scheduling is annotated accordingly.

(12)   The review and approval of all department work candidates within four days of creation; ensure completeness, accuracy, and the correct assignment of priority.

(13)   Review all work candidates in the departmental CSMP every 90 days.

(14)   Ensure that no classified data or Navy Nuclear Propulsion Information is reflected on 3-M documents designated for off hull distribution.

(15)   Conduct quarterly meetings with DIVOs, LCPOs and WCS and provide status of departmental 3-M System to the XO.

j.   Department Leading Chief Petty Officer. The department LCPO is responsible for the proper operation of the 3-M System within their department. The department LCPO will:

(1)   Provide 3-M System guidance and training to DIVOs and division LCPOs within their department.

(2)   Participate in quarterly Self-Assessments.

(3)   Review all quarterly Self-Assessments and promptly correct discrepancies found within the department.

(4)   Ensure the proper testing and inspection of work done by outside activities prior to job acceptance.

k.   Division Officer. The DIVO is responsible to the DH for the execution of maintenance within the division. The DIVO will:

(1)   Ensure all PMS scheduling changes have been properly annotated and applied prior to DH review and finalization.

(2)   Review the 13-Week Accountability Log at the beginning of the PMS week and sign at the end of the week if not using electronic accountability in SKED or when SKED is not available.

(3)   Review and verify the content and validity of PMS FBRs within three days of origination.

(4)   Ensure 3-M documents generated within the division are complete, accurate and promptly submitted to the DH.

(5)   Conduct 3-M Self-Assessments as directed by the command's policy.

(6)   Provide weekly updates to the DH concerning the status of the 3-M System within the division.

(7)   Incorporate 3-M System training into the Divisional Training Plan.

(8)   Review divisional work candidates and the CSMP for validity and accuracy.

(9)   Conduct monthly briefings for the DH on the status of all work candidates.

l.   Division Leading Chief Petty Officer. The division LCPO is responsible for the proper operation of the 3-M System within their division. The division LCPO will:

(1)   Supervise WCSs in the execution of daily maintenance.

(2)   Ensure WCSs are properly trained, equipped and are knowledgeable of all WC divisional equipment maintenance requirements.

(3)   Ensure divisional personnel are properly trained and qualified to conduct maintenance.

(4)   Verify all divisional WC equipment is covered by PMS.

(5)   Ensure PMS is properly scheduled and conducted, including all underway and special evolution situational "R" checks.

(6)   Review WC PMS records (i.e., FRs, Advanced Change Notices (ACN) and PMS FBRs and Responses), approve all lineouts and additions on the LOEP, MIPs, and PMS schedules prior to DIVO and DH reviews. Ensure proper justification is noted on each lineout.

(7)   Review and approve non-applicable procedural steps lined-out on MRCs.

(8)   Review and sign the 13-Week Accountability Log at the end of the PMS week (if not using electronic accountability in SKED or when SKED is not available). Ensure checks added that week are hand-written into the blank accountability log.

(9)   Review the PMS Scheduling Forecasting Report to ensure that all Tools, Parts, Material and Test Equipment (TPMTE) are available to support upcoming maintenance actions.

(10)   Provide the DIVO a weekly status of the division's Self-Assessment Program, CSMP and PMS.

(11)   Ensure the Configuration Management Database reflects current ship's configuration.

(12)   Ensure FBRs are submitted requesting LOEP changes to reflect system, equipment and component installs or removals.

(13)   Review and verify the content and validity of PMS FBRs within two days of origination.

(14)   Ensure the divisional CSMP accurately reflects material conditions.

(15)   Review and approve work candidates, act as the second point of contact for work candidates and provide the DIVO a weekly brief on the status of all work candidates in the CSMP.

(16)   Ensure proper testing and inspection of work done by outside activities prior to job acceptance.

(17)   Coordinate repair activities within the division.

(18)   Review, approve, and close out weekly schedules.

m.   Work Center Supervisor. The WCS will be a senior petty officer assigned to the work center and qualified per reference (b). The WCS will:

(1)   Maintain a detailed working knowledge of all equipment deficiencies within the WC.

(2)   Ensure WC personnel have completed 3-M PQS training commensurate with position held.

(3)   Ensure PMS covers all maintenance worthy equipment in the WC.

(4)   Maintain an accurate and current LOEP.

(5)   Ensure 3-M System WC files and publications are complete, current, and available to WC personnel.

(6)   Ensure WC initiated 3-M documentation is correct, legible, promptly prepared and submitted.

(7)   Maintain a 13-Week Accountability Log containing the current and previous 13-Week Log if not using electronic accountability in SKED or when SKED is not available.

(8)   Prepare weekly WC schedule, obtain required approval, assign maintenance personnel, and update schedule to reflect status.

(9)   Ensure equipment changes, add ons and removals are reflected in the Configuration Management Database and, if not, report via a CK to the Configuration Data Manager (CDM).

(10)   Provide MRCs reflecting procedural step lineouts and a listing of non-applicable R-Checks for review by the division LCPO or LPO.

(11)   Ensure FBRs are submitted whenever:

   (a)   Maintenance requirements are not fully understood.

   (b)   Errors are believed to exist.

   (c)   Entries in the TPMTE block are wrong or inadequate.

   (d)   Additional coverage is needed.

   (e)   Performance of the maintenance requirement would cause a hazardous condition to exist.

(12)   Ensure prompt reporting of all material deficiencies and completed maintenance actions.

(13)   Ensure Periodic Maintenance Requirements scheduled for command accomplishment are completed and reported as required.

(14)   Ensure test and measurement equipment or other portable support equipment is delivered for test or calibration as scheduled.

(15)   Ensure the DIVO and division LCPO or LPO are advised of all 3-M System activity within the WC.

(16)   Spot check completed equipment file validations; ensure accuracy of the information and PMS scheduling equipment associations.

(17)   Review the PMS Scheduling Forecasting Report to ensure that all TPMTE is available to support upcoming maintenance actions.

(18)   Ensure all WC weekly schedules are updated daily.

n.   Maintenance Personnel. Maintenance personnel will perform all PMS as assigned utilizing PMS documents in SKED and ensure Check Notes contain amplifying information and tagout identifiers as required. Maintenance personnel will:

(1)   Perform assigned maintenance.

(2)   Notify the WCS when:

        (a)   An MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

        (b)   There are issues with the TPMTE block of the MRC.

        (c)   The technician has doubts concerning his or her ability to perform the maintenance.

        (d)   Equipment deficiencies or casualties are discovered.

        (e)   Factors exist which would make performance of the maintenance unwise or dangerous.

    (3)   Initiate FBRs when discrepancies are discovered during the performance of an MRC.

    (4)   Inform the WCS when planned maintenance requirements are complete.

    (5)   Annotate PMS schedule to reflect accomplishment of maintenance.

    (6)   Sign 13-Week Accountability Log if not using electronic accountability in SKED or when SKED is not available.

19-2.2 QUALIFICATIONS. All personnel assigned to billets associated with the 3-M system must be 3-M PQS qualified for the assigned billet per reference (b). Evidence of qualification in support of 3-M requirements must be maintained by the command in an auditable fashion. In addition to 3-M PQS qualifications, all personnel assigned to accomplish 3-M related maintenance on systems listed in Volume V, Part 1,Chapter 2 paragraph 2.2.1 of this manual, must be qualified per reference (c). Table 19-2-1 reflects the PQS qualifications required to fill 3-M billets.

Table 19-2-1 - Required PQS Qualifications	
3-M Coordinator	PQS-307
3-M Assistant	PQS-306
Department Head	PQS-306
Department LCPO	PQS-305
Division Officer	PQS-304
Division LCPO	PQS-304
Work Center Supervisor	PQS-303
Repair Parts Petty Officer	PQS-302 or RPPO Continuous Training and Qualifications Software
Maintenance Personnel	PQS-301

19-2.3 PLANNED MAINTENANCE.

19-2.3.1 Minimum Standards. MRC accomplishment is critical for maintaining equipment in a ready state and achieving expected service life. The maintenance tasks directed by MRCs are the minimum standards for organizational (shipboard) preventative maintenance and therefore

equipment degradation can be assumed if maintenance is deferred. The following provisions are provided to maximize on time performance of PMS and provide increased fleet latitude in maintaining equipment.

a.   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. The MRC will be accomplished in sequential order, adhering to all Warnings, Cautions and Notes. Routine sub-steps (i.e., fastener removal, steps to don and remove Personnel Protective Equipment (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.

b.   Per Naval Sea System Command (NAVSEA), procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. 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:

(1)   Supplement or duplicate rules and procedures that must be followed for hazards generally associated with the equipment, such as Hazardous Material Handling, Electrical Shock Risk Management, etc., but not specifically associated with a step of the procedure.

(2)   Identify every process and every warning associated with the maintenance environment of the component being maintained, such as aloft, in tanks, near an active flight deck, in a heat stress area, etc.

(3)   Specify every possible action of the maintainer.

c.   Leadership will 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 (not necessarily step-by-step performance).

d.   If a step is missing that is necessary to complete the task, and that step is not obvious to the Maintenance Person (MP), a FBR should be submitted.

e.   MRC completion status is dependent on the accomplishment of all procedural steps on all equipment listed on the MRC or its accompanying items listed on the Location Guide List (LGL) section of the MRC.

f.   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, such as vacuum cleaners, test equipment, etc., general housekeeping, cleaning up or containing spilled fluids or dirt.

g.   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. Substitution requirements are provided by reference (a) and other technical documents.

19-2.3.2 <u>Functional Components</u>.

a.   PMS Master File. The Master File, maintained by the units 3MC, contains information relative to PMS requirements that are specific to equipment for which the command is responsible. The Master File provides for duplicate issue of missing MIPs and MRCs, contains supplementary information provided by Naval Sea Logistics Center Detachments Norfolk or San Diego and serves as a repository for changes received between Navy FR distributions, which must be retained on file until the changes are reflected in a subsequent FR. Master File content is delineated in Appendix A, Section II, Command Level Effectiveness Review (CLER).

b.   Work Center PMS File. The WC File provides a ready reference of planned maintenance requirements and information to be retained in the working area for use by the WCS and maintenance personnel. The WC File contains only the documents and information applicable to a particular WC. The content of the WC File is delineated in Appendix A, Section I-B, Scheduling and Execution Effectiveness Review.

c.   Interim MRC Procedures. The command may develop interim MRC procedures based on experience and applicable technical manuals in support of equipment or systems without PMS coverage until formal documentation is received. Before scheduling preliminary MIP requirements, the WCS and the DH must verify their applicability to installed equipment.

d.   Weekly Status Report. The weekly PMS Monitoring status reports will be retained (electronically if desired) by the 3MC for 12 months. These reports from the 3MC to the XO will contain, as a minimum, the information cited in paragraphs 19-2.3.2.d.(1) through (6) of this chapter.

    (1)   Completed Spot Check and Monitored MRC results.

    (2)   Completed WC audits and results.

    (3)   The number of FBRs over seven days old that have not been reviewed by the Chain Of Command (CoC).

    (4)   Abatement and corrective actions completed because of a monitoring program finding.

    (5)   IEM Details Summary Report.

    (6)   Overdue (Alerting) MRCs and plan of corrective action.

e.   Change Service Accountability Log. The Change Service Accountability Log (CSAL) (Figure 19-2-1) provides a definitive record of all changes to a command's 3-M Program. Whenever a change to a command's 3-M Program is directed (be it from an FR, FBR, ISIC direction, etc.), the change will be routed to the concerned WCS(s) via a memorandum. Whenever such a memorandum is issued, it must be recorded in

the CSAL. Once the WCS reports the directed change has been completed, the 3MC will file the WCS's response and annotate in the CSAL that the action is complete.

(1)   The CSAL is comprised of the actual log sheet, a copy of all memos routed to the WCS and the memo from the WCS to the 3MC indicating completion.

(2)   The importance of the CSAL cannot be overstated. Basically, it provides for a day-to-day, year-to-year record of changes to a command's planned maintenance program. It is also a turnover document at deployment sites, allowing a current command to quickly identify all changes from a previous command. Finally, it will be inspected during all command 3-M assessments and inspections, providing visibility as to how well a command manages 3-M from one inspection to another.

Figure 19-2-1 - Change Service Accountability Log

FR Change Number or Authority	Date RCVD	Cognizant Dept. or WC	Date Cover Sheet Issued	Date Cover Sheet Returned	Date Master File Updated or Item Closed	Summary of Change

19-2.3.3 <u>Related Maintenance</u>. Related maintenance, so designated by the ISEA or Technical Warrant Holder, is determined from the MIP. The RELATED MAINT column of the MIP reflects related maintenance requirements. Related requirements are positioned on the MIP to line up directly across from the MRC to which they are related. Related maintenance requirements are also identified in the TPMTE section of the MRC under MISCELLANEOUS.

    a.   Related Maintenance Categories.

        (1)   Mandatory Related. Mandatory related maintenance requirement(s) are those maintenance actions that must be accomplished concurrently with another maintenance requirement. The mandatory relationship is indicated with the use of the # sign. If the mandatory related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity#" (i.e., M-3#). If the related maintenance resides on another MIP, it will be reflected as "MIP:periodicity#" (i.e., IC-013/033:M-4#). Mandatory related maintenance requirements are automatically scheduled by SKED.

NOTE: **MANDATORY RELATED REQUIREMENTS MUST BE LINKED IN SKED TO BE AUTOMATICALLY SCHEDULED.**

        (2)   Convenience Related. Convenience related maintenance requirements are those maintenance actions that can be accomplished concurrently with another maintenance requirement to save time (preliminary steps and tag-outs already accomplished) or for work force considerations. If the convenience related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity" (i.e., M-5). If the related maintenance resides on another MIP, it will be reflected as "MIP:periodicity" (i.e., EL-010/001:M-4)). In both cases, the # symbol is omitted. The WCS manually schedules convenience related requirements.

        (3)   Conditional Related. Conditional related maintenance requirements are those maintenance actions that are performed when specific conditions are present or specified parameters are not met on the referencing MRC. Conditional related maintenance will appear on the MIP in the same manner as convenience related maintenance. The WCS manually schedules conditional related requirements.

        (4)   None. No related maintenance is reflected as "None" in the RELATED MAINT column.

    b.   Work Center Supervisors Actions. WCSs are encouraged to review their schedules on a regular basis for opportunities to perform other PMS when an equipment or system has maintenance actions scheduled. Rescheduling of PMS to take advantage of other system maintenance, convenience related, is highly recommended.

        (1)   If an MRC has related maintenance from another MIP, review the related MIP and MRC and determine if it requires assistance from another WC.

        (2)   If the related MIP and MRC does not require assistance from another WC and is not on the lead WC LOEP, submit a FBR to have it added to the LOEP.

(3)   If the related MIP and MRC requires assistance or completion by another WC and is mandatory, convenience or conditional related then it should also be on the lead WC LOEP. If it is not on the lead WC LOEP, submit an FBR to have it added to the LOEP. If the related MRC requires technical assistance, a special NEC, or another rating, that is not part of the lead WC, then the person with the technical training, special NEC or required rating should be temporarily added to the lead WC "Crew List" and assigned the related maintenance in either an assist or performance role. All WCSs involved will collaboratively plan the required maintenance and may adjust schedules based upon individual workload. When the maintenance is completed, the lead WCS will mark the MRC as completed.

NOTE: **WHEN EQUIPMENT IF FULLY OPERATIONAL AND WILL NOT BE UTILIZED FOR EXTENDED SHUTDOWN PERIOD.**

19-2.3.4   <u>Inactive Equipment Maintenance</u>.

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

(1)   Status I. Equipment that will:

(a)   Remain onboard,

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

(c)   Will be inactive during extended shutdown periods and maintenance availabilities as determined by the DH.

(Example: Caterpillar 120M Road Grater.)

(2)   Status II. Equipment that is inactive and:

(a)   Subject to corrective maintenance, overhaul, or removal for safe storage,

(b)   Temporarily transferred to another activity for maintenance responsibility for extended shutdown periods as determined by the DH, (Example: Combatant Craft.)

(c)   When craft is going into an availability for engine overhaul.

b.   Implementation and Responsibility. While inactive, minimum maintenance is performed to ensure the success of the reactivation. The IEM section of the MIP will cover this maintenance. However, consideration should also be given to active PMS maintenance checks (i.e., M-1, Q-1, A-1) that can be manually added and performed during this period of inactivity.

(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 or Ship's Force personnel will conduct PMS

during an inactive period. MIPs in each WC will be reviewed to determine if equipment has IEM coverage (i.e., Lay-Up (LU), Periodic Maintenance (PM), Start-Up (SU) and Operational Test (OT)), if the coverage is adequate, and what procedures to follow if there is no IEM coverage on the MIP or provided coverage appears inadequate. The DH is responsible for determining equipment IEM status. When placing a system or equipment in IEM status, the DH 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 that would have been scheduled during the IEM period 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 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 or equipment into an inactive state. Additionally, certain locations require precautions and maintenance not required force-wide. The unit should consider all factors that affect equipment deterioration and take necessary precautionary measures. The WCS or LCPO is responsible for identifying factors that are inadequate and may require additional preparation and maintenance of the inactive equipment while reporting same to the DH for approval. Factors may include environmental conditions, equipment location or susceptibility to damage. For those actions that are recurring in nature, the WCS should submit a FBR for possible MRC development.

c. 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 following 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. For example, the date range for a monthly is 21-41 days. The requirement can only be moved (scheduled) ten days to the right and will not go into "alert" until after the 10th day. This allows the MP or 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 or Ship's Force. LU checks will automatically be added to the schedule at the beginning of IEM by SKED and may be marked "NA" if the LU check did not support the equipment being removed from the unit or "Accomplished by Higher Authority" symbol if completed by the intermediate or depot level maintenance activity. PM checks may be required to be scheduled 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) ten days to the right and will not go into "alert" until after the tenth day. This allows the MP or WCS scheduling flexibility within the plus side of the date range of the MRC.

NOTE: **WHERE THE GOAL OF 100% ACCOMPLISHMENT CANNOT BE REACHED, THE UNIT'S COC MUST BE KEPT INFORMED OF THE CIRCUMSTANCES THAT PREVENT ACCOMPLISHMENT OF SCHEDULED MAINTENANCE.**

19-2.3.5 <u>Scheduling</u>. PMS is a portion of the command's 3-M Program that provides, in one authoritative system, the scheduling information and technical procedures governing planned maintenance. PMS provides a simple method for scheduling and documenting the execution of planned maintenance procedures. Fleet policy and scope are listed in Chapter 19 of this Volume with the scope identified in Chapter 19, paragraph 19.3 of this Volume.

a.   Situational maintenance scheduling will be managed utilizing the tools provided by the computer-based PMS scheduling software employed by the activity. All event driven situational requirements will be "triggered" when required and performed per reference (a).

b. Check Notes are required in SKED under the following circumstances.

(1)   When PMS is marked as "lost".

        (2)   When PMS is marked as not-applicable.

        (3)   When PMS is marked with the '¢' symbol, "satisfied by Higher Level Maintenance."

        (4)   When PMS requires a tag-out, the tag-out program of record identifier will be entered.

    c.   Alert Notes will be in the format of paragraph 19-2.3.8 of this chapter.

19-2.3.6 <u>SKED</u>. The use of SKED version 3.2 or subsequent versions for PMS Scheduling constitutes full compliance with all administrative provisions of the 3-M Manual.

    a.   Guidance for use of SKED is provided via the SKED users guide with help menus, and wizards associated with SKED functionality.

    b.   The Navy PMS DVD or CD-ROM is used to update the command or unit's SKED PMS data.

    c.   The SKED program uses days to schedule and keep track of calendar periodicities. MRCs are displayed as out of periodicity when they fall outside the established date ranges in the SKED program. These date ranges are as reflected in Table 19-2-2:

Table 19-2-2 - SKED Periodicity – Date Ranges	
Periodicity	Date Range
Daily	None
2D	None
3D	None
Weekly	None
2W	9 - 19 days
3W	14 - 28 days
Monthly	21 - 41 days
2M	41 - 83 days
Quarterly	61 - 121 days
4M	83 - 165 days
Semi-Annually	121 - 243 days
8M	165 - 331 days
9M	+ or - 90 days from scheduled date
Annual	+ or - 90 days from scheduled date
Multi-month after annual	+ or - 90 days from scheduled date

19-2.3.7 Accomplishing PMS. Maintenance personnel use MRCs to accomplish assigned planned maintenance as described in subparagraphs 19-2.3.7.a through 19-2.3.7.h of this chapter.

a. From SKED "My Task" view, review the 13-week report.

b. Determine maintenance task(s) assigned.

c. Determine when the maintenance task(s) are due.

d. Determine what tools, parts, material, test equipment or supplies are needed. For MRCs that contain inspections and then maintenance actions based upon the inspection findings, the TPMTE needed to perform the follow-on maintenance caused by the inspection findings does not need to be obtained prior to performing the MRC but rather, may be obtained as needed.

e. Perform the maintenance on schedule.

f. Notify the WCS immediately whenever one or more of the following conditions exist:

(1) Anything on an MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

(2) TPMTE prescribed by the MRC is not available, is not correct or questions about substitutions arise.

(3) Any doubt exists about your capability, training, or experience to properly perform the maintenance requirement as prescribed.

(4) Factors exist which would make performance of the maintenance requirement unwise or dangerous (i.e., disassembly of equipment needed for operations, radiation when prohibited, situations causing safety hazard to exist, etc.).

(5) Equipment deficiencies or casualties are discovered.

(6) Any provisions or requirements on the MRC cannot be accomplished as prescribed. See paragraph 19-2.4.1 of this chapter for clarification.

g. If an MRC can be completed step by step as written, then the maintenance action can be signed off as completed. Report completed planned maintenance actions to the WCS, update the PMS schedule to reflect completed maintenance, annotate, and sign the 13-Week Report if used. If multiple maintenance personnel are assigned to a single maintenance action, the most senior person assigned must update the PMS Schedule, annotate, and sign the 13-Week Report or Check Note if using SKED 3.2 electronic accountability.

h. Maintenance actions not fully completed will be reported to the WCS. If material deficiencies or casualties, which are unrelated to that MR, are discovered, the MR can be checked off provided the MR was fully completed, but the discrepancy must be reported via MDS.

19-2.3.8 Non-Accomplished PMS Categories. The WCS or LCPO will add a brief description for each Alert Note for non-accomplished categories using sub-paragraphs 19-2.3.8.a through 19-2.3.8.g of this chapter.

a.   System or Equipment Failure. System or Equipment is not operational or in a reduced operational status thus preventing maintenance from being accomplished. CSMP Job Sequence Number (JSN) required in additional text description.

b.   Inadequate Maintenance Procedures. MRC procedure or steps cannot be accomplished to a point where the maintenance can be considered accomplished. FBR number required in additional text description.

c.   Unit Operational Requirements. Operations prevent the maintenance from being accomplished. Requires additional text description.

d.   System or Equipment Operational Requirements. Required operation of system or equipment prevents maintenance from being accomplished. Requires additional text description

e.   Lack of Hazardous Material. Correct Hazardous Material (HAZMAT) not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

f.   Missing or Incorrect TPMTE. Correct or calibrated TPMTE was not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

g.   Other. Requires additional text description.

19-2.3.9 Accountability. The credibility of the Navy PMS program relies heavily on the individual accomplishing the maintenance. The required dedication and integrity of that individual cannot be overstressed.

a.   To maintain accountability, personnel are required to sign for the completion of assigned maintenance in an Accountability Log if used. The WCS is required to review and sign the Accountability Log weekly to verify the accuracy and completeness of entries. Accountability sheets will be maintained in the WC PMS File for a period of not less than 13 weeks.

b.   Electronic accountability will be utilized by commands employing SKED 3.2. When an individual updates the disposition of a check, this is the same as signing and dating a check completion on a 13-Week Accountability Sheet. The disposition of a check will become permanent when the weekly closeout is performed. All PMS maintenance assigned to a MP is presented to them immediately upon SKED 3.2 log-on; and CoC review can be tracked on the Weekly Closeout Signature Sheet. Therefore, there is no need to print and sign the 13-Week Accountability Form.

19-2.3.10 Force Revision Implementation. In addition to the requirements of reference (a), the following steps ensure the most efficient and thorough implementation of an FR:

a. The 3MC will:

(1)   Route the Service Brief to the CoC for review.

(2)   Enter the FR number from the Automatic Library Issue Document in the PMS Supersedure and New Issue Accountability Log.

(3)   Update PMS and TFR data into SKED prior to routing the change documentation to WCs.

(4)   Route the FR to WCS for implementation. See Figures 19-2-2 and 19-2-3 of this chapter for an example of a routing memorandum and an FR implementation checklist, respectively.

(5)   Delete SKED FBRs after reflection within the FR.

b.   The WCS, upon receipt of the change document from the 3MC, will:

(1)   Make the appropriate entry in the WC Record of Change Log.

(2)   Make appropriate LOEP, MIP, MRC, etc. changes to the WC PMS File.

(3)   Apply changes to the WC PMS schedule utilizing SKED Revision Editor.

(4)   Route revision changes to division LCPO for review and concurrence.

c.   The division LCPO will:

(1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Review line outs on LOEPs, MIPs and MRCs. Initial all such line-outs to indicate concurrence.

(3)   Submit PMS schedule to the DIVO for review and concurrence.

d.   The DIVO will:

(1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Review and concur with the lined-out MIPs on the LOEP, MRCs on the MIPs.

(3)   Submit PMS schedule to DH for review and approval.

e.   The DH will:

(1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Review and approve with the lined-out MIPs on the LOEP, MRCs on the MIPs.

(3)   Review and approve WC PMS Schedules.

f.   The WCS makes final entries in the WC Record of Change Log, completes the PMS Change Documentation Routing Memorandum, and returns it to the 3MC.

g. The 3MC updates the CSAL and notifies the XO that the FR has been installed after receiving all FR PMS Change Documentation Routing Memorandums from the WC.

Figure 19-2-2 - Force Revision Routing Memorandum

MEMORANDUM

From: 3-M Coordinator

To: _____ Work Center Supervisor

Subj: FORCE REVISION PACKAGE X-XX

Encl: (1) Force Revision Implementation Checklist

   (2) List of Effective Pages (LOEP)

1. Force Revision Serial: X-XX has arrived from NSLC.

2. The SKED Force Revision (FR) update is complete. Begin your WC FR implementation using enclosures (1) and (2); complete through your Department Head no later than (Day Month Year).

3. Corrections, including those to LOEP, MIP and MRC, should be made immediately. Make certain ACNs and FBR responses are reflected in the FR. If not, maintain the copies and changes to your MIP(s) and MRC(s) until reflected in a subsequent FR.

4. MRCs with procedural line-outs previously approved by the LCPO must again be reviewed by the LCPO to confirm they continue to meet the requirements of the JFMM volume VI, chapter 19. Specifically, in the procedure block, Work Center Supervisors may line-out the non-applicable line items (alternate procedures) that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of an FBR is not required.

   R/

   MC

Figure 19-2-3 - Force Revision Implementation Checklist

MEMORANDUM

From   _____ Work Center Supervisor
To: 3-M Coordinator
Subj: FORCE REVISION IMPLEMENTATION CHECKLIST COMPLETION

1. The following actions have been accomplished in SKED to implement Force Revision X-XX.

Task Description	Initial
Verified all equipment is listed under each MIP.	
Verified new or changed MRCs (green or yellow) are added to the correct Maintenance Item (equipment).	
Verified all applicable MRCs for each piece of equipment are active.	
Verified all MRC's have associated "Related Maintenance" attached.	
Verified that Safety of Ship is toggled to "YES" if applicable.	
Verified that all MIP lineout's have a technical reason documented for deletion. (Select the "Pencil" Icon on top row)	
Verify Maintenance Item Serials & Locations are correct.	
Upon completion of implementation Marked Complete for digital approval by: LCPO, Division Officer and Department Head.	LCPO
	DIVO
	DH

2. After DH approval:

LCPO run SKED report PMS Documents and Customized MRCs – Line-outs. Verify each procedural lineout meets JFMM volume VI chapter 19, paragraph 19.6.11 requirements.	
WCS create an excel spread sheet from the Maintenance Outlook Report as a minimum electronic backup forecasting as many quarters in advance as available and store it on your hard drive (not a LAN drive) in the event of the LAN crashing.	
WCS select "Work Center" from the upper menu and "Update Unassigned Slots." Initially, any MRC without ownership will be assigned to the WCS. Reassignment by the WCS or LCPO will follow.	

3. Printing requirements for MRCs are determined by individual command policy. Printed MRCs must come from "PMS Documents" (not PMS Viewer).

4. The only required documents in the WC PMS file are:
   a.   Classified MRCs.
   b.   MRCs required by the command.
   c.   MRCs with pen & ink changes authorized by ACNs or answered FBRs.

5. Approval Signatures:

Position	Signature
LCPO	
DIVO	
DH	
3MC	

19-2.3.11 <u>Planned Maintenance System Feedback Reports</u>. PMS FBRs are used to identify problems with PMS documentation or to request the addition or deletion of PMS coverage. Issues with the periodicity, rates, man-hours, TPMTE and procedure may all be reported via an FBR. An FBR is also used to request copies of classified MRCs, request the addition or deletion of a maintenance requirement to or from a MIP, splitting a MIP between WCs, shifting of maintenance responsibility or to request PMS coverage for newly installed systems or equipment. Paragraphs 19-2.3.11.a through 19-2.3.11.j of this chapter provide amplifying information dealing with the issues that may prompt the submission of an FBR.

    a.   Periodicity. An FBR can be used to request the increase or decrease in the frequency of a maintenance action, (i.e., MRC). However, the originator needs to keep in mind that the unit has the prerogative to increase the frequency because of harsh weather, unusual operating conditions or corrective maintenance and associated testing requirements.

    b.   Rates. The Rates block on the MRC represents the developer's recommendation of the skill level (rate and rank) best suited to accomplish the maintenance action. The key word is recommendation. Qualified personnel other than the rate and ranking specified may be assigned. When a DCPO, Safety Petty Officer (SPO) or NEC is assigned, substitution of other personnel is not allowed other than those exceptions as noted in reference (a). An FBR requesting the rate on an MRC be changed from an ET2 to an FT2 will probably not pass TYCOM screening, yet a FBR requesting the addition or deletion of personnel will generally pass to the cognizant technical activity for review.

    c.   Man-hours. The MRC reflects the average time per equipment, per person. It does not reflect or account for gathering and putting away tools, tag-outs or time removing and replacing interferences. From a maintainer's perspective, this is not an accurate representation of the time required to accomplish the maintenance action. The Future of PMS initiative will attempt to do a better job of accounting for this additional time but until then, FBRs should be submitted only when the allotted time per equipment is significantly out of synch with the actual time required. For example, an MRC calls out 0.5 man-hours per equipment, but it takes 1.0 man-hours.

    d.   Tools, Parts, Material and Test Equipment. TPMTE FBRs should be submitted when the procedure calls for an item not listed in the TPMTE block or when the TPMTE block lists an item not called out in the procedure. Updating the MRC to reflect common hand tools, administrative or office supplies and basic housekeeping items is addressed in paragraph 19-2.3.11.k.(1) of this chapter.

    e.   Procedure. Procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. MRCs exist to provide standardized proven procedures, specify consistent acceptance criteria and to communicate warnings and cautions relative to the specific maintenance action. They are not intended to specify every possible action of the maintainer. There may be instances where an obvious typographical error exists on the MRC (example: Turn switch to ON; however, switch may already be ON and the intent of the step is to turn unit off, the card should read Turn switch to OFF). This type of error should not

prevent the scheduling or performance of maintenance. However, in this situation, the accomplishment of the MRC is not possible until the WCS reviews the error and concurs that it is safe to proceed. A temporary notation including the reason for the correction must be made on the MRC, initialed by the WCS and a FBR submitted. Extreme caution will be taken when reviewing MRCs for this type of error. Errors must be obvious typographical errors and a PMS FBR must be submitted immediately upon discovered. Do not permanently alter the MRC until authorized by the applicable SYSCOM, ISEA or NSLC Detachment. If a step is missing that is necessary to complete the task, and that step is not obvious to the MP, submit a FBR to have it added. A FBR submitted to request procedural changes should include the originators contact information and supporting rationale or justification. If, however, a step is missing that is clearly obvious, such as a ladder that was used to install a fixture, but steps were not provided to put the ladder back in stowage, a FBR only serves to overload a process that should be focused on more technical issues.

f. Duplicate MRCs. Unclassified MIPs and MRCs are now available from the DVD. Copies of classified MRCs still require a FBR request due to handling requirements.

g. Addition or deletion of an MRC. During the life cycle of a system, equipment, or component it may become necessary to add a maintenance action to prevent an age-related functional failure or to delete a maintenance action due to inherent reliability not foreseen during maintenance development. A FBR submitted to request the addition or deletion of an MRC should include the originator's contact information and supporting rationale or justification.

h. Newly Installed or Removed Equipment. While a FBR request for PMS coverage will provide initial maintenance coverage or deletion of MIP(s) because of equipment removal, submission of a CK is still required to initiate the rest of the logistic support change process. This point cannot be overstressed; the submission of the FBR does not relieve the unit from initiating a CK. The CK initiates supply support, CDMD-OA changes, command selected record drawing updates and class maintenance plan updates.

i. Splitting a MIP. There are instances in which a MIP includes MRCs for more than one WC to perform. When this occurs, a decision is required by the command as to whether the MIP will be split or will be scheduled singly by one WC. Only the XO can authorize the splitting of a MIP if an MRC requires another WC to perform the entire maintenance action. If the decision is made not to split the MIP, then the MRs will be accomplished through the coordination of WCSs.

(1) If the MIP is split, the following procedures apply:

(a) Submit to the XO a Non-Technical PMS FBR requesting approval to split the maintenance responsibility.

(b) Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR stating, "XO concurs with splitting MIP maintenance responsibility".

(2) Upon receipt of the FBR approval:

    (a)   Utilizing the SKED Revision Editor, delete the MRC from the MIP and show the reason for deletion as the designation of the WC assuming responsibility (i.e., EE01).

    (b)   If the WC assuming responsibility does not reflect the MIP and maintenance items, utilize the SKED Revision Editor to add them. Schedule only the MRC(s) that pertain to the WC. Reflect remaining as deleted with the reason for deletion the designation of the parent (lead) WC (i.e., EA01).

    (3)   If the situation occurs where a WC removes a split MIP, the following procedures apply:

    (a)   Submit an XO approved, non-technical PMS FBR reporting the decision to remove the split maintenance responsibility. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with removing split MIP maintenance responsibility.

    (b)   Upon receipt of FBR approval, utilize the SKED Revision Editor, remove the MIP, MRC(s) and maintenance item(s) from the WC no longer involved. Ensure that the lead WC assumes full responsibility for the MIP and MRC(s) and annotates their schedules accordingly.

j.   Shift of Maintenance Responsibility. Individual units sometimes consider it necessary to shift maintenance responsibility from one WC to another, to combine two or more existing WCs or to split an existing WC. These requests for changes of PMS maintenance responsibility require XO concurrence and may require final approval by the applicable TYCOM. Due to the considerable administrative burden, requests for this type of change should not be submitted to accommodate a temporary situation such as short-term assignment of two WCs to one supervisor.

    (1)   The following factors should be carefully considered before submitting such requests:

    (a)   Composition of WCs by size and ratings.

    (b)   Scope of maintenance responsibilities.

    (c)   WC workload.

    (d)   Ease of administration of a WC as a cohesive maintenance group.

    (e)   Importance of WC grouping to equipment maintenance responsibilities, PMS scheduling, MDS reporting and CSMP listings.

    (2)   When changes in maintenance responsibility are considered necessary, the following procedures apply:

    (a)   Submit a PMS FBR (Non-technical). Indicate from which WC(s) equipment is to be deleted and to which it is to be transferred. Upon receipt of the XO's concurrence, the 3MC will make an annotation in

the remarks block of the FBR "XO concurs with the shift of maintenance responsibility.

  (b) WC or equipment changes will also be reported in the OMMS/SNAP system via a CK through the CSMP up-line reporting process.

 (3) Upon receipt of the FBR approval, perform the following actions:

  (a) The PMS Master File is updated to reflect deletion of the MIP from one WC and addition to the WC receiving the responsibility. The originating FBR serial number is annotated on the affected line item on the LOEP for both WCs. The PMS Master File must contain a record of deleted equipment until the change is reflected in a future FR.

  (b) Utilizing the SKED Revision Editor, load the affected MIP(s) and MRC(s) to the WC receiving maintenance responsibility. Delete the MIP(s) and MRC(s) from WC shifting responsibility.

  (c) Utilizing SKED, perform a revision to move the equipment from the original WC's current schedule to the WC receiving the maintenance responsibility. Data is exported from one and imported to the other maintaining equipment history.

k. MRC Changes Not Requiring Feedback Reports. The only MRC modifications shipboard or unit personnel may make without submitting a PMS feedback report are as listed in sub-paragraphs 19-2.3.11.k.(1) and (2) of this chapter.

 (1) TPMTE block.

  (a) Common hand tools, administrative or office supplies and basic housekeeping items may be substituted or added by the WCS. The WCS may add notes to the MRC to reflect these substitutions. In the case where specific common tools are called out by description, substitutions are not authorized. For example, substitutions such as using synthetic fiber brushes in place of animal hairbrushes or rags and paper towels in place of lint free cloths are not allowed.

  (b) Approved parts, materials and miscellaneous item substituted from the supply system, technical manual, or Military Specification, etc., which meet or exceed the requirements may be used. Ensure that substitutions satisfy both the basic maintenance and safety requirements of the MRC. If there is any doubt, a PMS FBR should be submitted specifying substitution desired and reason.

  (c) Test equipment or certified tools, which meet or exceed the Sub-Category (SCAT) code requirement, may be used.

  (d) When an MRC pertains to multiple configurations of equipment and the TPMTE block contains tools, parts, test equipment and materials for each unique configuration, the TPMTE block may be tailored for

the unit's specific configuration by lining out the items that do not pertain to equipment held.

    (e)   Exception to TPMTE block change: If an item listed in the TPMTE block is not called for in the procedures block, submit an FBR explaining the circumstances. Conversely, if a tool, piece of test equipment, part or material is called for in the procedure block and is not listed in the TPMTE block an FBR should be submitted.

    (2)   In the procedure block, WCSs may line-out the non-applicable line items, such as alternate procedures, that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of a FBR is not required. If a step or steps in the procedure block have been lined-out and tools, parts, materials, or test equipment in the TPMTE block pertain only to that step or steps, then they will be lined-out as well with a reference to the step or steps lined-out and approved by the division LCPO. Warnings, cautions, and notes associated with the lined-out step or steps will also be lined-out.

l.   Types of Feedback Reports. There are two types of FBRs, Technical and Non-Technical.

    (1)   Technical. These FBRs are used to report technical discrepancies inhibiting PMS performance. Technical feedbacks normally adjudicated by an ISEA responsible for the system or equipment covered by the PMS documentation require all the supporting information the originator can provide. The originator should identify the issue, providing as much supporting technical information (Allowance Parts List (APL), Reparable Identity Code, drawing or Hierarchical Structure Code) as available and a proposed response or solution if known. Most importantly, provide point of contact information (name and phone number) so that the ISEA can contact the originator should they have questions. Bottom line, the FBR must be accurate and complete to "stand alone", that is, the FBR will be understood without additional explanation. The better the FBR describes the problem, the more likely the originator will receive a timely response. There are two sub-categories of technical FBRs:

    (a)   Routine. An FBR will be considered routine when it relates to the technical requirements of PMS. It is used to report technical discrepancies or request clarification of procedures.

    (b)   Urgent FBR. An FBR will be considered urgent when it relates to the technical requirements of PMS and involves safety of personnel, safety of ship or the potential for equipment damage. Urgent FBRs will be forwarded by naval message containing a PMS FBR serial number, to both NSLC Detachments Norfolk and San Diego, with info to the cognizant SYSCOM, TYCOM and the Naval Safety Center. The

message must describe the unsafe procedure(s) or condition(s), must identify the MIP and MRC involved and reflect the serial number of the FBR generated in SKED or Planned Maintenance System - Management Information System (PMS-MIS). Once the message has been sent, include the date time group of the message in the FBR and submit.

(2) Non-technical. These FBRs are intended to support PMS requests that do not require technical review, including WC changes (shift of maintenance responsibility). Non-technical FBRs are submitted to request classified or other PMS documentation which cannot be obtained locally or to request clarification of issues not of a technical nature.

m. Feedback Report Submission. All SKED users will submit FBRs via SKED using the Feedback Report Wizard. Non-SKED users may submit FBRs via the PMSMIS web site at https://pmsmis.navy.mil/ by selecting the Feedback Tab and Feedback Report Wizard from the drop-down tab. Non-SKED users accessing this web site 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 confirming your account and providing access to the main screen. The Anchor Desk web site can also be used to submit FBRs.

n. Feedback Report Screening (Shipboard or Activity).

(1) Initial screening is accomplished by the originator or WCS who is responsible for ensuring all data is accurate and complete.

(2) The division LCPO or DIVO accomplishes the second level screening and verifies the content and validity of the FBR within three days of origination.

(3) The DH, next to screen the FBR, is responsible for verifying the content and validity of the FBR and digitally signing FBRs within five days of origination.

(4) The 3MC is responsible for screening, serializing, and forwarding FBRs within seven days of origination. The 3MC will also:

(a) Maintain accountability for all PMS FBRs submitted and actions taken until updated PMS documentation is received.

(b) Ensure that the originator and all applicable WCs are kept apprised of action taken and ensure the originating and other applicable WCSs implement the changes or corrections when received.

o. Feedback Report Screening (External to Hull or Activity). FBRs are next processed by the TYCOM. The TYCOM will verify the content and validity of the FBR and

either return the document to the originator or pass it on for further processing and resolution.

p. Feedback Processing Activities.

(1) The central control points for processing FBRs are the Planned Maintenance System Coordinating Activities (PMSCA). Depending on the type of FBR and level of technical authority necessary to answer the FBR, the PMSCA will either respond to the originator with a resolution or forward the FBR to the appropriate technical authority for action.

(2) ISEAs are those activities designated by NAVSEA as the technical experts for specific systems or equipment. Naval Surface Warfare Center, Philadelphia Detachment is the ISEA for the majority of non-nuclear hull, mechanical and electrical equipment installed on most ships. ISEAs under the direction of the NAVSEA Technical Warrant Holder adjudicate the FBR request and forward the response to the PMSCAs. The PMSCA provides the final response to the originator and update the PMS database to reflect ISEA changes. PMS changes are issued with the next available FR.

q. Feedback Processing. FBRs are processed per NAVSEA policy:

(1) Urgent FBRs.

(a) The PMSCAs will provide a message response to all urgent FBRs within one (1) working day of receipt. If the FBR is forwarded to a Design Activity or ISEA for resolution, then the Design Activity or ISEA will provide a message response informing the originator of specific actions or required changes because of the adjudication of the FBR within one working day of receipt. This message response must be addressed to the originator and 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.

(b) The PMSCA will distribute revised PMS documentation to all affected users within 30 calendar days of receipt of the FBR, via special issue or ACN.

(2) Routine FBRs.

(a) The PMSCA will perform technical review, research, and provide a response to routine FBRs where resolution does not require technical authority action.

(b) FBRs that the PMSCA cannot resolve will be sent to the cognizant Design Activity or ISEA. The cognizant Design Activity or ISEA will provide the response to the appropriate PMSCA describing the action taken. The PMSCA will provide the response to the originator by electronic means.

(c) Distribution of the revised MRC to the originator and other affected users will be accomplished via ACN or the next available FR.

(d)   NAVSEA's existing policy calls for technical review activities and ISEAs to provide FBR responses in less than 21 working days from time of receipt. In addition, NAVSEA has established a goal of providing answers to FBRs in one day. While some FBRs will require extensive research and days, weeks or in some cases months to resolve, the vast majority of FBRs can and should be answered much sooner. One day may be overly optimistic, but the intent is to put the emphasis back on the timely resolution of FBRs.

(e)   If no revision to PMS documentation is required, pertinent comments will be provided in the response to the PMSCA. When not concurring with the feedback report, the rationale for the non-concurrence must be provided to the PMSCA.

NOTE: **IT IS POSSIBLE AN FBR RESPONSE MAY NOT MAKE A SPECIFIC FR BASED ON THE DATE THE RESPONSE WAS RECEIVED BY NSLC. PROCESSING TIME AND HANDLING MAY CAUSE THE REVISED DOCUMENTATION TO MISS AN FR CUTOFF DATE. HOWEVER, SINCE ALL FRS ARE NOW RECEIVED QUARTERLY, IF A REVISION MISSES THE CURRENT FR CUTOFF WINDOW, THE REVISED DOCUMENTATION WILL BE AVAILABLE WITHIN THE NEXT THREE (3) MONTHS.**

r.   Feedback Response Implementation. Units will implement responses to FBRs based on the category and content as determined by the unit's 3MC.

(1)   Urgent FBR. Within 24 hours of receipt of FBR response.

(2)   Urgent FBR with an ACN. Within 24 hours of receipt, the unit will implement an administrative change to incorporate the new PMS documentation. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(3)   Routine FBR:

(a)   Technical. The response deals with content such as a revision to technical specifications, tolerances, test equipment, materials, acceptance criteria or the sequence of procedural steps. These changes need to be implemented within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window.

(b)   Administrative. The response deals with issues that do not affect the technical content or procedural steps. Administrative changes might be added steps to provide a better degree of clarity, formatting revisions to tables or figures that do not change technical content, or updating of Notes, Warnings or Cautions that do not impact the performance of the MRC. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required before the next scheduled accomplishment date of the MRC.

(4)   Routine FBR with an ACN:

(a)   Technical. These changes need to be implemented via an administrative change within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(b)   Administrative. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required via an administrative change before the next scheduled accomplishment date of the MRC.

19-2.3.12 <u>Assessment Procedure MRCs</u>. Assessment Procedure (AP) MRCs need not be scheduled within SKED, but they will be maintained "active" through the FR and TFR process. AP MRCs need only be printed on an "as needed" basis for use by assessment personnel or Ship's Force. The record of completed AP MRCs by off-ship personnel is recorded on the work candidate and Ship's Force participation is recorded in their completion remarks of that work candidate. There is no need for recording Ship's Force participation in an assessment event on their PMS schedule within SKED. FBRs submitted requesting deletion of a MIP that only contains AP MRCs will be disapproved and returned to the originator.

19-2.4 <u>MAINTENANCE AND MATERIAL MANAGEMENT AFLOAT AND ASHORE EVALUATION CRITERIA</u>.

19-2.4.1 <u>Self-Assessments</u>. The ability of an activity to perform critical self-assessments is instrumental to the success of the command's PMS program. The PMS Self-Assessment Program needs to address all aspects of 3-M.

a.   TYCOM Policy. 3-M Self-Assessments will be conducted at least once during the command's O-FRP, or once every 24 months where commands do not operate under an Optimized Fleet Response Plan (O-FRP). Additional 3-M Self-Assessments may be conducted at the CO's discretion but are neither required nor reported to the TYCOM Maintenance Officer. 3-M Self-Assessment events are not limited to a set duration but will have a set completion date when originally directed by the CO. Commands must conduct a 3-M Self-Assessment within the first 90 days of deployment to a Remain in Place Table of Allowance site.

b.   Self-Assessment Elements. The major program elements of a Self-Assessment include an evaluation of the PMS Performance Rate (PPR) and CSMP Validity, monitoring MRC performance (monitored MRC), and conducting PMS Spot Checks, WC audits, an Administrative Performance Rate (APR) review and deficiency abatement. 3MCs will retain monitored PMS, Spot Checks and WC audits from the

last completed quarter in either hard copy or digital format for review supporting the Self-Assessment.

(1)   Administrative Performance Rate. The APR consists of all administrative actions within a command. It is comprised of the average of all SEER scores + the CLER score divided by 2.

$$APR = (SEER \text{ average} + CLER) \div 2$$

(2)   Monitored MRC. Supervisory personnel must periodically monitor the performance of PMS to provide feedback and training to maintenance personnel and to enforce command maintenance standards. Personnel charged with monitoring must be System Matter Experts (SME) for the system, equipment, or component for which the MRC applies. LCPOs, LPOs or personnel with similar system knowledge are appropriate. Monitored checks can be used for on-the-job training to teach the "right way" to conduct maintenance. These monitored MRCs will be documented as a monitored evolution and findings will be provided to the WC's CoC for inclusion into training and deficiency abatement. The value of monitor maintenance cannot be overstated, and commands are encouraged to establish a robust monitored maintenance program.

(3)   PMS Spot Check. PMS Spot Checks are utilized to validate that previously scheduled and accomplished MRCs were performed and the degree to which they were performed. The checklist contained in Appendix A Section III of this chapter, is the tool supervisory personnel utilize to determine the accomplishment status of a completed MRC. Deficiencies noted and the final grade will be provided to the WC's CoC for abatement. The WCS will record the Spot Check grade into SKED to generate the Spot Check Accomplishment Rating (SCAR) for the quarterly PMS Performance Report. Spot Checks will involve all elements of the CoC to include the CO, CMC, XO, 3MC, department CPOs, DHs, DIVOs, divisional CPOs, and first-class petty officers. By following the checklist, the inspector can determine if the sailor is competent, the maintenance was accomplished, required TPMTE was available and used, and safety precautions were followed. The focus should be less on administration and more on the condition of the gear.

        (a)   Avoid Spot Checks of MRCs with insufficient complexity. Performing a Spot Check on a 3 or 5 step MRC does not provide the CoC an accurate picture of the health of the command's maintenance program. Selected MRCs should be of sufficient content to provide the auditor with evidence of satisfactory performance (i.e., tag-outs, QA packages, parts required, off-hull reporting, test equipment, safety equipment, etc.).

        (b)   Spot Checks evaluated as "below standards" will require immediate training and re-performance as determined by the XO. Any re-accomplishment of the MRC must be monitored by the LCPO to ensure noted deficiencies are not repeated.

(c)   The spot checker or monitor will ensure that the Spot Check or monitor data is immediately entered into SKED. When applicable, a brief synopsis of any deficiencies resulting from the Spot Check will be indicated within the Spot Check.

(d)   The minimum number of Spot Checks are reflected in Tables 19-2-5 and 19-2-6 of this chapter.

Table 19-2-5 - NECC Active Duty or Mobilized Commands Spot Checks		
Management Level	Number of Checks	Interval
CO, XO, CMC or CSE	1	Weekly
DH or Dept LCPO	1 per department	Weekly
DIVO or LCPO	1 per division	Weekly
3MC	1	Weekly

Table 19-2-6 - NECC Non-Mobilized Reserve Units Spot Checks		
Management Level	Number of Checks	Interval
CO, XO or CSO	1	Quarterly
CMC or SEL	1	Quarterly
DH	1 per department	Quarterly
DIVO or LCPO	1 per division	Quarterly
3MC	1	Monthly

(e)   NECC Reserve Component 3MCs can request modification of the Spot Check matrix if it is believed that due to the size of the command and location of their WC, they are unable to accomplish that requirement. Requests must be submitted in writing to NECC N43 staff (via Echelon IV 3MC if applicable) and include their proposed Spot Check matrix for review. If approved, the command 3MC will maintain a copy of the request approval.

(4)   Work Center Audits. Each WC must receive an audit once per quarter by a supervisory individual, CPO or above. Deficiencies noted from this audit will be reported to the WC's CoC for abatement. The 3MC will report recurring deficiencies to the XO for further investigation and corrective action.

(5)   Deficiency Abatement. The status of discovered deficiencies will be kept current within the monitoring program. Recurring deficiencies must be reported to the XO for further investigation and corrective action. Deficiencies that have been reported as corrected will be subject to follow up monitoring to ensure corrective action was effective and results of the follow

up monitoring will be reported to the XO. The command's 3-M Abatement Program will include the previous quarter's audits, Spot Checks, monitored evolutions and CSMP validity audits noting trends and corrective actions.

19-2.4.2 Inspections. The goal of the 3MI is to evaluate the effectiveness of the unit's 3-M Program. It is critical that the inspection be conducted in a similar fashion in every command and detachment across the force. Inspections will be completed once commenced; early below-standards indications will not be used to change an inspection into an assistance visit.

   a. Frequency of Inspections. The TYCOM or ISIC (command exercising administrative control) will conduct a complete inspection of each command under their cognizance as follows:

    (1) Every Fleet Response Training Plan or Optimize Report Plan (ORP) cycle.

    (2) When deemed necessary by the TYCOM, ISIC or the unit's CO.

    (3) Not to exceed 36 months.

    (4) The ISIC will submit a 3MI periodicity extension request to the TYCOM if a 3MI will exceed the Fleet Response Training Plan or ORP cycle or 24 months has elapsed since the last inspection. The TYCOM, when replying to the request for extension, will include Commander, United States Fleet Forces Command N43 or Commander Pacific Fleet N43, as applicable, as information addressees. Only the TYCOM can authorize such an extension.

   b. Method for Assignment of Numerical Evaluations. The minimum performance requirements are as identified below:

    (1) Formula Acronyms:

        (a) APR = Administrative Performance Review

        (b) CLER = Command Level Effectiveness Review

        (c) CTS = Command Total Score

        (d) CVF = CSMP Validity Factor

        (e) DTS = Department Total Score

        (f) MAR = Maintenance Accomplishment Rate

        (g) MDS = Maintenance Data System

        (h) MPR = MDS Performance Rate

        (i) PAR = Periodic Accomplishment Rate

        (j) PPR = PMS Performance Rate

        (k) SAR = Situational Accomplishment Rate

        (l) SEER = Scheduling and Execution Effectiveness Review

        (m) SCAR = Spot Check Accomplishment Rating

    (2) The CTS consists of three parts and weighted as follows:

(a)   APR = (SEER average + CLER) divided by 2

(b)   Weighted PPR = (MAR x SCAR) divided by 100.

(c)   Weighted MPR = (Weighted CVF x RAF) divided by 100

(d)   CTS = (APR x .2) + (PPR x .4) + (MPR x .4)

(3)   Criteria for grading MDS and CSMP:

MPR = (CVF x RAF) divided by 100

(4)   Ranking Standards.

(a)   Commands, departments, and WCs will be evaluated as "Above Standards" overall in 3-M if the unit's total score is 90% or higher.

(b)   Commands, departments, and WCS will be evaluated as "At Standards" overall in 3-M if the unit's total score is between 80% and 89.99%.

(c)   Commands, departments, and WCs will be evaluated as "Below Standards" overall in 3-M if the unit's total score is less than 80%.

(d)   All calculations will be rounded to two decimal places.

c.   Inspection Procedures. Appendix A provides a standard means for evaluating the 3-M Program. These procedures, centered on a set of core attributes applicable to all, are used to conduct 3-M Inspections. Inspection procedures are divided into five major areas:

(1)   Section I - Administrative Performance Review. The APR consists of all administrative actions within a command. It is comprised of the average of all SEER + CLER divided by 2.

(2)   Section II – Assessment of Command Level Effectiveness Review. The CLER is an evaluation of the XO's management of the command's maintenance as executed by the 3MC and the DHs.

(3)   Section III. PPR is calculated using a command's MAR and SCAR.

(4)   Section IV - Maintenance Data System.

(5)   Section V - 3-M Inspection Command Total Score.

d.   Inspection Reporting. Significant deficiencies and numerical assessments are reported to the assessed unit's CO, ISIC and TYCOM using the format shown in appendix B of this chapter. Reporting may be accomplished on the entire unit or on a departmental basis.

(1)   Significant deficiencies require a report of corrective actions taken by the unit to be forwarded to the TYCOM via the ISIC within 30 days following the inspection.

(2)   Any command or department receiving an overall evaluation of below standard in either CTS, MDS, and PPR must be re-evaluated within a

reasonable period, not to exceed six months, to ensure below standard areas have been corrected.

(3)   Each TYCOM will report the findings of the previous year's inspections to Commander, United States Fleet Forces Command or Commander Pacific Fleet N43, as applicable, at the end of the calendar year.

e.   Inspection Data Retention. NECC is to maintain an inspection data file for each unit. As each command is evaluated, the individual evaluation standards and calculated values identified will be recorded in the data file with a copy of the inspection report provided to the inspected command. Section I through Section V of Appendix A of this chapter provide specific criteria to be used in the assessment of each command.

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APPENDIX A

SECTION I-A

ADMINISTRATIVE PERFORMANCE REVIEW (APR)

The APR consists of all administrative actions within a command. It is comprised of the average of all SEER + CLER divided by 2.

APR= (SEER average + CLER) divided by 2

1. Assessment of Scheduling Execution and Effectiveness Review (SEER)

The SEER is an evaluation of PMS documentation at the WC level. The SEER focuses on PMS documentation within the WC PMS File, the scheduling of maintenance requirements in SKED and the documentation of accomplished PMS. Specific criteria for SEER evaluation is established by the TYCOM.
Calculate each WC's SEER as required by the SEER check sheet provided on the NECC Portal under the N43 tab. Calculate the command's average SEER by calculating the sum of all WCs' SEER scores and dividing by the number of WCs evaluated.

2. Assessment of Command Level Effectiveness Review (CLER)

The CLER is an evaluation of the XO's management of the command's maintenance as executed by the 3MC and the DHs.

Specific criteria for CLER evaluation is established by the TYCOM and the command's CLER is calculated by the CLER check sheet provided on the NECC Portal under the N43 tab.

APPENDIX A

SECTION I-B

SCHEDULING AND EXECUTION EFFECTIVENESS REVIEW (SEER)

Command		Department	Division	Work Center	Date	
General Attributes					Value	Points
1.		Does the WC maintain:				
	a.	Current and applicable 3-M messages and notices?			2	
	b.	Listing of personnel qualifications for personnel completing maintenance in the WC? (i.e., PQS, ASM, NEC, Training Completion)?			5	
2.		Is the WCS, and any assistant(s), designated in writing?			2	
Maintenance Requirement Card (MRC) Deck						
3.		Does the LOEP and PMS Schedule reflect all PMS-worthy equipment? (Validate against authoritative database)			10	
4.		Do MRCs accurately reflect assigned MIPs?			10	
5.		Are LGL tables on MRC properly filled out?			2	
6.		Are inapplicable MRC lined out with the appropriate reference (FBR, Scheduling Aid, etc.).			3	
7.		Is mandatory related maintenance properly associated in accordance with the MIP?			10	
8.		Are all MRCs, if printed, the current version?			3	
Chain of Command SKED Administration						
9.		Administrative functions:				
	a.	AAR (percentage from SKED divided by 10):			10	
	b.	Are all PMS changes implemented and approved as required?			2	
	c.	Are previous quarters archived as required?			2	
	d.	Are check note entries accurate, valid, and complete?			5	
Situational Requirements						
10.		Was situational PMS (pre & post op, metered, triggered and state events) accomplished when required?			10	
11.		Are meters updated to reflect reading when PMS was last accomplished?			5	
PMS Execution and Accountability						
12.		Is maintenance assigned only to qualified maintenance personnel?			5	
13.		Are 13-Week Reports retained for the current week and 13 previous weeks? (13-Week Accountability Logs can be electronic or hard copy.)			2	
14.		Does the maintenance on the accountability sheets match maintenance listed in SKED?			2	
15.		Are Tag-Out serial numbers recorded as required?			2	
Feedback Report Management						

16.		Are all Feedback responses applicable to the WC properly managed in the WC?	5	
17.		Are the "Response" blocks in SKED updated as appropriate?	3	
Inactive Equipment Maintenance (IEM)				
18.		Is the start of IEM approved as required?	2	
19.		Are all IEM requirements properly scheduled?	5	
20.		Upon completion of IEM period, was all required IEM maintenance assigned (LU, SU, PM, OT) and mandatory related maintenance scheduled prior to use?	5	
Totals (Attributes evaluated as "NA" are not calculated)	Total Points Available **112**		Total Points Awarded _____	
☐ Above Standards	☐ At Standards		☐ Below Standards	
Above Standards (90% or greater) At Standards (80-89.99%) Below Standards (less than 80%)				
Inspector Name and Command (Print and Sign)				

Partial credit, a lesser number of points awarded if only 80% of a given attribute accomplished.

Total Value	Partial Credit
2	0
3	1
5	3
10	7

No credit, no points awarded if less than 80% accomplished.

Print & Sign Inspector Name/Command   Date

PAR	SAR	AAR	Checks Comp.	Spot Checks Req'd		Qual'd Y/N
					DH: _____	
					DIVO: _____	
					LCPO: _____	
OM	0				WCS: _____	
ADJ MAR					RPPO: _____	

NECC SEER REMARKS

Provide amplifying information to describe the deficiencies driving point deductions. Significant deficiencies must be reported via the final inspection report.

Attribute #	Amplifying Information
Print Name:	Signature:
Command:	Date:

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SEER CHECKLIST ATTRIBUTE GRADING

1. **Attribute 1**: Does the WC PMS File contain:

2. **Attribute 1a.**: Current and applicable 3-M messages?

   Are the latest released 3-M messages applicable in the WC PMS File? Applicable 3-M messages are messages that affect the performance of maintenance. It may vary based on assigned TOA. ISIC should provide guidance and requirements to subordinate units as to which messages are applicable.

3. **Attribute 1b.**: Listing of personnel qualifications for personnel completing maintenance in the WC? (i.e., PQS, ASM, NEC, Training Completion)?

   a.   This means, generally, that the WCS maintains a list of personnel conducting PMA within the WC and their commensurate qualifications necessary to do so. This can either be an accurate ASM report, copies of PQS watch station cover sheets, training certificates, or other authoritative record of qualification. This list must be kept current by the WCS and should reflect "real-time" status.

   b.   Additional items to consider are special qualifications, such as NECC Armorer's Course, or NEC's, as required.

4. **Attribute 2**: Is the WCS, and assistant(s), designated in writing?   (Self-explanatory)

5. **Attribute 3**: Does the LOEP and PMS Schedule reflect all PMS-worthy equipment?

   Verify SKED and OMMS against current authoritative database (RCRP).

6. **Attribute 4:** Do MRCs accurately reflect assigned MIPs?

   a.   Review SKED LOEP Manager, FBR Responses, and Local (ISIC) Guidance.
   b.   Verify through an authoritative database for onboard equipment (NSW Crane Inventory, EXMIS, CBSS, EKMS RCRP).

   c.   Does LOEP FR number match the entry on the WC change page and journal?

   d.   Is the LOEP the most current one issued?

NOTE: **ISIC GUIDANCE FOR WC STANDARDIZATION BY TOA ASSIGNED SHOULD BE PROVIDED TO THEIR UNITS. IF NOT, THEN IT IS THE DISCRETION OF THE TYCOM 3MI TO DETERMINE IF MAINTENANCE GROUPS ARE**
   1. **BUILT PROPERLY BASED ON TOA**
   2. **CONTAIN ALL EQUIPMENT ASSIGNED TO THE WC.**

7. **Attribute 5**: Are LGL tables on MRC properly filled out?
   Does the LGL contain equipment name, accurate equipment location, and equipment unique identifier (if required)?

8. **Attribute 6**: Does the 3MC maintain:

a. Current PMS DVD and Master LOEP? (Self-explanatory)

b. Master LOEP is found on the PMS DVD and may be maintained hard-copy or electronically by the 3MC.

   (1) If changes (MIP additions or deletions) for a WC LOEP are authorized by approved FBR, an up-to-date copy of the altered LOEP must be maintained by the 3MC.

NOTE: **THE CSAL IS COMPRISED OF THE ACTUAL LOG SHEET, A COPY OF ALL MEMOS ROUTED TO THE WCS AND THE MEMO FROM THE WCS TO THE 3MC INDICATING COMPLETION.**

   (2) Are all pen and ink changes on the LOEP, MIPs and MRCs (except where allowed by scheduling aid) annotated with the reference for the change (FBR serial number, ACN, etc.) and properly noted by the correct authority and initialed by LCPO?

   (3) Are all additions and deletions on LOEP, MIP and MRCs noted in SKED with the applicable authorization for the change?

c. Current SKED database back-up files?

9. **Attribute 7**: Is mandatory related maintenance properly associated in accordance with the MIP? Calculate omitted checks, checks that should have been scheduled and completed but were not due to mandatory related maintenance not properly associated in SKED that should have been scheduled based on criteria set forth in the MRC of parent check. (Verify satisfactory condition of parent maintenance check requiring measurements or testing by way of documentation, i.e., AWR, logs)

10. **Attribute 8**: Are all MRCs, if printed, the current version?

a. Verify that hard-copy MRCs are current and validated by the WCS as required.

b. Verify that MRCs changes recorded to the Journal are reflected on the applicable MRC, when applicable.

11. **Attribute 9**: Administrative functions:

a. AAR:

   (1) AAR (percentage from SKED divided by 10):

   (2) Awarded value will be the AAR from the SKED dashboard, sorted by WC, for the period covered by the inspection, divided by 10 and rounded to the nearest whole number. For example, if the AAR is a 76.54% then 8 points are awarded.

   (3) On the WC dashboard, double click the AAR, and it will generate a breakdown of all administrative actions within the WC. If AAR is not 100%, document items that negatively affected the percentage.

b. Are all PMS changes implemented and approved as required?

(1)   Ensure the FR was approved by the DH using WC Journal entries.

(2)   If FR was not implemented on first Monday of the quarter, did the XO authorize late implementation?

(3)   ACNs properly installed.

(4)   MIP and MRC lineouts or customization approved by LCPO or DIVO?

c.   Are previous quarters archived as required?

(1)   Should be completed as part of the FR process.

(2)   Can be reviewed via drop down menu in the WC view.

d.   Are check note entries accurate, valid, and complete?

(1)   Check notes are submitted for all maintenance not accomplished within periodicity.

(2)   Check notes should be detailed enough to explain why non-accomplishment.

12. Attribute 10: Was situational PMS (pre & post op, metered, triggered and state events) accomplished when required?

a.   If there are no situational or conditional checks in the last 13 weeks, marked NA.

b.   Is all required situational maintenance listed on the accountability logs, and in SKED?

(1)   Pre and post operational maintenance required but not documented?

(2)   Meter based or "As Required" (i.e., M-2R or R-7D) maintenance required but not documented?

c.   Are all required LU, PM, SU, and OT on the Accountability Logs and in SKED as required?

d.   Are meters up to date for WC equipment?

13. Attribute 11: Are meters updated to reflect reading when PMS was last accomplished? Check "Meters" under the Situational Tab. Compare the values entered against equipment currently in use or listed on the 13-Week Report for situational maintenance ("as required" or R-Checks).

14. Attribute 12: Is maintenance assigned only to qualified maintenance personnel?

a.   Was maintenance assigned to personnel with 3-M 301 qualification or above?

b.   ASM is single authoritative qualification program for NECC 3-M PQS. If held at previous command FLTMPS printout will suffice if original PQS cover page is unavailable.

c.   For MRCs that indicate or require unique qualifications or NECs, such as: SPO, DCPO, or a specific NEC(s), does the name listed on the 13-Week Accountability Log MP responsible block and signature block hold that qualification?

NOTE: **SOME WEEKS (CURRENT, AND POSSIBLY PREVIOUS) MAY STILL BE IN ROUTING THROUGH COC.**

15. Attribute 13: Are 13-Week Accountability Logs retained for the current week and 13 previous weeks?   (Self-explanatory)   13-Week Accountability Logs can be electronic or hard copy.

NOTE: **THE COLUMNS FOR ANY REPORT GENERATED IN SKED CAN BE MANIPULATED (DRAGGED FROM LEFT TO RIGHT) TO HELP THE INSPECTOR LOCATE PERTINENT INFORMATION NEXT TO EACH OTHER FOR EASIER REVIEW.**

16. Attribute 14: Does the maintenance on the accountability sheets match maintenance listed in SKED?

   a.   Do the maintenance requirements from the completed and signed accountability sheets match the maintenance scheduled and marked completed within SKED?

   b.   The number listed on the Forecasting Tab in the WC menu will display total number of completed checks, or a completed checks report can be generated in the Reports Tab under the Admin menu.

17. Attribute 15: Are Tag-Out serial numbers recorded as required?

   a.   Does all maintenance with the tag-out icon and marked completed in SKED have the tag-out serial number annotated on the check note, or does all maintenance listed and marked completed on the WC's 13-Week Accountability log annotate Tag-Out serial number or N/A?

   b.   N/A is not required for maintenance not completed.

   c.   Tag-Out serial numbers should be validated in the assigned Tag-Out binder.

18. Attribute 16: Are all FBR responses applicable to the WC properly managed in the WC?

   a.   Has the WC received any PMS change notifications or memorandums, ACNs, or FBR responses?

   b.   Have the required changes been installed properly (i.e., revision made and approved, pen and ink changes made to MIPs or MRCs as required) and documented on the Journal or Change Page?

   c.   Are authorized changes maintained until corrected and installed by the NECC Force Revision Disc?

19. Attribute 17: Are the "Response" blocks in SKED updated as appropriate? The response block should be updated as part of the change memorandum workflow, if not, verify memorandums are being received from the 3MC to document changes.

20. Attribute 18: Is the start of IEM approved as required? Did the DH, or designated representative, approve equipment in IEM status?

NOTE: **IF THE EQUIPMENT IS IN IEM II PM MAINTENANCE IS NOT REQUIRED TO BE COMPLETED. VERIFY IEM CATEGORY WITH "IEM" TAB.**

21. Attribute 19: Are all IEM requirements properly scheduled?

   a.   Does the WC SKED contain proper scheduling of all applicable IEM maintenance?

     (1)   The "Review" Tab contains a history of maintenance history.

     (2)   Compare date equipment was placed in IEM to date of last completed IEM maintenance. If maintenance has not been completed IAW the MIP or MRC the grade for this attribute is a zero.

    b.   If WC has a system or equipment in IEM Category II and is an IMA or depot level repair, are JSN(s), Work Documentation for Outside Activity or Repair Center annotated?

    c.   If there is no equipment in IEM in the last 13 weeks, mark as NA.

    d.   Do maintenance items in IEM status II have valid documentation in the IEM remarks? (i.e., JCN, SSIC, 1149)?

    e.   Use OMMS-NG to validate the JCN or availability listed in the IEM remarks that correspond to the actual reason for IEM status II.

    f.   Does the WC maintain a listing of all IEM (IEM log) equipment if not using SKED 3.2 in accordance with TYCOM or ISIC policy?

22 Attribute 20: Upon completion of IEM period, was all required IEM maintenance assigned (LU, SU, PM, OT) and mandatory related maintenance scheduled prior to use?

    a.   Does the WC's SKED properly annotate the completion of the IEM period?

    b.   Did the WCS schedule all missed periodic maintenance once out of IEM? All planned maintenance due during the IEM period must be scheduled at a reasonable time following IEM period, generally within the quarter depending on maintenance material availability, but ISIC policy may be more stringent.

    c.   If there is no equipment in IEM in the last 13 weeks, mark as NA.

APPENDIX A
SECTION II
COMMAND LEVEL EFFECTIVENESS REVIEW (CLER)

Command:			Date:	
General Administration			**Value**	**Points**
1.		Are the 3MC and 3-M Assistant Coordinator PQS Qualified, and designated in writing by the CO?	3	
2.		Does the 3MC maintain oversight of the unit's 3-M qualification program as required?	5	
3.		Are the unit's 3-M qualifications commensurate to meet mission requirements?	10	
4.		Does the 3MC provide weekly status reports to the 3-M Manager?	5	
5.		Does the unit conduct a Planning Board for Maintenance (PB4M)?	10	
PMS Master File				
6.		Does the 3MC maintain:		
	a.	Current PMS DVD?	2	
	b.	Master LOEP reflecting approved pen-and-ink changes?	3	
	c.	Current SKED database back-up files?	5	
PMS Changes				
7.		Does the 3MC:		
	a.	Maintain a standardized, sequential system for tracking FBRs?	5	
	b.	Export and transmit FBRs as required?	5	
	c.	Have an effective system for explaining, routing, and tracking PMS changes?	10	
	d.	Does the CSAL or WC Journal(s) accurately reflect changes to the command's 3-M documentation?	5	
Self-Assessment				
8.		Does the 3MC:		
	a.	Promulgate Spot Check requirements?	5	
9.		Did the unit conduct:		
	a.	Ensure Spot Checks are accomplished as required? (proportionally graded. i.e., if 9 of 10 completed = 10 x .9	10	
	b.	Audits of all WCs? (proportionally graded. i.e., if 9 of 10 completed = 10 x .9)	10	
	c.	Self-Assessment?	10	

Totals (**Attributes evaluated as" NA" are not calculated**)		
Total Points Available: **95**		Total Points Awarded:
☐ Above Standards	☐ At Standards	☐Below Standards
Inspector Name and Command (Print and Sign)		

Attribute Scoring: **Sat = 80 percent or better**

Attributes will be assessed as YES, NO, or NA except those specifically annotated as proportionally graded.

CLER CHECKLIST GRADING ATTRIBUTES

1. **Attribute 1**: Are the 3MC and 3-M Assistant Coordinator PQS Qualified, and designated in writing by the CO?

   a.   Is the 3MC NEC and PQS qualified, does the 3MC have a Letter of Designation signed by the CO?

   b.   Is the 3MA PQS qualified to 3-M 305 at a minimum, and have a Letter of Designation signed by the CO?

2. **Attribute 2**: Does the 3MC maintain a current ASM report of 3-M PQS? Does the 3MC maintain real-time oversite of 3-M qualifications for all personnel? This can be via direct access to ASM or some other means, but with the result being the 3MC tracks who aboard the command has what 3-M qualification(s) and who does not?

3. **Attribute 3**: Are the unit's 3-M qualifications commensurate to meet mission requirements as required? Ensure that all personnel aboard greater than 90 days have obtained the 3-M watch station qualification MP (301) and that personnel filling a 3-M management role (i.e., RPPO to 3MC) and aboard greater than 90 days have obtained all requisite 3-M watch station qualifications for that position."

4. **Attribute 4**: Does the 3MC provide weekly status reports to the XO?

   a.   Does the 3MC report the status of the command's 3-M Self-Assessment Program to the XO each week? Validate that the weekly reports report status of and changes to the Self-Assessment Program elements. These include spot checks (updated weekly), monitored MRCs (as they occur), WC audits (quarterly), bi-annual self-assessment (as it occurs), and deficiency abatement (status changes to POA&Ms as they occur).

   b.   Is the XO report retained for at least one (1) year? (Can be electronic or hard-copy.)

   c.   Ensure to check dates on Weekly XO Report for continuity.

5. **Attribute 5**: Does the activity conduct a PB4M?

6. **Attribute 6**: Does the 3MC maintain:

   a.   Current PMS DVD and Master LOEP? (Self-explanatory)

   b.   Master LOEP is found on the PMS DVD and may be maintained hard-copy or electronically by the 3MC. If changes (MIP additions or deletions) for a WC LOEP are authorized by approved FBR, an up-to-date copy of the altered LOEP must be maintained by the 3MC.

NOTE: **THE CSAL IS COMPRISED OF THE ACTUAL LOG SHEET, A COPY OF ALL MEMOS ROUTED TO THE WCS AND THE MEMO FROM THE WCS TO THE 3MC INDICATING COMPLETION.**

   c.   Does the CSAL or WC Journal accurately reflect changes to the command's 3-M program?

   (1)   CSAL should be in accordance with the example provided in 19-2.3.2.e of this chapter.

     (2)   All PMS changes that would affect the command level should be annotated on the CSAL or WC Journal (i.e., AAMH, ACNs and DITs).

    d.   Current SKED Database back-up files on external media?

     (1)   External media includes but is not limited to DVD-R(W), and external hard drives.

     (2)   If the back-up file is located on the "H", "S" or "C" drive (local disc) of the 3MC's machine, this attribute will be graded as a zero (0).

7. **Attribute 7**: Does the 3MC:

    a.   Maintain a standardized, sequential system for tracking FBRs?

     (1)   If the command is not utilizing a split database configuration, the sequential serialization is completed automatically by SKED, but FBRs should be entered on CSAL.

     (2)   If the command is utilizing a split database configuration, the sequential serialization needs to be done manually by opening the preferences of the FBR.

     (3)   A log will be maintained by the 3-M staff to ensure no duplicate FBR serial numbers are exported.

    b.   Export and transmit FBRs as required?

     (1)   Check "FBR" tab in the WC SKED. All FBRs submitted are listed there, and information for status, date submitted, date exported is readily available. Receipt of exported report by PMSMIS (via RADWEB) must also be verified. This is accomplished by reviewing the serial numbers of unanswered FBRs in PMSMIS to ensure they were received. If the transmitted FBR doesn't exist in PMSMIS 72 hours after transmittal, the 3MC likely did not upload it.

     (2)   Double click to open details if further information is required.

    c.   Have an effective system for explaining, routing, and tracking PMS changes?

    d.   Does the CSAL or WC Journal(s) accurately reflect changes to the command's 3-M documentation?

     (1)   Check CSAL for received and completed PMS changes.

     (2)   Check change memorandums verifying WC installation.

     (3)   Ensure all received and applicable changes have a change memorandum completed from applicable WCs.

     (4)   Verify using "FBR" tab in the WC view.

8. **Attribute 8**: Does the 3MC: Promulgate Spot Check requirements? Ensure Spot Check matrix is inclusive of all levels of the 3-M CoC from the CO to the LCPO.

9. **Attribute 9**: Did the unit conduct:

a.   Does the command ensure Spot Checks are accomplished as required?

    (1)   Compare spot check matrix to number of spot checks completed. Completed spot checks must be recorded into SKED. However, consideration must be made for SKED outages where paper copies may have been used, as well as the exporting of maintenance items when transferred or removed from custody. Maintenance items exported from SKED retain their spot check history. The WC leadership, 3MC or both should have record of maintenance item exported from SKED.

    (2)   Proportionally graded. If 9 of 10 required spot checks are completed, then the multiplier is .9. The attribute is worth 20 points, so the attribute will be graded as (20 x .9 = 18), and 18 points will be awarded.

    (3)   If a non-accomplished or below standard Spot Check is reported, was appropriate follow-up action and abatement conducted to correct deficiency?

b.   Audits of all WCs? (proportionately graded. i.e., if 9 of 10 completed = 10 x .9)

    (1)   Audits are required once quarterly to be conducted by a 3-M 304 qualified E-7 or above.

    (2)   Are findings and discrepancies reported to the WC's CoC?

    (3)   Audits are to be retained for one year (4 QTRS).

c.   Self-assessments?

    (1)   Is the CO debriefed on results of the self-assessment and intended corrective actions?

    (2)   Is the report of self-assessment made via a memorandum from the 3-M Manager to the CO?

APPENDIX A

SECTION III-A

PMS PERFORMANCE RATE (PPR)

PPR (PMS Performance Rate) is calculated using a Command's Maintenance Accomplishment Rate (MAR) and Spot Check Accomplishment Rate (SCAR). The MAR is a combination of the adjusted PAR and SAR, if applicable, multiplied by total SCAR divided by 100 and expressed as a RATE. For example, if a unit is properly scheduling and completing 90% of the checks assigned based on equipment configuration, and the average of Spot Checks conducted is 90%. Then PPR would be (90 x 90) ÷ 100 = 81% PMS Performance RATE.

$$PPR = (MAR \times SCAR) \div 100$$

Assessment of Maintenance Accomplishment Rate (MAR)

The MAR is an evaluation of a command's accomplishment of PMS maintenance requirements within periodicity and as required by situational requirements (R-Checks) and supporting Administrative Actions Required (AAR) within the previous 13 weeks prior to the inspection. Omitted maintenance is maintenance that was supposed to be scheduled and accomplished but was not, no matter the reason. Lost maintenance is scheduled maintenance that was not completed prior to the expiration of periodicity. Omitted maintenance and lost maintenance will be deducted from the WC's MAR in the following manner:

PAR = Completed divided by (Completed + Lost + Omitted).

SAR = Completed divided by (Completed + Lost + Omitted).

$$MAR = (PAR \times .5) + (SAR \times .5).$$

Calculate the command's average MAR by calculating the sum of all WCs' MAR scores and dividing by the number of Work Centers evaluated. Null values - WCs that did not receive a Periodic Accomplishment Rate evaluation - will not be calculated into the CTS.

APPENDIX A

SECTION III-B

SPOT CHECK ACCOMPLISHMENT RATING (SCAR)

The SCAR is a measure of the inspector's confidence that PMS maintenance requirements have been fully accomplished in accordance with PMS requirements. This is evaluated with one major consideration: PMS Spot Checks at the WC level by the inspector.

Inspectors randomly select PMS maintenance requirements that have been recorded as accomplished at the organizational level within the previous 13 weeks until at least two percent of the total number of accomplished maintenance requirements have been selected with a minimum of one per WC. The total number of PMS Spot Checks per WC may be limited to 10 when the two percent results in more than 10 Spot Checks. In the event that no maintenance was completed in the past 13 weeks in a WC or if maintenance personnel whom have signed for completed maintenance in the past 13 weeks are not available to perform a Spot Check, the WC will receive a "Not Applicable" or "NA" evaluation and this will not be calculated toward the Command Total Score.

Calculate each WC's SCAR by dividing the total number of PMS Spot Checks assessed as fully accomplished by the total quantity of PMS Spot Checks conducted in that WC. Calculate the command's average SCAR by calculating the sum of all WCs' SCAR scores and dividing by the number of WCs evaluated. Null values (WCs that did not receive a SCAR evaluation) will not be calculated into the CTS.

1. Complete an MRC Evaluation SCAR Check Sheet equivalent from SKED 3.2 or higher, for each MRC selected. Based on the results, evaluate the overall effectiveness of the accomplishment of each MR selected. Enter a numeric evaluation of each assessment attribute and provide amplifying information to describe the deficiencies driving point deductions. Significant deficiencies must be reported via the final inspection report.

2. Due to the nature of MRC completion, supporting programs such as Tag-Outs and HAZMAT are encountered. Care should be taken to avoid expanding the spot check to a review of the processes of those programs thereby preventing the assessor from determining the accomplishment status of the MRC under review.

3. The following is expanded guidance for completion of the assessment attributes of the Spot Check sheet. Best practices or other policies not supported by source documentation must not be included in evaluating compliance:

   a. (1.a) Determine if the MP is qualified to perform the maintenance task. PQS 301 is required for all MRCs but attention should also be paid to other qualifications required such as SPO, DCPO or graduation from a required school such as NECC Armorer.

   b. (1.b) Determine if the correct TPMTE were used during the performance of the MRC. If the MP did not have the required TPMTE, it is unlikely that they would have been able to complete all the procedural steps of the MRC as

required. If an item of TPMTE was required to perform a conditional step and that step was not required to be accomplished, it is not considered deficient. If the required test equipment required calibration, ensure that the calibration is within date and the equipment is of sufficient scale to accomplish the MRC.

c.   (1.c) Determine if the MP maintained the correct equipment.

d.   (1.d) Examine the MRC to determine that any locally applied changes are authorized by procedural notes, external correspondence or allowed by reference (a).

e.   (1.e) Determine applicability of the MRC to the component that the MP signed for completion.

NOTE: **IF A PROCEDURAL STEP WAS NOT COMPLETED, THE MRC SHOULD NOT HAVE BEEN REPORTED AS COMPLETE AND THEREFORE THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

f.   (2.a) From a variety of potential techniques, determine if the MP performed all the required steps of the MRC. This may be accomplished via re-enactment, a discussion regarding the steps or re-performance. The inspector should come away with a clear impression that all the steps of the MRC were either fully accomplished or not.

NOTE: **IF A REQUIRED TAG-OUT WAS NOT CONDUCTED IN SUPPORT OF ACCOMPLISHING THE MRC, THE MRC SHOULD NOT HAVE BEEN CONDUCTED AND REPRESENTS A SERIOUS SAFETY VIOLATION AND THEREFORE THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

g.   (2.b) If required by the MRC, verify that a tag-out was hung on the day the maintenance was performed. Ensure the isolation boundaries were appropriately identified and correctly positioned to ensure complete isolation of the maintained equipment. If no Tag-Out was required, write "NA" on the sheet.

NOTE: **FAILURE TO ADHERE TO A SAFETY PRECAUTION PROVIDED ON THE MRC CONSTITUTES A SERIOUS SAFETY VIOLATION AND THE FAILURE TO PERFORM THE MRC AS WRITTEN. THE ATTRIBUTE GRADE WILL BE ZERO AND ALL SUBSEQUENT ATTRIBUTES WILL ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

h.   (2.c) Determine compliance with all specific safety precautions listed on the MRC. If no safety requirements were invoked, write "NA" on the sheet.

i.   (3.a) By physical examination of the maintained equipment, determine if maintenance of the nature required by the MRC had been performed. Take note of fasteners that would have had to be disturbed, dirt in filters, fresh oil, etc., to make a judgment as to whether the maintenance has been performed.

If unable to make this determination with absolute certainty, write "NA" on the sheet.

NOTE: **DUE TO THE POTENTIAL LIABILITY INCURRED BY IMPROPER USE AND DISPOSAL OF HAZMAT, SOME WCS HAVE ASSIGNED SPECIALLY TRAINED PERSONNEL TO PROVIDE HAZMAT AND DISPOSAL SERVICES FOR SURPLUS MATERIAL INSTEAD OF THE MP. THIS IS ACCEPTABLE PROVIDED THE INSPECTOR CAN DETERMINE FULL COMPLIANCE.**

j.   (3.b) Determine through questioning and record verification that HAZMAT was properly used and disposed of as a means of determining whether the MRC was accomplished. Once the inspector has determined that the HAZMAT was used and disposed of correctly, this attribute is considered fulfilled. If no HAZMAT was required to be utilized, write "NA" on the sheet.

k.   (3.c) Determine if the MP could have performed the MRC from a standpoint of being trained and proficient in the tasks called out for by the procedure.

l.   (4.a) Determine if the MP filled out the 13-Week Accountability Log correctly or annotated proper disposition of maintenance in SKED for the accomplished MRC with the appropriate accomplishment date. If a tag-out isolation was used, ensure the tag serial number is recorded in the space allowed or as a check note in SKED. Ensure that the printed name and legal signature of the MP who performed the maintenance is recorded or, in case of group performed PMS, the MP in charge of the group.

m.   (4.b) From reviewing the discussions and findings during the spot check, determine if a FBR had been submitted if required. If no FBR was required, write "NA" on the sheet.

n.   (4.c) Determine if a material deficiency was noted during the PMS; if so, examine the CSMP to ensure the deficiency was documented. If no material deficiency was noted, write "NA" on the sheet. If material discrepancies are properly documented in the CSMP attribute graded as a two. Material discrepancies which are not documented in the CSMP will receive an automatic grade of zero.

4. When a Spot Check is determined to be below standards, comments must be made in the "additional remarks" section of the sheet. Detailed descriptions will facilitate root cause analysis, the formulation of an effective corrective action plan and assist to clearly identify factors contributing to deficiencies that led to the conclusion that the MRC was not conducted as written or not conducted at all.

SPOT CHECK ACCOMPLISHMENT RATING (SCAR) CHECK SHEET

Planned Maintenance System (PMS) 3-M Spot Check Form						
SHIP	DEPARTMENT	EQUIPMENT	WORK CENTER	DATE PERFORMED	MIP EVALUATED	MRC EVALUATED

Assigned To:		Assigned Crew:

NOTES:
"*" If attributes 1.a or 2 are evaluated as unsatisfactory, all subsequent attributes will be graded as "0".

Inspection Attribute			Value	Grade	Notes
Contact the MP assigned responsibility for the accomplishment of the MRC, have the individual deliver MRC (and EGL if applicable), and determine the following by questions, personal observation, or both.					
1.	**a.***	Is the MP qualified (PQS) to perform the MR?	**2**		
	b.	Did the MP present the correct tools, Personal Protective Equipment (PPE), parts (NSN), material (Military Specification and calibrated test equipment?	**3**		
	c.	Did the MP properly identify the equipment (location, equipment validation)?	**4**		
	d.	Are there unauthorized changes or corrections to the MRC?	**3**		
	e.	Is the MRC correct for the equipment maintained?	**3**		
Demonstrated all steps of MR including all Notes, Warnings and Cautions according to the MRC.					
2.	**a.***	Followed all steps of the MRC.	**5**		
	b.*	Correctly performed equipment Tag-Out.	**5**		
	c.*	Followed all safety precautions.	**5**		
Does the equipment condition reflect accomplishment of the MRC?					
3.	**a.**	Is it apparent that maintenance was performed recently?	**10**		
	b.	Correctly demonstrated use and disposal of Hazardous Material.	**3**		
	c.	Was the MRC within the capability of the assigned individual?	**5**		
PMS Reporting					
4.	**a.**	MP reported status of MR to the WCS if Completed or Not Fully Accomplished and made appropriate updates.	**2**		
	b.	WC generated FBR for any problem with MRC.	**2**		
	c.	Material deficiencies detected by the PMS action were recorded in MDS.	**2**		
Attributes Evaluated as "NA" are not Calculated					
Total Points Available:			**Total Points Awarded:**		
Spot Check (SCAR) (Grade = Points Awarded ÷ Points Available): SCAR =					

Above Standards (90% or greater)	At Standards (85-89.99%)	Below Standards (less than 85%)
☐ **Above Standards**	☐ **At Standards**	☐ **Below Standards**

<mark>**Below Standard grade requires immediate accomplishment (if 3-M Manager determines re-performance is required) monitored by a Chief Petty Officer**</mark>

Additional Remarks:

Printed Name:_____Signature:_____

Command:_____Date:_____

APPENDIX A

SECTION IV-A

CSMP VALIDITY FACTOR (CVF) CHECKLIST

UNIT	DEPARTMENT	DIVISION	WORK CENTER	DATE

CSMP VALIDITY (RAW DATA)		
ASSESSMENT ATTRIBUTE		**VALUE**
1.	Number of TA-1 (Depot) Automated Work Requests (AWR).	
2.	Number of TA-2 (Intermediate Maintenance Activity) AWR.	
3.	Number of TA-3 (SYSCOM/OTA/Contractor Rep) AWR.	
4.	Number of TA-4 (Ship's Force) AWR.	
5.	**Total Number of Work Candidates (WC)** Sum of 1 – 4.	
6.	Number of TA-2 AWR over 180 days old.	
7.	Number of TA-4 AWR over 180 days old not forwarded to ISIC as required.	
8.	**Aged AWR Work Candidates (WCO)** Sum 6 and 7.	
9.	**Material Correction Rate: WCO/3 (Aged TA-4).** (#7/3)/#4	
10.	CSMP Validity review results from CVF Sheet. Enter score from CVF Worksheet.	
11.	Number of Ship's Force (TA-4) AWR over 7 days old that require parts and the parts are not submitted to RSUPPLY.	
12.	Open Ship's Force WC over 30 days old, not up-lined to the Master CSMP.	
13.	Total Work Candidate Deficiencies (WCD) Sum. (#11 - #12)/#4	
14.	Work Candidate Multiple Average #9, #10 and #13	
15.	Number of material deficiencies noted on materiel condition inspections and spot checks not documented in CSMP.	
16.	Deductions #15/#5	
17.	CSMP Validity Average #14 and #16	
	Weighted Work Center Totals	

CSMP Validity

☐ Above Standards ☐ At Standards ☐ Below Standards

Above Standards (90% or greater), At Standards (80-89%), Below Standards (less than 80%)

Remarks:

CSMP VALIDITY FACTOR (CVF) GRADING ATTRIBUTES

NOTE: SEVERAL ATTRIBUTES CONTAINED ON THE CSMP VALIDITY CHECKLIST ARE NOT INCORPORATED INTO THE GRADE AND ARE DESIGNED TO CAPTURE CSMP DATA FOR FURTHER ANALYSIS.

1. **Attribute 1**: Number of Type Availability (T/A) 1 Work Candidates. Defined as Depot level work candidates.

2. **Attribute 2**: Number of Type Availability (T/A) 2 Work Candidates. Defined as Intermediate Maintenance Activity (IMA) level work candidates.

3. **Attribute 3**: Number of Type Availability (T/A) 3 Work Candidates. Defined as Technical Support request work candidates in the CSMP.

4. **Attribute 4**: Number of Type Availability (T/A) 4 Work Candidates. Defined as Ships Force level work candidates.

5. **Attribute 5**: Total Work Candidates (sum of attributes 1 thru 4).   Defined as All work candidates in the CSMP.

6. **Attribute 6**: Number of TA-2 Work Candidates over 180 Days old.

7. **Attribute 7**: Number of TA-4 Work Candidates over 180 Days old.

8. **Attribute 8**: Aged Work Candidates (WCO) sum of 6 and 7.

9. **Attribute 9**: Material Correction Rate WCO/3 (Aged TA-4) (#7/3)/#4. Defined as total TA2 and TA4 work candidates in the CSMP over 180 days old, divided by 3. That total is divided by Attribute 4: Number of TA-4 Work Candidates. This numerically defines if command is managing CSMP and maintenance.

10. **Attribute 10**: CSMP Validity review results from CVF Sheet Enter score from CVF Worksheet. CVF Work Candidate Worksheet is used for this score.

11. **Attribute 11**: Ship's Force WC over seven days old that require parts and the parts are not ordered. RPPO log (submitted by the command prior to assessment) along with actual R-supply verification will be utilized to determine this attribute.

12. **Attribute 12**: Total Work Candidate Deficiencies (WDC) Sum (#11/#4).   Place the result from Attribute 11: Ship's Force WC over seven days old that require parts and the parts are not ordered divided by Attribute 4: Number of TA-4 Work Candidates.

13. **Attribute 13**: Work Candidate Multiple Average, #10 minus (#9 + #12) = CSMP Validity

		CSMP VALIDITY FACTOR (CVF) WORK CANDIDATE WORKSHEET													

COMMAND:_____ **DATE:**_____

DEPARTMENT:_____ **DIVISION:**_____ **WORK CENTER:**_____

JCN	EQUIP	Material not Ordered > 7 days			1	2	3	4	5	6	7	8	9		CVF
		Y	N	N/A											
		Y	N	N/A											
		Y	N	N/A											
		Y	N	N/A											
		Y	N	N/A											
		Y	N	N/A											
		Y	N	N/A											
		Y	N	N/A											
		Y	N	N/A											
CVF	Average of all cells				AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG

Number of Jobs Reviewed:

CSMP entry was reviewed with the following results:		Minus PTs
1. The work candidate written against the correct configuration item?	#1 QTY	**15**
2. Problem description was adequate.	#2 QTY	**10**
3. Recommended solution was adequate.	#3 QTY	**15**
4. Deferral reason was incorrect.	#4 QTY	**10**
5. 1st and 2nd contact not assigned. (Cannot be the same person)	#5 QTY	**10**
6. Write-up does not reflect maintenance level assigned. (Originating WC, Intermediate Maintenance Activity, Depot Level Maintenance)	#6 QTY	**10**
7. Incorrect CSMP summary. (Does not state the problem)	#7 QTY	10
8. Priority code incorrect.	#8 QTY	5
9. Does the Work Candidate Equipment Status Code match problem description? (Operational or Non-Operational)	#9 QTY	15
10. Does the work candidate reflect the current and correct status of the material deficiency?	#10 QTY	Yes or No

Enter only numeric portion of JSN after ensuring that Department and WC header is filled in.

NOTE: IF ITEM #10 IS "NO", THE WORK CANDIDATE WILL BE ZERO.

Assessment of CSMP Validity Factor (CVF). The CVF is an evaluation of a WC's ability to accurately record deferred and corrective maintenance actions in the MDS. This is evaluated at the command level utilizing both the CVF Work Candidate (2K) check sheet. Inspectors will evaluate between 25 and 100 percent of deferred maintenance actions, per WC recorded on the CSMP. The results of the work candidate evaluation are then transferred to the CVF Score Sheet for

incorporation with other attributes evaluated. Calculate each WC's CVF as required by the CVF check sheet provided on NECC Portal under the N43 tab. Calculate the command's average CVF by calculating the sum of all WCs' CVF scores and dividing by the number of WCs evaluated. Null values (WCs that did not receive a CVF evaluation) will not be calculated into the CTS.

APPENDIX A

SECTION IV-B

REPORTING AND ASI PROCESSING CONFIDENCE FACTOR (RAF) REVIEW

UNIT:

MDS Administration	Points Available	Points Awarded
1. Does the 3MC have a mechanism to track and remove users from MDS as they depart the command?	2	
Configuration Management		
2. Does the 3MC maintain a master file to track Configuration Item record validations?	3	
3. Have all Parent-Level configuration items validated within prescribed timelines?	10	
4. Is monthly follow-up action initiated with the CDM for CKs awaiting response in excess of 60 days?	5	
5. Is the Review and Approval queue free of configuration transactions older than 7 days?	10	
Work Candidate Management		
6. Is each Department conducting monthly CSMP review?	10	
7. Are there any approved Work Candidates with a Priority Designator of 1-3, without a CASREP as required?	5	
8. Are Work Candidates, older than 180 days, forwarded to ISIC for assistance, if required?	3	
9. Is the Review and Approval queue free of Work Candidates with no approval, over 7 days?	10	
OMMS-NG System Maintenance		
10. Are completed reports regularly deleted?	2	
11. Is the Import Correction queue empty?	2	
12. Has "Inactivate" been run in the past 15 days?	2	
13. Has "Archive" been run in the past 15 days?	2	
ASI Processing & Upline Reporting		
14. Does the 3MC maintain an up-to-date ASI or Upline log?	5	
15. Is the OMMS-NG Batch Job Queue routinely purged of completed processes?	5	
16. Are .uru, .pts, and error report files kept for one year?	3	
17. Are ASI_CDM error reports forwarded to the CDM following completion of each ASI?	3	

Attributes Evaluated as "NA" are not Calculated		
Total Points Available:	82	
Total Points Awarded:	⬛	
RAF % = TP Awarded divided by TP Available	**RAF**** 120	
Inspector's Name and Rate:_____Date:_____		
Inspector Notes:		

** SAT = 80% or better

All attributes are assessed with a YES, NO or NA status. No partial points will be awarded.

APPENDIX A

SECTION IV-C

MAINTENANCE DATA SYSTEM PERFORMANCE RATE (MPR)

MDS Performance Rate (MPR) is an evaluation of the Current Ship's Maintenance Project Validity Factor (CVF) and Reporting and Automated Shore Interface (ASI) Processing Confidence Factor (RAF) calculated by multiplying the CVF and RAF score divided by 100 and expressed as a RATE. For example, if a unit has a CVF of 90% and a RAF of 90%, then the MPR would be (90 x 90) ÷ 100 = 81% MPR.

$$MPR = (CVF \times RAF) \div 100$$

The MPR has an overall 40% weight of the overall 3M Inspection grade. This comes from the weight commanders place on CSMP accuracy and validity. This leads to proper maintenance action planning at the lowest cost, drives manning, and budget requirements.

Specific criteria for MPR evaluation is established by the TYCOM and the approved MPR check sheet is provided on the NECC Portal under the N43 tab.

Assessment of Current Ship's Maintenance Project Validity Factor (CVF). The CVF is an evaluation of a WC's ability to accurately record deferred and corrective maintenance actions in MDS. This is evaluated at the command level utilizing both the CVF Work Candidate (2K) check sheet.

Inspectors will evaluate between 25 and 100 percent of deferred maintenance actions, per WC recorded on the CSMP. The results of the work candidate evaluation are then transferred to the CVF Score Sheet for incorporation with other attributes evaluated.

Calculate each WC's CVF as required by the CVF check sheet provided on NECC Portal under the N43 tab. Calculate the command's average CVF by calculating the sum of all WCs CVF scores and dividing by the number of WCs evaluated. Null values - WCs that did not receive a CVF evaluation - will not be calculated into the CTS.

Reporting and ASI Processing Confidence Factor (RAF). The RAF is an evaluation of a command's ability to accurately report MDS records and ASI processing. Specific criteria for RAF is established by the TYCOM and the command's RAF is calculated by the RAF check sheet provided on the NECC Portal under the N43 tab.

APPENDIX A
SECTION V
COMMAND TOTAL SCORE

1. The CTS consists of three (3) parts and weighted as follows:

$$APR = (SEER \text{ average} + CLER) \text{ divided by } 2$$

$$\text{Weighted PPR} = (MAR \times SCAR) \text{ divided by } 100.$$

$$\text{Weighted MPR} = (\text{Weighted CVF} \times RAF) \text{ divided by } 100$$

$$CTS = (APR \times .2) + (PPR \times .4) + (MPR \times .4)$$

2. A minimum grade point of 80 is required for a satisfactory score. The final grade is awarded based on final scores as established utilizing grading check sheets.

3-M ASSESSMENT TOTALS WORK SHEET

UNIT NAME			Total Weight	SEER	SCAR	SCAR WEIGHT Section II X Total Weight	PAR	SAR	MAR	MAR WEIGHT Section III X Total Weight	CVF	CVF WEIGHT Section IV X Total Weight	RAF	CLER	Weighted Work Center Total Score
WORK CENTER	Total Checks completed by command	Total Checks completed by Work Center	Divide workcenter total checks by Command total Checks	Section I Scheduling Execution and Effectiveness Review	Section II Spot Check Accomplishment Rating		Planned Maint Acc % from SKED	Situational Acc % from SKED	Section III Maintenance Accomplishment Rate		Section IV CSMP Validity Factor		Section IV	Section I Command Level Executive Review	Work Center Weighted Score Section I-IV
Total checks completed by Command			0	Average W/C Total Score	Average SCAR	Weighted SCAR			Average MAR	Weighted MAR	Average CVF	Weighted CVF	RAF	CLER	COMMAND TOTAL SCORE
COMMAND TOTAL SCORE:															

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APPENDIX A

APPENDIX B

FORMAT FOR REPORTING 3-M INSPECTIONS

4790
Ser
Date

From: Accomplishing Activity
To: Commanding Officer (Command Name and Hull Number (if applicable.)

Subj: REPORT OF 3-M INSPECTION OF

Ref: (a) NAVSEAINST 4790.8 (series); Ships' Maintenance and Material Management (3-M) Manual

        (b) COMUSFLTFORCOMINST 4790.3; Joint Fleet Maintenance Manual, Volume VI, Chapter 19

Encl: (1) (as required)

1. Per references (a) and (b), a 3-M Inspection of (_____) was conducted during the period (Date) to (Date).

2. During this inspection, the following significant deficiencies were discovered:

    a.   (List)

Specific department and WC deficiencies are provided in enclosure(s) (1) through ( ).

3. The following overall ship or department numerical assessments are assigned:

    a.   3-M Total Score   _____

    b.   3-M Inspection   _____
                       (Above, At or Below Standards)

Copy to:
Immediate Superior In Command (with enclosures)

Type Commander (with enclosures)

VOLUME VI

CHAPTER 19-3

NAVAL INFORMATION FORCES

REFERENCES**.**

(a)   NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual

(b)   NAVEDTRA 43241 - Personnel Qualification Standard for Ship's Maintenance and Material Management (3-M) System

(c)   NAVSUP P-485 – Naval Supply Procedures

(d)   COMNAVIDFOR M-2066.1 – Base Communications Operations

(e)   COMNAVIFORINST 11311.1 – Test and Maintenance Requirements for Generators, UPS, and Chillers Ashore

(f)   CNICINST 11000.3 – Zone Inspection, Building Manager and Building Energy Monitor Programs

(g)   SECNAV M-5239.2 – Cyber Information Technology and Cybersecurity Workforce Management and Qualification Manual

(h)   OPNAVINST 5100.23 - Navy Safety and Occupational Health Program

(i)   CNICINST 5100.2 – Tagout and Lockout Energized Work Program

(j)   UFC 3-560-01 – Operation and Maintenance: Electrical Safety

LIST OF APPENDICES.

A   Inspection Criteria
B   Division Inactive Equipment Maintenance Plan
C   Format for Reporting 3-M Inspections

19-3.1 ROLES AND RESPONSIBILITIES.

a.   Type Commander. The Type Commander (TYCOM) exercises primary responsibility for the effective operation and support of the 3-M System. Areas of responsibility include but are not limited to the following:

   (1)   Ashore Maintenance Data System (MDS).

        (a)   Automated Work Notification (AWN).

        (b)   Maintenance Figure of Merit family of systems.

   (2)   Planned Maintenance System (PMS) Scheduling (SKED) software.

   (3)   Configuration Data Managers Database - Open Architecture (CDMD-OA) and Model Based Product Support (MBPS).

   (4)   Scheduling and conducting 3-M Inspections (3MI), Training Assist Visits (TAV), and Evaluation Visits to be conducted by both TYCOM and Immediate Superior In Commands (ISIC).

   (5)   Master Job Catalog.

   (6)   The screening and processing of PMS feedback reports (FBR).

(7)   Maintaining inspection data files.

(8)   Providing program enhancement requirements to the respective Fleet Commander via N43.

(9)   Ensuring units are manned with Navy Enlisted Classification (NEC) qualified 3-M Coordinators (3MC).

(10)   Analyzing 3-M and self-assessment data, identifying common concerns, conducting problem root cause analysis with the development and implementation of solutions.

(11)   Ensuring TYCOM inspection team members are qualified to inspect assigned areas.

b.   Immediate Superior In Command. The ISIC is responsible for the routine monitoring and evaluation of the 3-M System for all assigned activities. Areas of responsibility include but are not limited to the following:

(1)   Designating a 3-M Officer (3MO) in writing. The 3MO is responsible for the satisfactory administration of 3-M programs, per reference (a) and this subchapter, for subordinate commands or activities. The 3MO will maintain staff PMS and Personnel Qualification Standards (PQS) records.

(2)   Monitoring and evaluating 3-M program for all assigned units. Responsible for all TAVs as assigned by the TYCOM.

(3)   Ensuring 3MI are current.

(4)   Ensuring subordinate commands conduct rigorous quarterly 3-M Self-Assessments and report results to the TYCOM 3MC.

(5)   Monitoring the status of troubled systems and Top Management Attention items using the quarterly 3-M Self-Assessment.

(6)   Ensuring subordinate commands comply with standard Work Center (WC), division and department structure.

(7)   Tracking and monitoring 3-M major milestones and training events, overseeing, and providing inspection teams and conducting 3-M Spot Checks during ISIC or staff visits.

(8)   Forward all ISIC conducted 3MIs and TAVs to the TYCOM, and 30-day updates from post 3MI and TAV Plan of Action and Milestones (POA&M).

c.   Inspection Teams. Areas of responsibility include but are not limited to the following:

(1)   Scheduling and conducting 3MIs and training events as directed.

(2)   Reporting of training status and certification recommendations to the TYCOM to include any perceived barriers to effective and timely completion of 3-M events.

(3)   Ensuring material failures are adequately examined to detect 3-M system inadequacies.

d.   Commanding Officer or Officer In Charge. The Commanding Officer (CO) or Officer In Charge (OIC) or site Technical Director is responsible for establishing an aggressive Self-Assessment Program that validates the administration and execution of maintenance and detects improperly conducted maintenance or falsely reported accomplishments.

e.   Executive Officer. The Executive Officer (XO) is the command's 3-M System Manager responsible to the CO or OIC for the overall management of the 3-M Program. For sites with no on-site executive officer, the OIC or technical director will ensure locally the below functions are conducted, and briefed to the ISIC Executive Officer. The XO will:

   (1)   Chair quarterly 3-M System meetings with Department Heads (DH) and the 3MC.

   (2)   Brief the CO on the status of 3-M.

   (3)   Integrate 3-M System training into the command's training and qualification program.

   (4)   Ensure personnel receive adequate and effective 3-M System training.

   (5)   Ensure the effectiveness of the command's 3-M Self-Assessment Program.

   (6)   Act as the final review officer for shifts of maintenance responsibility between departments.

   (7)   Establish a command Zone Inspection Program.

f.   Command Master Chief. The Command Master Chief will:

   (1)   Attend the XO's scheduled 3-M System meetings providing senior enlisted feedback.

   (2)   Conduct PMS Spot Checks following the command's policy to ensure required maintenance is being properly performed and documented.

g.   Command 3-M Coordinator. The 3MC will:

   (1)   Serve as the key 3-M System assistant to the XO.

   (2)   Maintain a file of 3-M System directives, newsletters, notes, and correspondence containing current 3-M program information and ensure distribution to WC personnel.

   (3)   Maintain copies of the current Force Revision (FR) NAVY PMS Digital Video Disk (DVD), List of Effective Pages (LOEP) for every WC, changes issued between FRs in their original format and classified Maintenance Requirement Cards (MRCs). Digital copies are allowed unless there have been changes between FRs.

   (4)   Advise, monitor, and assist DHs, division officers (DIVOs), leading chief petty officers (LCPOs) and work center supervisors (WCS) in matters concerning the 3-M System.

(5)   Monitor the 3-M PQS Program and maintain an auditable record of personnel qualified in 3-M PQS.

(6)   Maintain a master accountability log of all PMS changes.

(7)   Develop and maintain a Split Maintenance Index Page (MIP) Log.

(8)   Administer the configuration management program.

(9)   Supervise the command's 3-M Self-Assessment Program and provide a weekly status to the XO.

(10)   Develop and administer the PMS Spot Check Program.

(11)   Generate a weekly PMS Spot Check assignment matrix for officers, Chief Petty Officers (CPO) and designated supervisory personnel.

(12)   Ensure corrective actions are taken on all unsatisfactory PMS Spot Checks and report same to the XO as part of weekly PMS reporting.

(13)   Ensure a complete back up of the SKED system is made on removable media (e.g., DVD or Compact Disk (CD)) following completion of the FR update and retain as part of the PMS Master File.

(14)   Ensure situational requirements are triggered in SKED and completed based on unit events.

(15)   Ensure that Triggers are properly set at the command level.

(16)   Screen all FBRs, verify content, validity, serialize and forward within seven days of origination.

(17)   Maintain accountability of all submitted FBRs and actions taken until corrected or new PMS documentation is received.

(18)   Ensure the FBR originator and all applicable WCs are apprised of action taken and that changes or corrections are implemented when received.

(19)   Ensure 3-M documents such as Maintenance Action Form OPNAV 4790/2K (2-Kilo), Configuration Change Forms OPNAV 4790/CK, etc. that require forwarding to a data processing activity are forwarded within seven days of origination or as operationally feasible.

(20)   Validate 3-M MDS data elements following the 3-M validation specifications.

(21)   Ensure 3-M documents returned for the correction of data are promptly revised and resubmitted.

(22)   Track the reporting of completed maintenance actions related to an alteration or because of a configuration change with timely processing of Automated Shore Interface configuration and logistic data (as applicable).

(23)   Report up-line CSMP maintenance transactions and command equipment file corrections at least once a week.

(24)   Ensure current external backups of the command's Configuration Management Database are created on removable media (e.g., DVD or CD).

(25)   Maintain any outstanding paper copies of message work candidates and 2-Kilos (paper or electronic).

(26)   Maintain a record of account creation documents as per volume II part 2 chapter 1 of this manual.

(27)   Ensure the sites in which responsible are conducting equipment validations in such a manner that one hundred percent of configuration items are validated in a 36-month period.

(28)   Review all shore installation packages for Configuration, PMS, or Locally Generated Maintenance requirements in the shore installation program SPIDER.

h.   Department Head. The DH is responsible to the XO for the operation and execution of the 3-M System within the department. Duties and responsibilities assigned to the DH are not to be delegated. The DH will:

(1)   Designate departmental 3-M personnel as applicable.

(2)   Ensure maintenance is prioritized to facilitate accomplishment.

(3)   Review and approve all department PMS schedules and revisions.

(4)   Review maintenance action annotations.

(5)   Acknowledge weekly alerts if no DIVO is assigned to the WC.

(6)   Implement a Self-Assessment Program within the department to validate properly accomplished and reported maintenance.

(7)   Take corrective action on all "Unsatisfactory" PMS Spot Checks and report to the XO via 3MC as part of weekly PMS reporting.

(8)   Ensure all material deficiencies are documented and promptly reported.

(9)   Review and verify the content and validity of all FBRs, digitally sign FBRs within five days of origination.

(10)   Ensure the Configuration Management Database accurately reflects equipment changes whether the action is performed by command personnel or outside activities.

(11)   Authorize placement of equipment into an Inactive Equipment Maintenance (IEM) status, ensure PMS scheduling is annotated accordingly.

(12)   Review and approve department work candidates within four days of creation; ensure completeness, accuracy, and the correct assignment of priority.

(13)   Review all work candidates in the departmental CSMP every 90 days.

(14)   Ensure that no classified data is reflected on 3-M documents designated for off hull distribution.

(15)   Conduct quarterly meetings with DIVOs, LCPOs and WCSs and provide status of departmental 3-M System to the XO.

i.   Department Leading Chief Petty Officer. The department LCPO is responsible for the proper operation of the 3-M System within their department. The department LCPO will:

   (1)   Provide 3-M System guidance and training to DIVOs and division LCPOs within their Department.

   (2)   Participate in quarterly Self-Assessments.

   (3)   Ensure the proper testing and inspection of work done by outside activities prior to job acceptance.

j.   Division Officer. The DIVO is responsible to the DH for the execution of maintenance within the division. The DIVO will:

   (1)   Ensure all PMS scheduling changes have been properly annotated and applied prior to DH review and finalization.

   (2)   Review the 13-Week Accountability Log at the beginning of the PMS week and sign at the end of the week (if not using electronic accountability in SKED or when SKED is not available).

   (3)   Review and verify the content and validity of PMS FBRs within three days of origination.

   (4)   Ensure 3-M documents generated within the division are complete, accurate and promptly submitted to the DH.

   (5)   Conduct 3-M Self-Assessments as directed by the command's policy.

   (6)   Provide weekly updates to the DH concerning the status of the 3-M System within the division.

   (7)   Incorporate 3-M System training into the Divisional Training Plan.

   (8)   Review divisional work candidates and the CSMP for validity and accuracy.

   (9)   Conduct monthly briefings for the DH on the status of all work candidates.

   (10)   Acknowledge PMS Alerts.

   (11)   Conduct weekly close-outs when the LCPO is not available.

   (12)   When no LCPO is designated perform the functions of the LCPO, as well.

k.   Division Leading Chief Petty Officer. The division LCPO is responsible for the proper operation of the 3-M System within their division. The division LCPO will:

   (1)   Supervise WCSs in the execution of daily maintenance.

   (2)   Ensure WCSs are properly trained, equipped and are knowledgeable of all WC divisional equipment maintenance requirements.

   (3)   Ensure divisional personnel are properly trained and qualified to conduct maintenance.

   (4)   Verify all divisional WC equipment is covered by PMS.

(5)   Ensure PMS is properly scheduled and conducted, including all underway and special evolution situational "R" checks.

(6)   Review WC PMS records (e.g., FRs, Advanced Change Notices (ACN) and PMS FBRs and Responses), approve all lineouts and additions on the LOEP, MIP, and PMS schedules prior to DIVO and DH reviews. Ensure proper justification is noted on each lineout.

(7)   Review and approve non-applicable procedural steps lined-out on MRCs.

(8)   Review and sign the 13-Week Accountability Log at the end of the PMS week and ensure checks added that week are hand-written into the blank accountability log. (If not using electronic accountability in SKED or when SKED is not available.

(9)   Review the PMS Scheduling Forecasting Report to ensure that all Tools, Parts, Material and Test Equipment (TPMTE) are available to support upcoming maintenance actions.

(10)   Provide the DIVO a weekly status of the division's Self-Assessment Program, CSMP and PMS.

(11)   Ensure the Configuration Management Database reflects current configuration.

(12)   Ensure FBRs are submitted requesting LOEP changes to reflect system, equipment and component installs or removals.

(13)   Review and verify the content and validity of PMS FBRs within two days of origination.

(14)   Ensure the divisional CSMP accurately reflects material conditions.

(15)   Review and approve work candidates, act as the second point of contact for work candidates and provide the DIVO a weekly brief on the status of all work candidates in the CSMP.

(16)   Ensure proper testing and inspection of work done by outside activities prior to job acceptance.

(17)   Coordinate repair activities within the division.

(18)   Review all quarterly Self-Assessments and promptly correct discrepancies found within the division.

(19)   Review, approve, and close out weekly schedules. This closeout of the previous week's schedules must occur on the first day of the following week.

(20)   Review Check Notes for required and updated information.

(21)   Write PMS Alert details to include why planning allowed loss of periodicity and the plan to complete PMS.

(22)   When no DIVO is designated perform the functions of the DIVO as well.

l. Work Center Supervisor. The WCS should be a senior petty officer assigned to the WC and qualified per reference (b) or civilian equivalent. The WCS will:

(1) Maintain a detailed working knowledge of all equipment deficiencies within the WC. Record all equipment deficiencies within their WC, utilizing AWN to ensure all required 3-M System documents are submitted to the division LCPO.

(2) Ensure WC personnel have completed 3-M PQS training commensurate with position held.

(3) Ensure PMS covers all maintenance worthy equipment in the WC.

(4) Maintain an accurate and current LOEP.

(5) Ensure 3-M System WC files and publications are complete, current, and available to WC personnel.

(6) Ensure WC initiated 3-M documentation is correct, legible, promptly prepared and submitted.

(7) Maintain a 13-Week Accountability Log containing the current and previous 13-Week Log (if not using electronic accountability in SKED or when SKED is not available).

(8) Prepare weekly WC schedule, obtain required approval, assign maintenance personnel, and update schedule to reflect status.

(9) Ensure equipment changes, adds and removals are reflected in the Configuration Management Database and, if not, report via 4790/CK to the Configuration Data Manager (CDM).

(10) Ensure FBRs are submitted whenever:

(a) Maintenance requirements are not fully understood.

(b) Errors are believed to exist.

(c) Entries in the TPMTE block are wrong or inadequate.

(d) Additional coverage is needed.

(e) Performance of the maintenance requirement would cause a hazardous condition to exist.

(11) Ensure prompt reporting of all material deficiencies and completed maintenance actions.

(12) Ensure Periodic Maintenance Requirements scheduled for command accomplishment are completed and reported as required.

(13) Ensure test and measurement equipment or other portable support equipment is delivered for test or calibration as scheduled.

(14) Ensure the DIVO and division LCPO or LPO are advised of all 3-M System activity within the WC.

      (15)   Spot check completed equipment file validations; ensure accuracy of the information and PMS scheduling equipment associations.

      (16)   Review the PMS Scheduling Forecasting Report to ensure that all TPMTE is available to support upcoming maintenance actions.

      (17)   Ensure all WC weekly schedules are updated daily.

      (18)   Use the Edit Equipment Details function of SKED to the maximum extent possible to associate maintenance items to the CDMD-OA database embedded in SKED 3.2 for configuration Items. The association should be made to the highest level or piece of the applicable equipment being maintained.

m.   Repair Parts Petty Officer. RPPO personnel are responsible to support the supply acquisition process for the shore site. Due to Naval information Forces' (NAVIFOR) unique nature and not having a RSUPPLY back-end to AWN. RPPO will:

      (1)   Order all NSN based parts per reference (c).

      (2)   Ensure all funding expenditures are captured as outlined in section 19-3.4.2 of this chapter.

      (3)   Maintain a RPPO log, to ensure accurate transactions with Supply Staff.

n.   Maintenance Personnel. Maintenance personnel will perform all PMS as assigned utilizing PMS documents in SKED and ensure Check Notes contain amplifying information and tagout identifiers as required. Maintenance personnel will:

      (1)   Perform assigned maintenance.

      (2)   Notify the WCS when:

          (a)   An MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

          (b)   There are issues with the TPMTE block of the MRC.

          (c)   The technician has doubts concerning his or her ability to perform the maintenance.

          (d)   Equipment deficiencies or casualties are discovered.

          (e)   Factors exist which would make performance of the maintenance unwise or dangerous.

      (3)   Initiate FBRs when discrepancies are discovered during the performance of an MRC.

      (4)   Inform the WCS when planned maintenance requirements are complete.

      (5)   Annotate PMS schedule to reflect accomplishment of maintenance.

      (6)   Sign 13-Week Accountability Log (if not using electronic accountability in SKED or when SKED is not available).

      (7)   Open a Work Notification in AWN when any discrepancy is annotated.

o.   Other Roles and Responsibilities

(1)   Memorandum of Agreements (MOA) must be in place, per reference (f), when two sites are operating outside of the single site structure or tenant commands of one another to clearly define the responsibilities of both sites

(2)   Entities not covered by traditional 3M roles and responsibilities but are either required or contracted to conduct maintenance, whether hardware or software, must have those roles clearly defined by either a contract or MOA per reference (i). The site must still utilize the Navy's 3M system to track the completion of this maintenance. If the utilized entity is outside of the site, the site will utilize a cent sign as dictated in this instruction to accomplish the maintenance actions.

(3)   Commands that may not have the PMS portion of 3-M, are still required to utilize MDS for mission readiness when the unavailability of the services effects mission capability, configuration management, facility issues, funding expenditures of Operation and Maintenance dollars, and man-hour expenditures for equipment driven and equipment supporting tasks.

(4)   Base Communications Operations (BCO) as defined in reference (d) have configurations such as but not limited to Universal Power Supplies (UPS), Generators, and Definity Servers that are to be maintained in accordance with this manual. All BCO deficiencies and updated configurations are to be documented and maintained in accordance with section 19-3.4.2 and volume VI, chapter 19-7 of this manual.

(5)   NAVIFOR has a large amount of small boats, all small boats maintenance will follow in addition to this chapter, JFMM VOL VI, chapter 11.

(6)   For equipment supporting and installed on Military Sealift Command ships by NAVIFOR activities, will use JFMM VOL VI in the performance of their maintenance and deficiency reporting.

19-3.2 QUALIFICATIONS. All personnel assigned to billets associated with the 3-M system must be 3-M PQS qualified for the assigned billet per reference (b).

a.   All military, civilian, or contract, who are on-site contractors providing maintenance coverage, assigned or contracted to billets associated with performing 3-M must complete required 3-M PQS, which coincides with their position or billet. All military, Department of Defense civilian, and contractors are required to re-qualify when directed by a PQS revision, or if the member's qualification date has exceeded 5 years. For Local National (LN) personnel, where the LN cannot be qualified a Military or Government employee must perform a quality review of the work, and sign-off the maintenance as the government official.

b.   3MCs are responsible for maintaining an effective 3-M training program designed to equip personnel with the knowledge and skills required for their designated position incorporated into the long term and short-term training plans, to include but not limited to requirements outlined in reference (a).

c.   Evidence of qualification in support of 3-M requirements must be maintained by the command in an auditable record. Fleet Training Management and Planning System

(FLTMPS) reporting is the required method to reflect qualifications and NEC requirements.

d.　Cyber security work force qualification and certifications for system administrator maintenance must be maintained as applicable to the user or system administration role of the performance of maintenance, further delineated below and in reference (g)

　(1)　Minimum qualification NAVEDTRA 43469, Personnel Qualification Standard for Cybersecurity, is required at all levels of cybersecurity workforce and directs the training necessary prior to qualifying as a technician or manager as per reference (g).

　(2)　For Host Based Security System (HBSS), all personnel with privileged access must be trained with "F" school or Network Security Vulnerability Technician (NSVT) NEC, with certification on file as per reference (g).

　(3)　For cyber security operating system certifications, and requirements for system utilization required baselines are outlined in reference (g).

e.　Evidence of qualification in support of 3-M requirements must be maintained by the command in an auditable fashion. In addition to 3-M PQS qualifications, all personnel assigned to accomplish 3-M related maintenance on systems listed in Volume V, Part 1, Chapter 2 paragraph 2.2.1 of this manual, must be qualified per reference (c). Table 19-3-1 reflects the PQS qualifications required to fill 3-M billets.

Table 19-3-1 - Required PQS Qualifications	
3-M Coordinator	PQS-307
3-M Assistant	PQS-306
Department Head	PQS-306
Department LCPO	PQS-305
Division Officer	PQS-304
Division LCPO	PQS-304
Work Center Supervisor	PQS-303
Repair Parts Petty Officer	PQS-302
Maintenance Personnel	PQS-301

f.　Personnel checking into the command with a 3-M qualification obtained from a previous command may be required to re-qualify. They will re-qualify directly to the highest level previously obtained and they do not have to re-qualify at lower levels.

g.   Completion of SKED training videos provided on the FR disk equivalent to 3-M PQS qualification is required.

h.   Commands will utilize a written test, and the appendix a Sked Proficiency, and MDS proficiency sheets to ensure as the baseline for oral board signatures for every qualification and re-qualification.

i.   Training resources include but not limited to the following:

    (1)   NAVIFOR 3-M Milsuite course at https://www.milsuite.mil/university/navifor3-m

    (2)   3-M University

    (3)   SKED training modules in the SKED 3.2 program

    (4)   Training Assist Visits from the ISIC or TYCOM, this is not a requirement prior to an inspection.

19-3.3 PLANNED MAINTENANCE.

19-3.3.1 PMS Functional Operation:

a.   PMS execution is conducted in accordance reference (a), and no other Preventive Maintenance system supersedes the 3-M system, other than those dictated in chapter 19 of this instruction. PMS execution begins Ashore with the Fleet Readiness Certification Board (FRCB) process, and the preventive maintenance can be found in the logistics section for User Logistic Support Summary (ULSS) packages. This will list out the required MIPS or point to the technical manuals to be utilized for locally generated maintenance procedures for PMS.

b.   Change Service Accountability Log (CSAL) provides a definitive record to all work center changes and is kept in the master PMS File by the 3MC. For sites where the 3MC is not co-located, the site must also maintain a CSAL. The CSAL includes all changes no matter how minor including MRC changes in the command or sites 3M Program. An example of items in the CSAL include, but not limited to FR, ACN, FBR, locally generated maintenance changes, or Document Information Transmittal (DIT).

    (1)   The CSAL is comprised of the actual log sheet, a copy of all memos routed to the WCS and the memo from the WCS to the 3MC indicating completion.

    (2)   The importance of the CSAL cannot be overstated. In essence, it provides for a day-to-day, year-to-year record of changes to a command's planned maintenance program. It is also a turnover document at deployment sites, allowing a current command to quickly identify all changes from a previous command. Finally, it will be inspected during all command 3-M assessments and inspections, providing visibility as to how well a command manages 3-M from one inspection to another.

FR Change Number or Authority	Date RCVD	Cognizant Dept. or WC	Date Cover Sheet Issued	Date Cover Sheet Returned	Date Master File Updated or Item Closed	Summary of Change

Figure 19-3-1 Change Service Accountability Log

c. Planning Board for Maintenance (PB4M). Each unit will have a formally structured PB4M which will meet monthly at minimum. For Echelon 5 and below ISIC representation should be present for the PB4M. This forum provides a review of current/future planned installs and updates, organizational maintenance, CSMP quality and accuracy, future maintenance, and fiscal concerns. Attendees must include XO, 3MC, all DH's, and additional personnel as desired.

d. A SKED forecasting report will be used to ensure all future requirements such as tools, parts, and test equipment are available for maintenance checks. Any items with NSN must be ordered from the primary means of Military Standard Requisitioning and Issue Procedures (MILSTRIP) ONETOUCH.

e. Standard entries will be utilized for all SKED 3.2 check notes reports or alert details.

    (1) SKED 3.2 Check note report entries must begin with rescheduled, out of periodicity, non-accomplished, lost or n/a

    (2) Detailed remarks explaining why check note was not completed to include date, Job sequence number, and/or supply requisition numbers.

    (3) For units using SKED Electronic

f. Cent (¢) sign Check note entries will begin with "PERFORMED BY" and followed by the detailed information of the individual completing the maintenance, job sequence number (JSN), Work order, or applicable documentation used to complete the maintenance. Due to the unique nature of NAVIFOR units, this mark is utilized for outside activities performing maintenance such as engine repair shops, NAVFAC, not to be utilized with internal contractors that are conducting the maintenance as part of the command. In cases where the completing activity is not available to sign the accountability log, the DH will sign into SKED 3.2 to document the completion of the MRs by outside activities after reviewing the Check Note ensuring the LCPO has

annotated satisfactory completion of the maintenance action (For example: "PERFORMED BY –Captain's Marina and Boat Shop, Contractor John Smith, JSN BCIC-0124 Work Order #2018-031).

g. 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. Substitution requirements are provided by reference (a) and other technical documents.

h. The minimum requirement for the testing and maintenance of facility mission support equipment that is government owned and maintained by NAVIFOR components, is listed in reference (e). Examples of facility mission support equipment include but are not limited to: Uninterruptable Powers Supply (UPS) systems, generators, and Heating, Ventilation, and Cooling (HVAC) systems.

i. Locally generated maintenance must be in place if no maintenance procedures exist for the mission support equipment. Following the TFBR process for Equipment not covered by PMS section dictated in reference a. This process details the designations for Maintenance requirement substantiated, and No Maintenance required. Maintenance requirement substantiated can be further defined below for PMS and MDS clarification.

 (1) Government owned equipment that is maintained by military, civilian, or contractor will fall into both PMS and MDS programs

 (2) Contractor owned equipment as per the contract that is maintained by contractors that affects readiness or degradation of mission will fall into the MDS program only.

 (3) Contractor owned equipment as per the contract that is maintained by contractors that does not affect readiness or degradation of mission will not fall into either the PMS or MDS programs.

j. All maintenance and testing procedures must be scheduled, and accomplished in SKED, whether conducted by outside contractor or local command representative.

k. COMSEC maintenance, ashore COMSEC sites will utilize PMS SKED program in order to maintain and record COMSEC equipment maintenance. When transferring the COMSEC from the ashore site to another, the site will utilize the import/export feature to ensure the maintenance history of the equipment is going to where the Controlled Cryptographic Item is being transferred to. 2-Kilos will be submitted for the accomplishment of those items.

l. Where a difference between requirements or procedures of PMS and other technical documentations exist, PMS requirements will take precedence.

m. For equipment not currently supported by Naval Sea Systems Command (NAVSEA), command subject matter experts will develop local PMS procedures. Commands are required to search the FR Reference disk, and PMSMIS prior to locally generating maintenance procedures. These procedures can be pointer cards that point to

procedures already created, and meet the intent, and training required to maintain the system whether hardware or software.

19-3.3.2 Functional Components.

a. PMS Master File. The Master File, maintained by the units 3MC, contains information relative to PMS requirements that are specific to equipment for which the command is responsible. The Master File provides for duplicate issue of missing MIPs and MRCs, contains supplementary information provided by Naval Sea Logistics Center (NSLC) Detachments Norfolk or San Diego and serves as a repository for changes received between FR distributions, which must be retained on file until the changes are reflected in a subsequent FR. Master File content is delineated in Appendix A Section I-B the Command Level Effectiveness Review (CLER) of this subchapter.

b. Work Center PMS File. The WC File provides a ready reference of planned maintenance requirements and information to be retained in the working area for use by the WCS and maintenance personnel. The WC File contains only the documents and information applicable to a specific WC. The content of the WC File is delineated in Appendix A Section I-A the Scheduling and Execution Effectiveness Review (SEER) of this subchapter.

c. PMS Administrative Requirements. In lieu of a WC or a Master File the following should be retained:

    (1) Work Center: Current locally generated LOEP and MRCs.

    (2) 3-M Coordinator

        (a) SKED 3.2 Help file

        (b) Split MIP Tracking Log (updated to current FR).

        (c) Applicable 3-M Instructions (Activity, ISIC or TYCOM).

        (d) Current 3-M messages and guidance.

        (f) Master classified MRCs

        (g) Current SKED Database back-up files on DVD or CD-ROM and an Excel spread sheet from the SKED report Checks and Maintenance Outlook Report of all WCs, for the current and next future quarter.

    (3) 3-M Program short and long range training plan approved by the XO.

    (4) The following post-quarter SKED reports will be generated by the 3MC and forwarded to the ISIC by the 3rd Monday of the quarter (as conditions permit). These reports will be analyzed and electronically routed through the applicable DH to the XO. These reports will be retained as Objective Quality Evidence, by the 3MC for four quarters.

        (a) PMS Analysis Spreadsheet and the virtual snap shot .pdf file.

        (b) Calibration METBENCH Calibration Management System (MCMS Report).

        (c)   Spot Checks – Passed & Failed Reports.

d.   Interim MRC Procedures. The activity may develop interim MRC procedures based on experience and applicable technical manuals in support of equipment or systems without PMS coverage until formal documentation is received. Before scheduling preliminary MIP requirements, the WCS and the DH must verify their applicability to installed equipment.

e.   Weekly Status Report. The weekly PMS monitoring status reports will be retained (electronically if desired) by the 3MC for six months. These reports from the 3MC to the XO will contain, as a minimum, the information cited in paragraphs 19-3.4.2.e.(1) through (6) of this chapter:

      (1)   Completed Spot-Check and Monitored MRC results.

      (2)   Completed WC audits and results.

      (3)   The number of FBRs over seven days old that have not been reviewed by the Chain of Command (CoC).

      (4)   Abatement and corrective actions completed because of a monitoring program finding.

      (5)   IEM Details Summary Report.

      (6)   Overdue or alerting MRCs and plan of corrective action.

      (7)   For commands that have been moved over to the virtual snap shot tool, this will become the weekly status report with attached sections for line item 2, 3, 4, and 5.

19-3.3.3 <u>Related Maintenance</u>. Related maintenance, so designated by the In-Service Engineering Activity (ISEA) or Technical Warrant Holder, is determined from the MIP. The RELATED MAINT column of the MIP reflects related maintenance requirements. Related requirements are positioned on the MIP to line up directly across from the MRC to which they are related. Related maintenance requirements are also identified in the TPMTE section of the MRC under MISCELLANEOUS.

a.   Related Maintenance Categories.

      (1)   Mandatory Related. Mandatory related maintenance requirements are those maintenance actions that must be accomplished concurrently with another maintenance requirement. The mandatory relationship is indicated with the use of the # sign. If the mandatory related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity#" (e.g., M-3#). If the related maintenance resides on another MIP, it will be reflected as "MIP:Periodicity#" (e.g., IC-013/033:M-4#). Mandatory related maintenance requirements are automatically scheduled by SKED.

NOTE: **MANDATORY RELATED REQUIREMENTS MUST BE LINKED IN SKED TO BE AUTOMATICALLY SCHEDULED.**

      (2)   Convenience Related. Convenience related maintenance requirements are those maintenance actions that can be accomplished concurrently with another

maintenance requirement to save time (preliminary steps and tag-outs already accomplished) or for work force considerations. If the convenience related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity" (e.g., M-5). If the related maintenance resides on another MIP, it will be reflected as "MIP:Periodicity" (e.g., EL-010/001:M-4)). In both cases, the # symbol is omitted. The WCS manually schedules convenience related requirements.

(3)   Conditional Related. Conditional related maintenance requirements are those maintenance actions that are performed when specific conditions are present or specified parameters are not met on the referencing MRC. Conditional related maintenance will appear on the MIP in the same manner as convenience related maintenance. The WCS manually schedules conditional related requirements.

(4)   None. No related maintenance is reflected as "None" in the "RELATED MAINT" column.

b.   Work Center Supervisor Actions. WCSs are encouraged to review their schedules on a regular basis for opportunities to perform other PMS when an equipment or system has maintenance actions scheduled. Rescheduling of PMS to take advantage of other system maintenance (convenience related) is highly recommended.

(1)   If an MRC has related maintenance from another MIP, review the related MIP and MRC and determine if it requires assistance from another WC.

(2)   If the related MIP and MRC does not require assistance from another WC and is not on the lead WC LOEP, submit an FBR to have it added to the LOEP.

(3)   If the related MIP and MRC requires assistance or completion by another WC and is mandatory, convenience or conditional related then it should also be on the lead WC LOEP. If it is not on the lead WC LOEP, submit an FBR to have it added to the LOEP. If the related MRC requires technical assistance, a special NEC, or another rating, that is not part of the lead WC, then the person with the technical training, special NEC or required rating should be temporarily added to the lead WC "Crew List" and assigned the related maintenance in either an assist or performance role. All WCSs involved will collaboratively plan the required maintenance and may adjust schedules based upon individual workload. When the maintenance is completed, the lead WCS will mark the MRC as completed.

19-3.3.4 <u>Inactive Equipment Maintenance</u>.

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

(1)   Status I. Equipment that will:

(a)   Remain onboard,

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

        (c)   Will be inactive during extended shutdown periods and maintenance availabilities as determined by the DH.

        Example: Submarine CO_2 Removal Plant in wet or dry lay-up.

NOTE: **PERFORM A "WET LAY-UP" (CO_2 REMOVAL PLANT FILLED WITH DISTILLED OR 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_2 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_2 REMOVAL PLANT FLUID IS EXPECTED.**

      (2)   Status II. Equipment that is inactive and:

        (a)   Subject to corrective maintenance, overhaul, or removal for safe storage, or

        (b)   Temporarily transferred to another activity for maintenance responsibility for extended shutdown periods as determined by the DH. (Example: Submarine Refrigeration Compressor removed for Depot level overhaul.)

        (c)   When system(s) components are scheduled for replacement.

    b.   Implementation and Responsibility. While inactive, minimum maintenance is performed to ensure the success of the reactivation. The IEM section of the MIP will cover this maintenance. However, consideration should also be given to active PMS maintenance checks that can be manually added and performed during this period of inactivity.

      (1)   The activity will develop an IEM plan for all inactive equipment. The plan will include reason for inactivation, and duration. DH approval of this plan will be documented in the SKED IEM remarks. Use Appendix B of this chapter.

      (2)   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 personnel will conduct PMS during an inactive period. MIPs in each WC will be reviewed to determine if equipment has IEM coverage (e.g., Lay-up (LU), Periodic Maintenance (PM), Start-up (SU) and Operational Test (OT)), if the coverage is adequate, and what procedures to follow if there is no IEM coverage on the MIP in question 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 DH 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.

(3) 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 IEM section of the MIP. When IEM procedures are inadequate, submit an FBR. The unit 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.

(4) The lack of IEM requirements on a MIP does not prohibit placing that system or equipment into an inactive state. Additionally, certain locations require precautions and maintenance not required force-wide. The unit should consider all factors that affect equipment deterioration and take necessary precautionary measures. The WCS or LCPO is responsible for identifying factors that are inadequate and may require additional preparation and maintenance of the inactive equipment while reporting same to the DH for approval. Factors may include environmental conditions, equipment location or susceptibility to damage. For those actions that are recurring in nature, the WCS should submit an FBR for possible MRC development.

c. 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 following 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) ten days to the right and will not go into "alert" until after the 10th day. This allows the Maintenance Person (MP) or 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 activity personnel. 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 activity 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) ten days to the right and will not go into "alert" until after the tenth day. This allows the MP or WCS scheduling flexibility within the plus side of the date range of the MRC.

19-3.3.5 <u>Scheduling</u>. PMS is a portion of the command's 3-M program that provides, in one authoritative system, the scheduling information and technical procedures governing planned maintenance. PMS provides a simple method for scheduling and documenting the execution of planned maintenance procedures. Fleet policy and scope are listed in chapter 19 of this volume.

NOTE: **WHERE THE GOAL OF 100% ACCOMPLISHMENT CANNOT BE REACHED, THE UNIT'S CoC MUST BE KEPT INFORMED OF THE CIRCUMSTANCES THAT PREVENT ACCOMPLISHMENT OF SCHEDULED MAINTENANCE.**

a. Situational maintenance scheduling will be managed utilizing the tools provided by the computer based PMS scheduling software employed by the activity. All event driven situational requirements will be "triggered" when required and performed per reference (a).

b. The MP will be assigned prior to commencing the week and must complete the maintenance as directed. If a different person is required, the WCS will reassign the PMS accordingly.

c. Check Notes are required in SKED under the following circumstances.

    (1) When PMS is marked as "lost".

    (2) When PMS is marked as not-applicable.

    (3) When PMS is marked with the '¢' symbol, "satisfied by Higher Level Maintenance."

    (4) When PMS requires a tag-out, the tag-out program of record identifier will be entered.

d. Alert Notes will be in the format of paragraph 19-3.4.8 of this chapter.

e. After the FR is approved, the 3MC will conduct quarter archival to maintain one completed quarter, one current quarter, and at least four future quarters. This permits the ability to review past records and forecasting of upcoming maintenance actions.

19-3.3.6 <u>SKED</u>. The use of SKED version 3.2 or subsequent versions for PMS scheduling constitutes full compliance with all administrative provisions of the 3-M Manual.

a. Guidance for use of SKED is provided via the SKED users guide with help menus, and wizards associated with SKED functionality.

b. The Navy PMS DVD or CD-ROM is used to update the command or unit's SKED PMS data

c. The SKED program uses days to schedule and keep track of calendar periodicities. MRCs are displayed as out of periodicity when they fall outside the established date ranges in the SKED program. These date ranges are as reflected in Table 19-3-2:

Table 19-3-2 - SKED Periodicity – Date Ranges	
Periodicity	Date Range
Daily	None
2D	None
3D	None
Weekly	None
2W	9 - 19 days
3W	14 - 28 days
Monthly	21 - 41 days
2M	41 - 83 days
Quarterly	61 - 121 days
4M	83 - 165 days
Semi-Annually	121 - 243 days
8M	165 - 331 days
9M	+ or - 90 days from scheduled date
Annual	+ or - 90 days from scheduled date

Table 19-3-2 - SKED Periodicity – Date Ranges	
Periodicity	Date Range
Multi-month after annual	+ or - 90 days from scheduled date

19-3.3.7 <u>SKED Server Failure</u>. In the event of a SKED server failure, operation of PMS performance and tracking is as follows:

    a.   Retrieve Maintenance Outlook Report that was created following approval of current FR.

    b.   The WCS or LCPO will maintain the assignment of PMS with the Maintenance Outlook Report until server is restored.

    c.   Print assigned MRCs from the PMS viewer program that is located on the FR DVD.

    d.   Document and retain accomplished maintenance on printed blank 13 Week Reports that are in the documents folder on the FR DVD.

    e.   When the server is restored, update SKED based on accomplished maintenance documented on 13-Week Reports.

19-3.3.8 <u>Accomplishing PMS</u>. Maintenance personnel use MRCs to accomplish assigned planned maintenance as described in subparagraphs 19-3.3.8.a through 19-3.3.8.h of this chapter.

    a.   From SKED "My Task" view, review the 13-Week Report.

    b.   Determine maintenance tasks assigned.

    c.   Determine when the maintenance task is due.

    d.   Determine what tools, parts, material, test equipment or supplies are needed. For MRCs that contain inspections and then maintenance actions based upon the inspection findings, the TPMTE needed to perform the follow-on maintenance caused by the inspection findings does not need to be obtained prior to performing the MRC but rather, may be obtained as needed.

    e.   Perform the maintenance on schedule.

    f.   Notify the WCS immediately whenever one or more of the following conditions exist:

        (1)   Anything on an MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

        (2)   TPMTE prescribed by the MRC is not available, is not correct or questions about substitutions arise.

        (3)   Any doubt exists about your capability, training, or experience to properly perform the maintenance requirement as prescribed.

        (4)   Factors exist which would make performance of the maintenance requirement unwise or dangerous (e.g. disassembly of equipment needed for operations, radiation when prohibited, situations causing safety hazard to exist, etc.).

(5)   Equipment deficiencies or casualties are discovered.

(6)   Any provisions or requirements on the MRC cannot be accomplished as prescribed. See paragraph 19-3.4.1 of this chapter for clarification.

g.   If an MRC can be completed step by step as written, then the maintenance action can be signed off as completed. Report completed planned maintenance actions to the WCS, update the PMS schedule to reflect the completed maintenance, and annotate and sign the 13-Week Report if used. If multiple maintenance personnel are assigned to a single maintenance action, the most senior person assigned must update the PMS schedule, annotate, and sign the 13-Week Report or Check Note if using SKED 3.2 electronic accountability.

h.   If inspection criteria or a threshold inspected by the MRC does not meet the intended criteria, then those maintenance actions cannot be signed off as completed until the discrepancies are corrected. The only allowable maintenance actions that can be signed off as complete are those discrepancies where the PMS documents (MRC or MIP) have an actual statement that directs a CSMP, MCAP, or EDL entry to be made if there are discrepancies. The statement to inform the WCS of discrepancies, by itself, is not sufficient to sign the maintenance action as complete when discrepancies exist. Maintenance actions not fully completed will be reported to the WCS. However, if material deficiencies or casualties, which are unrelated to that MR, are discovered, the MR can be checked off, provided the MR was fully completed, but the discrepancy must be reported via the MDS.

19-3.3.9 <u>Non-Accomplished Categories</u>. The WCS or LCPO will add a brief description for each check note or alert for non-accomplished categories using paragraphs 19-3.3.9.a through 19-3.3.9.g of this chapter.

a.   System or Equipment Failure. System or equipment is not operational or in a reduced operational status thus preventing maintenance from being accomplished. CSMP JSN required in additional text description.

b.   Inadequate Maintenance Procedures. MRC procedure or steps cannot be accomplished to a point where the maintenance can be considered accomplished. FBR number required in additional text description.

c.   Ship and Unit Operational Requirements. Operations prevent the maintenance from being accomplished. Requires additional text description, with a JSN for the ships force backlog, and deferral.

d.   System or Equipment Operational Requirements. Required operation of system or equipment prevents maintenance from being accomplished. Requires additional text description.

e.   Lack of Hazardous Material. Correct Hazardous Material (HAZMAT) not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

f.   Missing or Incorrect TPMTE. Correct or calibrated TPMTE was not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

g.   Other. Requires additional text description.

19-3.3.10 <u>Accountability</u>. The credibility of the Navy PMS program relies heavily on the individual accomplishing the maintenance. The required dedication and integrity of that individual cannot be overstressed.

a.   To maintain accountability, personnel are required to sign for the completion of assigned maintenance in an Accountability Log, if used. The WCS is required to review and sign the Accountability Log weekly to verify the accuracy and completeness of entries. Accountability sheets will be maintained in the WC PMS File for a period of not less than 13 weeks.

b.   For commands utilizing electronic accountability by activities employing SKED 3.2, the following will be used.

(1)   When an individual updates the disposition of a check, this is the same as signing and dating a check completion on a 13-Week Accountability Sheet. The disposition of a check will become permanent when the weekly closeout is performed.

(2)   All PMS maintenance assigned to a maintenance person is presented to them immediately upon SKED 3.2 log-on.

(3)   CoC review can be tracked on the Weekly Closeout Signature Sheet. There is no need to print and sign the 13-Week Accountability Form.

19-3.3.11 <u>Force Revision Implementation</u>. In addition to the requirements of reference (a), the following steps ensure the most efficient and thorough implementation of an FR:

a.   MRC deletions on MIPs must be marked to indicate the reason for deletion:

(1)   Scheduling Aids (SA). Indicate applicable scheduling aid "(e.g., SA-.")".

(2)   Split MIP. Indicate responsible WC (e.g., "EA01") if the MRC is applicable to the activity, the responsible WC designation must be used versus a scheduling aid.

(3)   "Other" includes approved responses to FBRs, ACNs (e.g., "NSWC ltr Ser 4790.005."), Message Date Time Group (e.g., "NUWC R124535Z AUG 05."), and dual periodicity. Indicate guiding notation for deletion: "SA-1" or "Note 1", configuration change number.

b.   The FR should be completed on or before the first Monday of the new calendar quarter. When operational schedules do not provide adequate time to implement the revision prior to the start of the quarter, the XO may direct an alternate implementation date. This deferred FR will be reported to the ISIC unless deployed. If two or more FRs were not available while the unit was deployed, only the most recent FR will be installed and implemented.

c.   It is advisable to complete the FR process through DH approval before conducting quarterly audits by a chief or more senior.

d.   The 3MC will:

    (1)   Route the Service Brief to the CoC for review.

    (2)   Enter the FR number from the ALID in the PMS Supersedure and Accountability Log.

    (3)   Update PMS data into SKED prior to routing the change documentation to WCs.

    (4)   Route the FR to WCS for implementation. See Figures 19-3-2 and 19-3-3 of this chapter for an example of a routing memorandum and an FR implementation checklist respectively.

    (5)   Delete SKED FBRs after reflection within the FR.

e.   The WCS, upon receipt of the change document from the 3MC, will:

    (1)   Make the appropriate entry in the WC Record of Change Log

    (2)   Make appropriate LOEP, MIP, MRC, etc. changes to the WC PMS File.

    (3)   Apply changes to the WC PMS schedule utilizing SKED Revision Editor.

    (4)   Route revision changes to division LCPO for review and concurrence.

Figure 19-3-2 - Force Revision Routing Memorandum

MEMORANDUM

From: 3-M Coordinator

To: _____ Work Center Supervisor

Subj: FORCE REVISION PACKAGE X-XX

Encl: (1) Force Revision Implementation Checklist

(2) List of Effective Pages (LOEP)

1. Force Revision Serial: X-XX has arrived from NSLC

2. The SKED Force Revision (FR) update is complete. Begin your WC FR implementation using enclosures (1) and (2); complete through your Department Head no later than (Day Month Year).

3. Corrections, including those to LOEP, MIP and MRC, should be made immediately. Make certain ACNs and FBR responses are reflected in the FR. If not, maintain the copies and changes to your MIP(s) and MRC(s) until reflected in a subsequent FR.

4. MRCs with procedural line-outs previously approved by the LCPO must again be reviewed by the LCPO to confirm they continue to meet the requirements of the JFMM volume VI, chapter 19. Specifically, in the procedure block, Work Center Supervisors may line-out the non-applicable line items (alternate procedures) that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of an FBR is not required.

R/

3MC

Figure 19-3-3 - Force Revision Implementation Checklist

MEMORANDUM

From   _____ Work Center Supervisor

To: 3-M Coordinator

Subj: FORCE REVISION IMPLEMENTATION CHECKLIST COMPLETION

1. The following actions have been accomplished in SKED to implement Force Revision X-XX.

Task Description	Initial
Verified all equipment is listed under each MIP.	
Verified new or changed MRCs (green or yellow) are added to the correct Maintenance Item (equipment).	
Verified all applicable MRCs for each piece of equipment are active.	
Verified all MRC's have associated "Related Maintenance" attached.	
Verified that Safety of Ship is toggled to "YES" if applicable.	
Verified that all MIP lineout's have a technical reason documented for deletion. (Select the "Pencil" Icon on top row)	
Verify Maintenance Item Serials & Locations are correct.	
Upon completion of implementation Marked Complete for digital approval by: LCPO, Division Officer and Department Head.	LCPO
	DIVO
	DH

2. After DH approval:

    LCPO run SKED report PMS Documents and Customized MRCs – Line-outs. Verify each procedural lineout meets JFMM volume VI chapter 19, paragraph 19.6.11 requirements.

    WCS create an excel spread sheet from the Maintenance Outlook Report as a minimum electronic backup forecasting as many quarters in advance as available and store it on your hard drive (not a LAN drive) in the event of the LAN crashing.

    WCS select "Work Center" from the upper menu and "Update Unassigned Slots." Initially, any MRC without ownership will be assigned to the WCS. Reassignment by the WCS or LCPO will follow.

3. Printing requirements for MRCs are determined by individual command policy. Printed MRCs must come from "PMS Documents" (not PMS Viewer).

4. The only required documents in the WC PMS file are:

   a.   Classified MRCs.

   b.   MRCs required by the command.

   c.   MRCs with pen & ink changes authorized by ACNs or answered FBRs.

5. Approval Signatures:

Position	Signature
LCPO	
DIVO	
DH	
3MC	

   f.   The division LCPO will:

   (1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

   (2)   Review line outs on LOEPs, MIPs and MRCs. Initial all such line-outs to indicate concurrence.

   (3)   Submit PMS schedule to DIVO for review and concurrence.

   g.   The DIVO will:

   (1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

   (2)   Review line outs on LOEPs, MIPs and MRCs. Initial all such line-outs to indicate concurrence.

   (3)   Submit PMS schedule to DH for review and approval.

   h.   The DH will:

   (1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

   (2)   Review and approve lined out MIPs on the LOEP, and MRCs on the MIPs.

   (3)   Review and approve WC PMS Schedules.

i.   The WCS makes final entries in the WC Record of Change Log, completes the PMS Change Documentation Routing Memorandum, and returns it to the 3MC.

j.   The 3MC updates the CSAL and notifies the XO that the FR has been installed after receiving all FR PMS Change Documentation Routing Memorandums from the WCs.

19-3.3.12 <u>Planned Maintenance System Feedback Reports</u>. PMS FBRs are used to identify problems with PMS documentation or to request the addition or deletion of PMS coverage. Issues with the periodicity, rates, man-hours, TPMTE and procedure may all be reported via an FBR. An FBR is also used to request copies of classified MRCs, request the addition or deletion of an MRC (maintenance requirement) to or from a MIP, splitting a MIP between WCs, shifting of maintenance responsibility or to request PMS coverage for newly installed systems or equipment. Paragraphs 19-3.3.12.a. through 19-3.3.12.j of this chapter provide amplifying information dealing with the issues that may prompt the submission of an FBR.

a.   Periodicity. An FBR can be used to request the increase or decrease in the frequency of a maintenance action, i.e., an MRC. However, the originator needs to keep in mind that the ship or unit has the prerogative to increase the frequency because of harsh weather, unusual operating conditions or corrective maintenance and associated testing requirements. A 726 Class submarine submitted an FBR requesting the frequency of cleaning a specific electronics cabinet filter be increased from quarterly to monthly. Research revealed this MRC was applicable to all 726 Class units and no other ship had submitted a similar request. In fact, two other units had requested the frequency be decreased to semi-annual. It was determined that the submitting unit was in an extended upkeep period and increased foot traffic by shipyard personnel near the electronic cabinet was the most likely cause of the filter becoming clogged. The ship was authorized to increase the frequency to support the extended upkeep period and the periodicity of the MRC was not changed.

b.   Rates. The Rates block on the MRC represents the developer's recommendation of the skill level (rate and rank) best suited to accomplish the maintenance action. The key word is recommendation. Qualified personnel other than the rate and ranking specified may be assigned. When an NEC is assigned or Damage Control Petty Officer (DCPO) or Safety Petty Officer (SPO), substitution of other personnel is not allowed other than those exceptions as noted in reference (a). An FBR requesting the rate on an MRC be changed from an ET2 to an FT2 will probably not pass TYCOM screening, yet an FBR requesting the addition or deletion of personnel will generally pass to the cognizant technical activity for review.

c.   Man-hours. The MRC reflects the average time per equipment, per person. It does not reflect or account for gathering and putting away tools, tag-outs or time removing and replacing interferences. From a maintainer's perspective, this is not an accurate representation of the time required to accomplish the maintenance action. The Future of PMS initiative will attempt to do a better job of accounting for this additional time but until then, FBRs should be submitted only when the allotted time per equipment

is significantly out of synch with the actual time required. For example, an MRC calls out 0.5 man-hours per equipment, but it takes 1.0 man-hours.

d. Tools, Parts, Material and Test Equipment. TPMTE FBRs should be submitted when the procedure calls for an item not listed in the TPMTE block or when the TPMTE block lists an item not called out in the procedure. Updating the MRC to reflect common hand tools, administrative or office supplies and basic housekeeping items is addressed in paragraph 19-3.3.12.k.(1) of this chapter.

e. Procedure. Procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. MRCs exist to provide standardized proven procedures, specify consistent acceptance criteria and to communicate warnings and cautions relative to the specific maintenance action. They are not intended to specify every possible action of the maintainer. There may be instances where an obvious typographical error exists on the MRC (example: Turn switch to ON; however, switch may already be ON and the intent of the step is to turn unit off, the card should read Turn switch to OFF). This type of error should not prevent the scheduling or performance of maintenance. However, in this situation, the accomplishment of the MRC is not possible until the WCS reviews the error and concurs that it is safe to proceed. A temporary notation including the reason for the correction must be made on the MRC, initialed by the WCS and an FBR submitted. Extreme caution will be taken when reviewing MRCs for this type of error. Errors must be obvious typographical errors and a PMS FBR must be submitted immediately upon discovered. Do not permanently alter the MRC until authorized by the applicable SYSCOM, ISEA or NSLC Detachment. If a step is missing that is necessary to complete the task, and that step is not obvious to the maintenance person, submit an FBR to have it added. An FBR submitted to request procedural changes should include the originators contact information and supporting rationale or justification. If, however, a step is missing that is clearly obvious (a ladder was used to install a fixture, but steps were not provided to put the ladder back in stowage) an FBR only serves to overload a process that should be focused on more technical issues.

f. Duplicate MRCs. Unclassified MIPs and MRCs are now available from the DVD. Copies of classified MRCs still require an FBR request due to handling requirements.

g. Addition or Deletion of an MRC. During the life cycle of a system, equipment, or component it may become necessary to add a maintenance action to prevent an age related functional failure or to delete a maintenance action due to inherent reliability not foreseen during maintenance development. An FBR submitted to request the addition or deletion of an MRC should include the originator's contact information and supporting rationale or justification.

h. Newly Installed or Removed Equipment. While an FBR request for PMS coverage will provide initial maintenance coverage or deletion of MIP(s) because of equipment removal, submission of an OPNAV 4790/CK or Not In Model for AWN, is still required to initiate the rest of the logistic support change process. This point cannot be overstressed; the submission of the FBR does not relieve the ship or unit from

initiating a CK. The CK initiates supply support, CDMD-OA/MBPS changes, selected record drawing updates and class maintenance plan updates.

i.   Splitting a MIP. There are instances in which a MIP includes MRCs for more than one WC to perform. When this occurs, a decision is required by the command as to whether the MIP will be split or will be scheduled singly by one WC. Only the XO can authorize the splitting of a MIP if an MRC requires another WC to perform the entire maintenance action. If the decision is made not to split the MIP, then the MRs will be accomplished through the coordination of WCSs.

   (1)   If the MIP is split, the following procedures apply:

      (a)   Submit to the XO a non-technical PMS FBR requesting approval to split the maintenance responsibility.

      (b)   Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR stating, "XO concurs with splitting MIP maintenance responsibility".

   (2)   Upon receipt of the FBR approval:

      (a)   Utilizing the SKED Revision Editor, delete the MRC from the MIP and show the reason for deletion as the designation of the WC assuming responsibility (e.g., EE01).

      (b)   If the WC assuming responsibility does not reflect the MIP and maintenance items, utilize the SKED Revision Editor to add them. Schedule only the MRC(s) that pertain to the WC. Reflect remaining as deleted with the reason for deletion the designation of the parent or lead WC (e.g., EA01).

   (3)   If the situation occurs where a WC removes a split MIP, the following procedures apply:

      (a)   Submit an XO approved, non-technical PMS FBR reporting the decision to remove the split maintenance responsibility. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with removing split MIP maintenance responsibility".

      (b)   Upon receipt of FBR approval, utilize the SKED Revision Editor, remove the MIP, MRC(s) and maintenance item(s) from the WC no longer involved. Ensure that the lead WC assumes full responsibility for the MIP and MRC(s) and annotates their schedules accordingly.

j.   Shift of Maintenance Responsibility. Individual ships or units sometimes consider it necessary to shift maintenance responsibility from one WC to another, to combine two or more existing WCs or to split an existing WC. These requests for changes of PMS maintenance responsibility require XO concurrence and may require final approval by the applicable TYCOM. Due to the considerable administrative burden,

requests for this type of change should not be submitted to accommodate a temporary situation such as short-term assignment of two WCs to one supervisor.

(1)   The following factors should be carefully considered before submitting such requests:

    (a)   Composition of WCs by size and ratings.

    (b)   Scope of maintenance responsibilities.

    (c)   WC workload.

    (d)   Ease of administration of a WC as a cohesive maintenance group.

    (e)   Importance of WC grouping to equipment maintenance responsibilities, PMS scheduling, MDS reporting and CSMP listings.

(2)   When changes in maintenance responsibility are considered necessary, the following procedures apply:

    (a)   Submit a Non-technical PMS FBR. Indicate from which WC(s) equipment is to be deleted and to which it is to be transferred. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with the shift of maintenance responsibility

    (b)   WC or equipment changes will also be reported in the OMMS or SNAP system via a 4790-CK through the CSMP up-line reporting process.

(3)   Upon receipt of the FBR approval, perform the following actions:

    (a)   The PMS Master File is updated to reflect deletion of the MIP from one WC and addition to the WC receiving the responsibility. The originating FBR serial number is annotated on the affected line item on the LOEP for both WCs. The PMS Master File must contain a record of deleted equipment until the change is reflected in a future FR.

    (b)   Utilizing the SKED Revision Editor, load the affected MIP(s) and MRC(s) to the WC receiving maintenance responsibility. Delete the MIP(s) and MRC(s) from WC shifting responsibility.

    (c)   Utilizing SKED, perform a revision to move the equipment from the original WC's current schedule to the WC receiving the maintenance responsibility. Data is exported from one and imported to the other maintaining equipment history.

k.   MRC Changes Not Requiring Feedback Reports. The only MRC modifications shipboard or unit personnel may make without submitting a PMS feedback report are as listed in paragraphs 19-3.3.12.k.(1) and (2) of this chapter.

(1)   TPMTE Block

(a) Common hand tools, administrative or office supplies and basic housekeeping items may be substituted or added by the WCS. The WCS may add notes to the MRC to reflect these substitutions. In the case where specific common tools are called out by description, substitutions are not authorized. For example, substitutions such as using synthetic fiber brushes in place of animal hairbrushes or rags and paper towels in place of lint free cloths are not allowed.

(b) Approved parts, materials and miscellaneous item substituted from the supply system, technical manual, or Military Specification (MIL-SPEC), etc., which meet or exceed the requirements may be used. Ensure that substitutions satisfy both the basic maintenance and safety requirements of the MRC. If there is any doubt, a PMS FBR should be submitted specifying substitution desired and reason.

(c) Test equipment or certified tools, which meet or exceed the Sub-Category (SCAT) code requirement, may be used.

(d) When an MRC pertains to multiple configurations of equipment and the TPMTE block contains tools, parts, test equipment and materials for each unique configuration, the TPMTE block may be tailored for the unit's specific configuration by lining out the items that do not pertain to equipment held.

(e) Exception to TPMTE block change: If an item listed in the TPMTE block is not called for in the procedures block, submit an FBR explaining the circumstances. Conversely, if a tool, piece of test equipment, part or material is called for in the procedure block and is not listed in the TPMTE block an FBR should be submitted.

(2) In the procedure block, WCSs may line-out the non-applicable line items (alternate procedures) that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of an FBR is not required. If a step or steps in the procedure block have been lined out and tools, parts, materials, and test equipment in the TPMTE block pertain only to that step or steps, then they will be lined out as well with a reference to the step or steps lined out and approved by the division LCPO. Warnings, Cautions and Notes associated with the lined-out step or steps will also be lined out.

l. Types of Feedback Reports. There are two types of FBRs, Technical and Non-Technical.

(1) Technical. These FBRs are used to report technical discrepancies inhibiting PMS performance. Technical feedbacks normally adjudicated by an ISEA responsible for the system or equipment covered by the PMS documentation require all the supporting information the originator can provide. The originator should identify the issue, providing as much supporting technical

information (Allowance Parts List, Reparable Identity Code, drawing or Hierarchical Structure Code) as available and a proposed response or solution if known. Most importantly, provide point of contact information (name and phone number) so that the ISEA can contact the originator should they have questions. Bottom line, the FBR must be accurate and complete to "stand alone", that is, the FBR will be understood without additional explanation. The better the FBR describes the problem, the more likely the originator will receive a timely response. There are two sub-categories of technical FBRs:

    (a)   Routine. An FBR will be considered routine when it relates to the technical requirements of PMS. It is used to report technical discrepancies or request clarification of procedures.

    (b)   Urgent. An FBR will be considered urgent when it relates to the technical requirements of PMS and involves safety of personnel, safety of ship or the potential for equipment damage. Urgent FBRs will be forwarded by naval message containing a PMS Feedback Serial Number, to both NSLC Detachments Norfolk and San Diego, with info to the cognizant SYSCOM, TYCOM and the Naval Safety Center. The message must describe the unsafe procedure(s) or condition(s), must identify the MIP and MRC involved and reflect the serial number of the FBR generated in SKED or Planned Maintenance System – Management Information System. Once the message has been sent, include the date time group of the message in the FBR and submit.

    (2)   Non-technical. These FBRs are intended to support PMS requests that do not require technical review, including WC changes (shift of maintenance responsibility). Non-technical FBRs are submitted to request classified or other PMS documentation which cannot be obtained locally or to request clarification of issues not of a technical nature.

m.   Feedback Report Submission. All SKED users will submit FBRs via SKED using the Feedback Report Wizard. Non-SKED users may submit FBRs via the Planned Maintenance System – Management Information System web site at https://algol.pmsmis.navy.mil/PMSMIS by selecting the Feedback Tab and Feedback Report Wizard from the drop-down tab. Non-SKED users accessing this web site 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 confirming your account and providing access to the main screen.

n.   Feedback Report Screening.

    (1)   Initial screening is accomplished by the originator or WCS who is responsible for ensuring all data is accurate and complete.

    (2)   The division LCPO or DIVO accomplishes the second level screening and verifies the content and validity of the FBR within three days of origination.

    (3)   The DH, next to screen the FBR, is responsible for verifying the content and validity of the FBR and digitally signing FBRs within five days of origination.

(4)   The 3MC is responsible for screening, serializing, and forwarding FBRs within seven days of origination. The 3MC will also:

(a)   Maintain accountability for all PMS FBRs submitted and actions taken until updated PMS documentation is received.

(b)   Ensure that the originator and all applicable WCs are kept apprised of action taken and ensure the originating and other applicable WCSs implement the changes or corrections when received.

o.   Feedback Report Screening (External to Hull or Activity). FBRs are next processed by the TYCOM. The TYCOM will verify the content and validity of the FBR and either return the document to the originator or pass it on for further processing and resolution.

p.   Feedback Processing Activities.

(1)   The central control points for processing FBRs are the Planned Maintenance System Coordinating Activities (PMSCA). Depending on the type of FBR and level of technical authority necessary to answer the FBR, the PMSCAs will either respond to the originator with a resolution or forward the FBR to the appropriate technical authority for action.

(2)   ISEAs are those activities designated by NAVSEA as the technical experts for specific systems or equipment. Naval Surface Warfare Center, Philadelphia Detachment (NAVSURFWARCEN-PD) is the ISEA for the majority of non-nuclear hull, mechanical and electrical equipment installed on most ships. ISEAs under the direction of the NAVSEA Technical Warrant Holder adjudicate the FBR request and forward the response to the PMSCAs. The PMSCAs provide the final response to the originator and update the PMS database to reflect ISEA changes. PMS changes are issued with the next available FR.

q.   Feedback Processing. FBRs are processed per NAVSEA policy:

(1)   Urgent FBRs.

(a)   The PMSCA will provide a message response to all urgent FBRs within one working day of receipt. If the FBR is forwarded to a Design Activity or ISEA for resolution, then the Design Activity or ISEA will provide a message response informing the originator of specific actions or required changes as a result of the adjudication of the FBR within one working day of receipt. This message response must be addressed to the originator and 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.

(b)   The PMSCA will distribute revised PMS documentation to all affected users within 30 calendar days of receipt of the FBR, via special issue or ACN.

(2)   Routine FBRs.

(a) The PMSCA will perform technical review, research, and provide a response to routine FBRs where resolution does not require technical authority action.

(b) FBRs that the PMSCA cannot resolve will be sent to the cognizant Design Activity or ISEA. The cognizant Design Activity or ISEA will provide the response to the appropriate PMSCA describing the action taken. The PMSCAs will provide the response to the originator by electronic means.

(c) Distribution of the revised MRC to the originator and other affected users will be accomplished via ACN or the next available FR.

(d) NAVSEA's existing policy calls for technical review activities and ISEAs to provide FBR responses in less than 21 working days from time of receipt. In addition, NAVSEA has established a goal of providing answers to FBRs in one day. While some FBRs will require extensive research and days, weeks or in some cases months to resolve, the vast majority of FBRs can and should be answered much sooner. One day may be overly optimistic, but the intent is to put the emphasis back on the timely resolution of FBRs.

(e) If no revision to PMS documentation is required, pertinent comments will be provided in the response to the PMSCA. When not concurring with the feedback report, the rationale for the non-concurrence must be provided to the PMSCA.

NOTE: **IT IS POSSIBLE AN FBR RESPONSE MAY NOT MAKE A SPECIFIC FR BASED ON THE DATE THE RESPONSE WAS RECEIVED BY NAVSEALOGCEN. PROCESSING TIME AND HANDLING MAY CAUSE THE REVISED DOCUMENTATION TO MISS AN FR CUTOFF DATE. HOWEVER, SINCE ALL FRS ARE NOW RECEIVED QUARTERLY, IF A REVISION MISSES THE CURRENT FR CUTOFF WINDOW, THE REVISED DOCUMENTATION WILL BE AVAILABLE WITHIN THE NEXT THREE MONTHS.**

r.   Feedback Response Implementation. Units will implement responses to FBRs based on the category and content as determined by the unit's 3MC.

(1) Urgent FBR – within 24 hours of receipt of FBR response.

(2) Urgent FBR with an ACN – within 24 hours of receipt, the ship or unit will implement an administrative change to incorporate the new PMS documentation. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(3) Routine FBR:

(a) Technical. The response deals with content such as a revision to technical specifications, tolerances, test equipment, materials, acceptance criteria or the sequence of procedural steps. These changes need to be implemented within two weeks of receipt of the FBR

response or prior to the next scheduled accomplishment date should that date fall within the two-week window.

(b)   Administrative. The response deals with issues that do not affect the technical content or procedural steps. Administrative changes might be added steps to provide a better degree of clarity, formatting revisions to tables or figures that do not change technical content, or updating of Notes, Warnings or Cautions that do not impact the performance of the MRC. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required before the next scheduled accomplishment date of the MRC.

(4)   Routine FBR with an ACN:

(a)   Technical. These changes need to be implemented via an administrative change within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(b)   Administrative. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required via an administrative change before the next scheduled accomplishment date of the MRC.

19-3.3.13 Assessment Procedures MRCs. Assessment Procedure (AP) MRCs need not be scheduled within SKED, but they will be maintained "active" through the FR process. AP MRCs need only be printed on an "as needed" basis for use by assessment personnel or Ship's Force. The record of completed AP MRCs by off-ship personnel is recorded on the work candidate and Ship's Force participation is recorded in their completion remarks of that work candidate. There is no need for recording Ship's Force participation in an assessment event on their PMS schedule within SKED. FBRs submitted requesting deletion of a MIP that only contains AP MRCs will be disapproved and returned to the originator.

19-3.4 MAINTENANCE AND MATERIAL MANAGEMENT ASHORE EVALUATION CRITERIA.

19-3.4.1 Self-Assessments. The ability of an activity to perform critical self-assessments is instrumental to the success of the command's PMS program. The PMS Self-Assessment Program needs to address all aspects of 3-M.

a.   TYCOM Policy. Each command and subordinate command(s) must conduct a rigorous quarterly 3-M Self-Assessment. The 3-M checklists contained in appendix A will be utilized and retained for 12 months. In addition, the Maintenance Accomplishment Rate (MAR) and Spot Check Accomplishment Rating (SCAR) percentages will be reported to Commander, Naval information Forces (CNIF) no later than the 25th day of January, April, July, and October. The CO will receive a

formal briefing of the findings of the Self-Assessment and intended corrective actions.

b. Self-Assessment Elements. The major program elements of a Self-Assessment include an evaluation of the PMS Performance Rate (PPR) and CSMP Validity, monitoring MRC performance (monitored MRC), and conducting PMS Spot-Checks, WC audits, and deficiency abatement. 3MCs will retain monitored PMS results, Spot Checks and WC audits from the last completed quarter in either hard copy or digital format for review supporting the self-assessment.

(1) PMS Performance Rate. The PPR is made up of the MAR multiplied by the SCAR divided by 100.

$$PPR = MAR \times SCAR \div 100$$

(2) CSMP Validity. The CSMP Validity factor is evaluated utilizing the check sheets provided via section IV (MDS) of the TYCOM's 3-M Inspection Criteria, appendix A.

(3) Monitored MRC. Supervisory personnel must periodically monitor the performance of PMS to provide feedback and training to maintenance personnel and to enforce command maintenance standards. Personnel charged with monitoring must be system matter experts for the system, equipment, or component for which the MRC applies. LCPOs, LPOs or personnel with similar system knowledge are appropriate. Monitored checks can be used like on the job training to teach the "right way" to conduct maintenance. These monitored MRCs will be documented as a monitored evolution and findings will be provided to the WC's CoC for inclusion into training and deficiency abatement. The value of monitor maintenance cannot be overstated.

(4) PMS Spot Check. PMS Spot Checks are utilized to validate that previously scheduled and accomplished MRCs were performed and the degree to which they were performed. The checklist contained in Appendix A section II of this chapter, is the tool supervisory personnel utilize to determine the accomplishment status of a completed MRC. Deficiencies noted and the final grade will be provided to the WC's CoC for abatement. The WCS will record the Spot Check grade into SKED to generate the SCAR for the quarterly PMS Performance Report. Spot Checks will involve all elements of the CoC to include the CO, Command Master Chief, XO, 3MC, department CPOs, DHs, DIVOs, divisional CPOs, and first class petty officers. By following the checklist, the inspector can determine if the sailor is competent, the maintenance was accomplished, required TPMTE was available and used, and safety precautions were followed. The focus should be less on administration and more on the condition of the gear.

(a) Avoid Spot-Checks of MRCs with insufficient complexity. Performing a Spot-Check on a 3 or 5 step MRC does not provide the CoC an accurate picture of the health of the command's maintenance program. Selected MRCs should be of sufficient content to provide the auditor with evidence of satisfactory performance (e.g., tag-outs,

QA packages, parts required, off-hull reporting, test equipment, safety equipment, etc.).

(b)   Command 3MCs can request modification of the Spot Check matrix if it is believed that due to the size of the command and location of their WCs, they are unable to accomplish that requirement. Requests must be submitted in writing to CNIF 3-M staff (via Echelon IV 3MC if applicable) and include their proposed Spot Check matrix for review. If approved by CNIF, the command 3MC will retain a copy of the request approval.

(c)   Spot-Checks evaluated as "below standards" will require immediate training and re-performance as determined by the XO. Any re-accomplishment of the MRC must be monitored by the LCPO to ensure noted deficiencies are not repeated.

(d)   Table 19-3-3 represents the minimum number of Spot Checks and Monitored Checks for CNIF activities.

(e)   Utilize the Spot Check Randomizer located in the Weekly Virtual Snap-Shot Report. Use is mandated unless Sailor or equipment is unavailable in which 3MC will select another Spot Check to be conducted.

(f)   Spot Check Randomizer. The Spot Check Randomizer is the last section of the Virtual Snap-Shot Report. It produces a list of random spot checks based upon criteria such as periodicity, troubled systems, and when the check was accomplished. The program will reduce the number of times the same maintenance check is selected. The list of spot checks is for the next week. The program will choose a single check for each work center but will not assign a spot checker. 3MC will still create a list of spot checkers and assign the work center they are to inspect. The spot checker will then conduct a spot check on the maintenance action selected by the program. The 3MC will ensure that spot checkers are inspecting checks selected by the program.

(5)   Work Center Audits. Each WC must receive an audit once per quarter by a supervisory individual, (CPO) or above. Deficiencies noted from this audit will be reported to the WC's CoC for abatement. The 3MC will report recurring deficiencies to the XO for further investigation and corrective action.

(6)   Deficiency Abatement. The status of discovered deficiencies will be kept current within the monitoring program. Recurring deficiencies must be reported to the XO for further investigation and corrective action. Deficiencies that have been reported as corrected will be subject to follow up monitoring to ensure corrective action was effective and results of the follow up monitoring will be reported to the XO. The unit's 3-M Abatement

Program will include the previous quarter's audits, Spot-Checks, monitored evolutions and CSMP validity audits noting trends and corrective actions.

(7) The Virtual Snap-Shot Report is an Excel workbook that creates a 20-page graphical representation for the health of the MAR and Spot Check program pillars of performance. The report uses a drill down method to identify strengths and weaknesses with the two pillars.

(a) This report is to be conducted at a minimum monthly by all commands, and should be utilized weekly.

(b) Required documents are the PMS analysis Spreadsheet and Spot Check – All reports.

(8) The Virtual Snap-shot report Cover Sheet breakdown

(a) Cover sheet, automatically fills in the ship's name and date. The user will enter the below information for the command's 3-M program.

(b) FR#. Enter the current Force Revision the SKED implemented at the commands. (Ex. 4-21, 1-22, 2-22)

(c) 3-M Cert Date. Enter the date for your last 3-M Certification event. If the certification even is not known, contact your TYCOM 3-M team to provide.

(d) CSMP Reconciliation. Enter the date of the last CSMP reconciliation was conducted, ex: during a PB4M.

(e) Attachments. There are two mandatory attachments that must be submitted with the Virtual Snap-Shot Report. The IEM Details Report,

(f) Acknowledgement blocks: The use of these blocks are voluntary. It contains a place for the CO/XO/OIC/TD to initial stating they have received the document.

(9) PMS Performance Rate (PPR). The PPR page provides an overview of both the command's MAR and Spot Check Average to create a PPR for the command and each of the departments within.

(10) Maintenance Accomplishment Summary. The Maintenance Accomplishment Summary provides a three-page executive level evaluation of the MAR for the command. The major sections of the report as follows:

(a) Maintenance Accomplishment by Week Graph. A graphical representation of the MAR for the last 13 weeks. The graph provides a trend analysis for the command's maintenance accomplishment. The Fleet Requirement of 80% is identified by a red dotted line on the graph.

(b) Each department at the command has the maintenance accomplishment number identified. This is listed as #COMPL, #ALERTS, #LOST, #NA, TOTAL # CHKS, PAR %, SAR %, WEIGHT %, MAR%.

(c)   Work Centers for the Last Quarter. This section is identical to the department section except data is for a specific Work Center over the last 13 weeks.

(d)   Alerts Report. A two-page section that graphically displays the command's alerts over the last 13 weeks. It is important to understand that a check will not start alerting until the check is beyond its maximum scheduling range. For example, an A-1 check will not alert as soon as the check is due. The check can still be moved out six months. After 18 months the check will start alerting. This section contains the Alerts by Week, Number of Alerts per Work Center, Top 50 longest alerts by # of weeks alerted, W/C, MIP, Periodicity, Equipment name.

(e)   Lost Checks report. A two-page section that graphically displays the command's lost checks over the last 13 weeks. This is listed by Lost Checks per Week, Lost Checks per Work Center, Top 50 Equipment with the most lost checks by W/C, # of times lost, and Equipment.

(f)   NA Checks Report. A two-page section that graphically displays the command's Not Applicable checks over the last 13 weeks. Although NA checks are not counted against the command's MAR, the command should be aware of the checks marked NA as it could indicate maintenance that should have been accomplished and was not.

(g)   Top 50 Equipment items with the most NA checks. This is a list of the top 50 NA checks based upon the equipment and work center.

(11)   Spot Check Analysis Report. A summary of the Spot Check Program health via actionable metrics.

(a)   Number of Spot Checks per Week. A graph that displays the number of Spot Checks conducted at the command over the last 13 weeks

(b)   Department Spot Check Program Health. A list of each department and their respective Spot Check Metrics by # of Spot Checks, # Fail, Pass %, Weight %, and AVG Score %.

(c)   Work Center Spot Check Pogrom Health. A list of each Work Center and their Respective Spot Check metrics by Work Center, #Spot Checks, #Fail, Pass %, Weight %, and AVG Score %.

(d)   Top 10 Spot Checks Conducted. A list of the maintenance checks that were spot checked the most in the last 13 weeks. The "# of SCs" block indicates the number of times a spot check was completed. Line items highlighted in green indicate a troubled system check as specified by TYCOM. These are checks mostly identified as leading to 3MI discrepancies.

(e)   Toughest Spot Checkers. This list contains the names of the 10 personnel that have failed the most spot checks. The list will only contain the names of Spot Checkers that have conducted more than the

average number of spot checks for the command and have failed at least one spot check.

(f)   The 100% Club. A list of Spot Checkers that have conducted the over the average number of spot checks and have found zero discrepancies. While grading one or more spot checks at 100% may be legitimate, this list may indicate personnel that need to have a more critical eye during spot checks.

(g)   Partial Spot Checkers. A list of personnel that have conducted one or more spot checks with a partial grade. CNIF does not authorize partial grading during spot checks. Each attribute on the Spot Check form is an all or nothing score. For Example, an attribute worth 10 points will either be 10, 0, or NA as applicable. A grade of 1 through 9 will not be used for any reason for this attribute.

(12)   Spot Check Completion Report. A list of the command spot checkers and the number of spot checks the personnel conducted for each week for the last 13 weeks. Because this list is derived directly from SKED data, the personnel paygrade is unavailable. Due to this limitation, the list is sorted based upon the number of historical checks conducted in the last 13 weeks.

(13)   Spot Check Randomizer. A list of randomly selected checks to be spot checked for each work center that has conducted maintenance in the last 13 weeks. Checks are randomly selected based upon periodicity, troubled system status, when the check was accomplished, and how many times the spot check was previously conducted. All units are directed to utilize the Spot Check Randomizer to the maximum extent possible. If a maintenance person or equipment is unavailable and the randomly selected check cannot be performed, the spot checker will select another check within that work center with a moderate level of difficulty.

c.   Zone Inspection. The XO will establish a zone inspection program

(1)   Zone inspections will be all areas utilized by the command, and if there are any tenant commands, they must conduct zone inspections on their cognizant spaces. Examples include but not limited to, working areas, electronic spaces, server communication rooms, UPS rooms, or generator areas.

(2)   The XO will designate command personnel to perform the zone inspections on every space outlined above at minimum quarterly periodicity.

(3)   All discrepancies annotated during the zone inspection will be recorded as part of the CSMP by the owning work center in AWN, utilizing the Zone Inspection Deficiency List (ZIDL) status code for the AWN 2-Kilo.

d.   3MC will ensure a quarterly Virtual Snap-shot report is forwarded to the ISIC with POAM for discrepancies identified.

(1)   Virtual Snap Shot template reports can be found on the CNIF 3-M Forcewide Teams Page, or ISIC.

Table 19-3-3 - CNIF Spot Checks		
Management Level	Periodicity of Number of Spot Checks	Periodicity of Monitored Maintenance
CO or OIC	One per Month	N/A
XO or AOIC or Technical Director	Two Per Month	Monthly
DH	Two Per Month	Monthly
DIVO	Two Per Month	Monthly
3MC	One a week	Weekly
LCPO	Two Per Month	Monthly
LPO	N/A	Two Per Month
WCS	N/A	Two Per Month

19-3.4.2 Maintenance Data System . This section is to provide greater clarity for the Maintenance Data System and does not supersede but provides more detail in MDS processes ashore.

h.   All commands under NAVIFOR administrative control will utilize AWN as their MDS program. All sites are required to use MDS for documenting man hour expenditures pertaining to network administration, cyber hygiene, locally generated maintenance, corrective maintenance, and all monetary expenditures whether contractual, tools, parts or otherwise. The use of the MDS is baselined and dictated from volume VI chapters 5 and 19-7 and volume II part II chapter 1 of this manual.

b.   Weekly bulk jobs are authorized to account for man hour expenditures mentioned above utilizing the tasks completed against the configuration or if no configuration the "Support Services" category. Care should be taken to ensure appropriate work center association and info provided meets grading criteria per appendix a. These type of jobs must have enough detail, the purpose is to right size, to ensure the right amount of Sailors, Civilians, and Contractors are on site. This type of job is not for recording watchstanding hours, only the equipment driven and equipment supporting tasks that may have occurred during that time frame.

c.   In order to ensure proper readiness reporting for the E-Pillar all sites are required to have their configuration whether Program of Record or not to be put into CDMD-OA/MBPS that refreshes AWN for equipment validations. This can be done either through the shore side installation process FRCB through work files for Program Executive Office (PEO) or Program Manager, Warfare (PMW) installation entities, or

using Not In Models (NIM) inside of AWN for 3rd party and other than command funded installations done by the command.

d. Equipment validations must be conducted on a weekly basis by each work center to ensure proper logistics support, and accurate configuration management. The goal is to validate all equipment in a five-year period in AWN. The 3MC will maintain a master listing of all configuration items, assign all validations, and track validation completion. The person conducting the equipment validation will sign and date the validation sheet obtained from AWN upon completion. All validation information, including completion date, will be entered into AWN. All validations will be provided to the 3MC who will verify changes. The 3MC will also maintain validations on file for a minimum of 13 weeks.

e. Sailors, civilians, and contractors will only be granted access up to their 3-M qualification level, and designation letter. For example, a WCS does not warrant 3MC access even though they may be 3MC qualified, and a DIVO that is not qualified DIVO, even if designated, must not have DIVO access in AWN unless qualified or interim qualified.

f. AWN Management is imperative and for each 2Kilo the following is done.

   (1) Proper configuration is identified whether hardware or software.

   (2) Correct codes are used for Cause Codes, discovery codes, deferral codes, and type availability.

   (3) The CoC reviews each 2Kilo and approves at the appropriate level.

   (4) Proper supply documents are generated to ensure correct part tracking, and expenditure is in the 2K. This means for the majority of NAVIFOR units a manual entry from ONETOUCH as the primary MILSTRIP process, secondarily through open purchase requests.

g. Examples of equipment driven and equipment supporting tasks that require the use of a 2K.

   (1) Fleet Technical Support per Vol VI Chapter 2 of this manual, intermediate, and Depot level work requests for both hardware and software requires the initial Job Control Number (JCN) before the use of Navy Enterprise Service Desk (NESD). This same concept will utilize for NAVFAC's MAXIMO program, and any other PARM ticketed system will utilize this concept in ensuring 2K are entered into the command CSMP.

   (2) Installations of new equipment whether PEO, Other than Command Funded, or 3rd/site installed equipment.

   (3) Accounting for locally generated maintenance man-hours expenditures.

h. CNIF Ashore funding expenditure process due to the lack of a supply back-end and to connect maintenance data to the configuration, and command the following processes must be used.

(1)   OPNAV as the resource sponsor and liaison for funding for Operation and Maintenance dollars requires an accounting method inside of AWN.

(2)   All AWN CSMP entries will include the cost of the maintenance action which is to be entered in the AWN comment section under ships force.

(3)   The requirement to document cost in the Supply comment section applies to all corrective maintenance and logistics actions (including one-touch or any other program being utilized for navy standard stock repair parts, command contracts for systems maintenance, casualty report (CASREP) support, open purchase for non-standard stock parts and maintenance services).

(4)   Maintenance Contracts (FOR NAVWAR, NIWC, CIV or GOV contractor support) and open purchase documentation must incorporate the AWN assigned JCN.

(5)   Recording cost data in AWN and applying the JCN to financial documentation will support NAVIFOR budget discussions with OPNAV. Failure to document all maintenance actions and associated costs in AWN will limit NAVIFOR ability to support command unfunded requirements submissions and seek additional funding from OPNAV resource sponsors.

(6)   All commands without an AWN account will use their parent commands AWN account to submit CSMP entries. For commands without an AWN account and no parent command AWN account, contact NAVIFOR points of contact for additional guidance.

(7)   Financial documentation includes documents used for open purchase items and contracting maintenance actions or contracting support services. E.G. Infrastructure upkeep, system administration. If you are purchasing services for maintenance, it requires a CSMP entry. General office supply purchases, servmart, and command operating expenditures such labor and utilities (salary, electric, vehicles, water, sewer, etc.) are exempt from AWN CSMP entries.

(8)   Open AWN CSMP entries for maintenance contracts entering Statement of Work (SOW) and Period of Performance (POP) in the narrative, adding the cost to the AWN comments section under ships force. After entry is made and approved by 3MC, after contract is awarded and funds executed, the job can be closed. Subsequent contract renewals, option year extensions, or if a current fiscal year contract (shorter than full fiscal year POP) is extended, will require new AWN CSMP entries with costs applied to AWN comment section under Supply comments.

(9)   The goal is to capture maintenance actions and associated costs to support budget submissions and verifications with OPNAV N2N6. Your documented maintenance data is the authoritative record to eliminate budget shortfalls and restore funding to modernize based on traceable and supportable documentation pulled from the authoritative source.

i.   CNIF MDS Supply Process. All NAVIFOR units will utilize the ref n that is for both shipboard and ashore for ordering processes, and Material Obligation Verification processes.

     (1)   For non-RSUPPLY connected AWN, NSN ordering process will be, to enter a 2Kilo into AWN.

     (2)   NSN will be verified via ONETOUCH.

     (3)   Site will check the MILSTRIP requisition tracking spreadsheet, which is created and maintained by the site, for which document number to use next. W requisitions tracking spreadsheets for CASREPs.

     (4)   Site will input the NSN into ONETOUCH, verify it is correct. Once verified to be correct they will generate the MILSTRIP for the requisition along with the supporting 1348.

     (5)   Site will send an email attaching the 1348 to the email and will input the full MILSTRIP Requisition into the body of the email as well. The E-mail will go to the COMPCONTROLLER for funding verification and MILSTRIP recording.

     (6)   Once MILSTRIP is verified to be correct and funding has been approved, site will open ONETOUCH, navigate to the Requisition Functions menu, select MILSTRIP upload, paste the MILSTRIP into the File Contents box and hit the submit button.

     (7)   COMPCONTROLLER will record the MILSTRIP into Command Financial Management System and Standard Accounting, Budgeting, and Reporting System.

     (8)   Site will continue to follow any carcass turn-in and documentation record procedures.

     (9)   Update the AWN JCN with funding expenditure in supply comments, and requisition into the recommended solution block.

     (10)   If the site cannot find the required item via NSN, then an Open Purchase Request (OPR) be utilized. All OPRs will be verified with a JCN prior to ordering and funding expenditures outlined in Supply Comments.

     (11)   If items need to be added to the APL/AEL. The site will utilize the COSAL FBR process per reference (c).

j.   To ensure proper job Verification, Screening, and Brokeraging NAVIFOR follows JFMM VOL II Part II Chapter 1.

k.   Configuration management is a key component of all maintenance, material management, and readiness reporting across the Navy. Configuration management is dictated from volume VI chapter 19-7 of this manual and its associated references.

19-3.4.3   <u>Programmatics</u>:

a.   Calibration and Test Equipment. All Test, Measurement, and Diagnostic Equipment (TDME) that is within the NAVIFOR force must utilize volume VI chapter 9 of this

manual, and utilize MCMS to track all government owned calibration equipment for calibration readiness and reporting. For any test equipment item that requires calibration, a job in AWN must be entered to account for the item's degradation.

b.   2-M Processes will be utilized from chapter 8 of this volume, all CCA/ECMs will be screened that are owned by the platform, and a subsequent 2-K will be processed for the screening and repairing against the configuration.

c.   A lock out and tag out program shall be used if an energy-isolating device is capable of being locked out. Shore activities will pattern their lock out tag out program after Occupational Safety and Health Administration (OSHA) regulations as delineated in reference (h), utilizing NAVSEA Form 9210/9, Tag Out Record Sheet (TORS). Lock out tag out procedures are necessary to prevent the unexpected startup of machinery or equipment, or the release of stored or residual energy that could cause material damage, serious injury, or death. Lock out tag out is achieved through the installation of locking devices and tags to isolate energy sources so maintenance can be accomplished safely. Per references (h), (i), and (j), lock out procedures will be used for all corrective and preventive maintenance requiring electrical or mechanical isolation, including maintenance performed by repair activities or contractors. When energy isolating devices are not lockable, technicians will follow tag out procedures outlined in references (i) and (j). Kirkey lock-out/tag-out Systems will follow NAVIFOR Safety Professional guidance.

19-3.4.4 Inspections and Training Assist Visits. The goal of the 3MI is to evaluate the effectiveness of the unit's 3-M program. It is critical that the inspection be conducted in a similar fashion in every command and detachment across the force. Inspections will be completed once commenced; early below-standards indications will not be used to change an inspection into an assistance visit. Current instructions are available on the COMNAVIFOR portal page at https://usff.navy.deps.mil/sites/NAVIFOR/N4/N42/Pages/N421.aspx, and the NAVIFOR 3-M Teams Page. 3-M is the foundation of a well-executed, effective maintenance program. Therefore, configuration, PMS, and MDS must be vigorously prosecuted and thoroughly monitored. The standards of PMS performance must remain high.

a.   Frequency of Inspections and TAVs. The TYCOM or ISIC will conduct a complete inspection of each command under their cognizance as follows:

(1)   When deemed necessary and scheduling allows outside of the normal inspection window by the TYCOM, ISIC or the unit's CO.

(2)   Not to exceed 36 months. The governing factor is that every unit will be inspected every 24 months, and a maximum of 36 months

(3)   The ISIC will submit a 3MI periodicity extension request to the TYCOM if a 3MI will exceed 24 to 36 months has elapsed since the last inspection. The TYCOM, when replying to the request for extension, will include Commander, United States Fleet Forces Command N43 or Commander, Pacific Fleet N43 (as applicable) as information addressees. Only the TYCOM can authorize such an extension.

(4)   TAVs will be conducted by the ISICs as dictated from the TYCOM, or the by the TYCOM if the ISIC is the TYCOM. TAVs are an opportunity to train

personnel in specific areas of 3-M. The purpose of the assist visit is to identify areas where improvements may be made, this is not a direct translation of a 3MI. Prior to the arrival of the 3-M Team, the ship will respond appropriately to identify areas that need attention and ascertain the type of assistance desired. This is not required to conduct an inspection

(5)   An evaluation visit may be determined or required when a command has during a previous assessment was deemed as having no configuration whether hardware or software. This visit will occur once every 36 months to determine that the command has not gained any configurations during that timeframe, whether program of record or not. Once determined the TYCOM will include Commander, United States Fleet Forces Command N43 or Commander, Pacific Fleet N43 (as applicable) as concurrences.

b.   Inspection Team Composition.

(1)   Team Leader. The inspection team leader will be the TYCOM 3-M Representative who will concur with the assignment of inspection team members. The team leader will ensure inspection attributes are evaluated in a manner consistent with current guidance and directives provided by COMNAVIFOR and provide guidance to the inspection team members to ensure a common process.

(2)   Team Members. Team members will consist of Commander, Naval Forces or ISIC staff personnel or both who are adequately trained in the area to which they are assigned to assess. They will report findings to the team leader.

c.   Method for Assignment of Numerical Evaluations. The minimum performance requirements are as identified below:

(1)   Formula Acronyms:

(a)   CLER = Command Level Effectiveness Review

(b)   CTS = Command Total Score

(c)   CVF = CSMP Validity Factor

(d)   DTS = Department Total Score

(e)   MAR = Maintenance Accomplishment Rate

(f)   MDS = Maintenance Data System

(g)   MPR = MDS Performance Rate

(h)   PAR = Periodic Accomplishment Rate

(i)   PPR = PMS Performance Rate

(j)   SAR = Situational Accomplishment Rate

(k)   SEER = Scheduling and Execution Effectiveness Review

(l)   SCAR = Spot Check Accomplishment Rating

(2)   CTS must 80 percent or higher, 50 percent of the score is the PMS effectives, and 50% is the MDS effectiveness. Any CTS score evaluated below 80 percent will be re-evaluate.

$$\text{CNIF CTS} = ((\text{SCAR X .15}) + (\text{MAR X .10}) + (\text{SEER X .15}) + (\text{CLER X .10}) + (\text{SPF X .5})) + ((\text{CVF X .40}) + (\text{MPF .5}))$$

* For commands without a billeted or collateral duty 3MC:

$$\text{CTS} = ((\text{SCAR X .20}) + (\text{MAR X .10}) + (\text{SEER X .20}) + (\text{SPF X .5})) + ((\text{CVF X .40}) + (\text{MPF .5}))$$

(3)   MAR = PAR (.5) + SAR (.5) MAR = PAR (If Work Center holds no situational maintenance)

$$\text{PAR} = \text{Completed} / (\text{Completed} + \text{Lost} + \text{Alerts} + \text{Omitted})$$

$$\text{SAR} = \text{Completed} / (\text{Completed} + \text{Lost} + \text{Omitted})$$

(4)   Each Department is required to meet the DTS minimum of 80 percent.

$$\text{DTS} = \text{Work Center Score X Weighted Factor}$$

$$\text{Work Center Score} = (\text{PPR X .50}) + (\text{CVF/MDS X .50})$$

$$\text{PPR} = 50\% \text{ of the Work Center Score}$$

$$\text{CVF/MDS} = 50\% \text{ of the Work Center Score}$$

$$\text{PPR} = \text{MAR X SCAR} \div 100$$

(5)   Ranking Standards.

(a)   Commands, departments, and WCs will be evaluated as "Above Standards" overall in 3-M if the unit's total score is 90% or higher.

(b)   Commands, departments, and WCs will be evaluated as "At Standards" overall in 3-M if the unit's total score is between 80% and 89.99%.

(c)   Commands, departments, and WCs will be evaluated as "Below Standards" overall in 3-M if the unit's total score is less than 80%.

(d)   All calculations will be rounded to two decimal places.

d.   Inspection Procedures. Appendix A provides a standard means for evaluating the 3-M program. These procedures, centered on a set of core attributes applicable to all, are used to conduct 3-M Inspections. Inspection procedures are divided into six major areas, and three programmatic scores for CNIF:

(1)   Section I - Work Center and Command Effectiveness Reviews

(a)   Scheduling and Execution Effectiveness Review.

(b)   Command Level Effectiveness Review.

(2)   Section II - Spot Check Accomplishment Rating.

(3)   Section III - Maintenance Accomplishment Rate.

(4)   Section IV - Maintenance Data System.

(5)   Section V - Proficiency

(6)   Section VI - 3-M Inspection Command Total Score.

(7)   Section VII – Test Equipment

(8)   Section VIII – 2-M

(9)   Section IX - Lock-out/Tag-out

e.   Inspection Reporting. Significant deficiencies and numerical assessments are reported to the assessed unit's CO, ISIC and TYCOM using the format shown in appendix C. Reporting may be accomplished on the entire unit or on a departmental basis.

(1)   Significant deficiencies require a report of corrective actions taken by the unit to be forwarded to the TYCOM via the ISIC within 30 days following the inspection.

(2)   Any command or department receiving an overall evaluation of below standard in either PPR or CVF and MDS must be re-evaluated.

(3)   Each TYCOM will report the findings of the previous year's inspections to Commander, United States Fleet Forces Command or Commander, Pacific Fleet N43, as applicable, at the end of the calendar year.

f.   Inspection Data Retention. CNIF will maintain an inspection data file for each unit. As each command is evaluated, the individual evaluation standards and calculated values identified will be recorded in the data file with a copy of the inspection report provided to the inspected command. Sections I through VI of Appendix A provides specific criteria to be used in the assessment of each command. Section VII is evaluated based on test equipment readiness from chapter 9 of this manual. Section VIII is evaluated based on chapter 8 of this manual. Section IX is evaluated based on reference (h).

APPENDIX A

INSPECTION CRITERIA

APPENDIX A

SECTION I-A

SCHEDULING AND EXECUTION EFFECTIVENESS REVIEW (SEER)

Complete the SEER checklist below for each WC. Enter a numeric evaluation of each inspection attribute and provide amplifying information to describe the deficiencies driving point deductions on the "Remarks" page provided. Significant deficiencies must be reported via the final inspection report.

Command		Department	Division	Work Center	Date	
General Attributes					Value	Points
1.		Does the WC PMS file contain:				
	a.*	The current Service Brief?			1	
	b.*	Current and applicable 3-M messages, notices, and supplementary information are available?			2	
2.		Do MIPs and MRCs accurately reflect equipment configuration; are non-applicable MRCs correctly lined out and are applicable MRCs active?			10	
3.	*	Does the WC retain an auditable record of 3-M personnel qualification standards and designation letters?			5	
Maintenance Requirement Card (MRC) Deck						
4.		Is the WC deck of MRCs, including classified MRC locator cards, complete and current? (Per TYCOM direction)			2	
5.		Are locally generated MRCs complete and current?			3	
6.		Are blanks requiring installation data (including MRC location block) filled in prior to use? Specific location must reflect BLDG # with Room #.			3	
Chain of Command SKED Administration						
7.		Are all administrative changes approved at the appropriate level?				
	a.	Is the FR approved by DH? (Verify using Journal tab.)			2	
	b.	Are weekly closeouts are performed by close of business on the first workday of the week by the LCPO?			2	
	c.	Are lineouts and MRC customization approved by the LCPO?			2	
	d.	Are check notes reviewed, and alerts approved by the DH?			2	

		Location Guide Lists (LGL)		
8.	a.	Do LGLs contain required information (e.g., equipment name, equipment location, equipment serial number or unique identifier)?	3	
	b.	Are maintenance items in SKED associated to the existing equipment configuration?	3	
		Situational Requirements		
9.	*	Are all situational (states, triggered or metered) events being scheduled and executed in SKED?	8	
		PMS Execution and Accountability		
10.		Are check note entries accurate, valid, and complete?	3	
11.	*	Was maintenance assigned only to qualified maintenance personnel for MRCs requiring unique qualifications, NECs, or billet?	4	
12.		Is a check note made for maintenance actions not completed or rescheduled during the week and retained in SKED?	2	
13.		Is a unique tag out serial number or "tag out not required" entered as a "check note" for maintenance actions requiring a lock out or tag out and marked as complete?	2	
14.		Have the minimum number of spot checks and monitored checks been accomplished?	3	
		FBR File		
15.		Are FBRs tracked in SKED, "Action Taken" block updated by WCS?	3	
		Inactive Equipment Maintenance (IEM)		
16.	*	Is the start of an inactive period correctly annotated and approved by DH?	2	
17.		Are all IEM requirements properly scheduled?	5	
18.		Is the completion of the inactive period correctly annotated?	2	

Totals (Attributes evaluated as NA are not calculated)	Total Points Available:_____	Total Points Awarded:_____
SAT ☐ **SAT is 80% or better		UNSAT ☐
(Score = Points Awarded Divided by Points Available)		

* **Electronic Versions Acceptable**
Attribute Scoring:
$\geq$ 85% = Satisfactory = Full Credit
< 85% = Unsatisfactory = No Credit

Example - Attribute 17 – If 85% or better of IEM requirements were properly scheduled, points awarded would be five. If less than 85% of IEM requirements were properly scheduled, points awarded would be zero.

APPENDIX A

SECTION I-A2

SEER REMARKS

Provide amplifying information to describe the deficiencies driving point deductions. Significant deficiencies must be reported via the final inspection report.

Attribute #	Amplifying Information
Print Inspector's Name: _____	Signature: _____
Command: _____	Date: _____

APPENDIX A

SECTION I-A3

SKED 3.2 SEER CHECKLIST GRADING ATTRIBUTES

* Indicates electronic versions acceptable.

1. **Attribute 1**: Does the WC PMS file contain:

2. **Attribute 1a. (*)**:

   (1).   Current Service Brief?

   (2).   Is the latest FR PMS Service Brief available?

3. **Attribute 1b. (*)**:

   (1).   Current and applicable 3-M messages, notices, and supplementary information?

   (2).   Are applicable messages and bulletins that provide additional guidance, information or areas of focus that pertain to MIPs or MRCs available?

   (3).   Have the 3-M team at the activity, read and initialed the 3-M messages, notices, and supplementary information? Digital copy may be retained after initialed up to DH.

4. **Attribute 2**: Do MIPs and MRCs accurately reflect equipment configuration; are non-applicable MRCs correctly lined out and are applicable MRCs active? (May be MIP standardization violations)

   a.   Does WC meet TYCOM MIP standardization requirements? Are any MRCs listed on MIP lined out that are applicable to installed equipment configuration and within the cognizance of the WC to perform maintenance? (Split MIP log will be verified against the LOEP and MIP.)

   b.   Are applicable MRCs active on all applicable maintenance items?

   c.   Are non-applicable MRCs lined out? MRCs that are not applicable to the WC's installed equipment configuration.

   d.   Are line out justifications on MIPs accurate?

   e.   Has activities configuration been verified against available maintenance requirements? Does the shore Installation Process packages dictate that locally generated maintenance be required or identified maintenance requirements in technical manuals provided?

5. **Attribute 3 (*)**:

   a.   Does the WC retain an auditable record of personnel PQS qualifications and designation letters?

   b.   Does the WC have record of:

(1)   Department. 3MA and WCS designation letters for 3-M (301) Maintenance Person PQS, 3-M (303) WCS PQS, and 3-M (304) Division Officer PQS?

(2)   FLTMPS report, if available, must be used. If FLTMPS is not available, PQS watch station cover sheets signed by the XO must be used.

6. **Attribute 4**: Is the WC deck of MRCs, including classified MRC locator cards, complete and current? (Per TYCOM direction)

a.   Does WC MRC deck contain all MRCs that are not lined out on MIP? As a minimum, the deck will contain all quarterly checks and below, all R-checks, and all MRCs with fill in the blanks or pen and ink changes. Any MRC completed within the previous 13 weeks must be retained in the WC MRC deck. Verify SYSCOM MRC control number against MIPs per the 3-M Manual or TYCOM guidance?

b.   Does MRC location block contain one of the following entries, as appropriate?

(1)   BLDG # with room #;

(2)   "See LGL,"

(3)   "See METBENCH Calibration Management System (MCMS)"

(4)   "See Account Inventory Summary (AIS),"

(5)   "LGL attached."

c.   Is the MRC SYSCOM correct and matches the SYSCOM number on the MIP?

7. **Attribute 5:** Are locally generated MRCs complete and current?

a.   Does the command perform local maintenance?

b.   Has the local maintenance been recently updated?

c.   Is there a locally generated LOEP with MIPs associated to these MRCs?

d.   Do antenna's that do not have maintenance been verified again the Ashore Red HF, Ashore Green VHF/UHF/HF, and Ashore Yellow LF/VLF books?

e.   Shore stations that do not have a locally generated MRC documentation mark as "N/A".

8. **Attribute 6:**

a.   Are blanks requiring installation data (including MRC location block) filled in prior to use? Specific location must reflect BLDG # with Room #.

b.   Are all WC MRCs with blank fields or tables within the MRC procedure block requiring data completed?

9. **Attribute 7:** Are all administrative changes approved at the appropriate level?

10. **Attribute 7a**: FR approved by DH. (Verify using Journal tab.) Has the final approval of revisions (FR, ACNs, FBR, Document Information Transmittals (DIT), and administrative changes) been completed by DH?

11. **Attribute 7b:**

    a.   Are weekly closeouts performed by close of business on the first workday of the week by the LCPO?

    b.   Is the weekly closeout completed on the first workday of the week?

    c.   Is the weekly closeout completed by LCPO?

12. Attribute 7c: All lineouts and MRC customization approved by the LCPO. Are all lineouts approved and initialed by LCPO?

13. Attribute 7d:

    a.   Are check notes reviewed, and alerts approved by the DH?

    b.   Are check notes and alert details approved by DH?

14. Attribute 8a (*):

    a.   Do LGLs contain required information (e.g., equipment name, equipment location, equipment serial number or unique identifier)?

    b.   WCs with LGLs: Does the LGL have equipment nomenclature, serial number or unique identifier, and location (BLDG # and Room #) block completed for each line item?

    c.   If equipment manufacture serial number is available, it must be used.

15. Attribute 8b:

    a.   Are maintenance items in SKED associated to existing equipment configuration?

    b.   Are maintenance items in SKED correctly associated with equipment configuration?

16. Attribute 9 (*):

    a.   Are all situational (states, triggers, metered) events being scheduled and executed in SKED?

    b.   Are all local triggers and states executed as required?

    c.   Are all required R-Checks listed on the accountability logs and scheduled in SKED?

    d.   Are metered readings entered and tracked in SKED (if applicable)?

17. Attribute 10:

    a.   Are check note entries accurate, valid, and complete?

    b.   For all entries on the WC schedule that are not marked complete, is there a corresponding check note entry?

    c.   Does the check note entry begin with either: rescheduled, out of periodicity, non-accomplished, not applicable (NA) for situational checks and with the date the check went out of periodicity, the reason why the MR was not accomplished, or the reason check was not applicable?

    d.   Cent (¢) sign entries will begin with "Performed by" and followed by the detailed information of the outside activity completing the maintenance, JSN, work order or applicable documentation used to complete the maintenance. Proof of the completion

will be maintained in the WC PMS file until the next accomplishment of the maintenance action. DH will sign for accountability of all maintenance actions completed by outside activities.

18. **Attribute 11:**

    a.   Was maintenance assigned only to qualified maintenance personnel for MRCs requiring unique qualifications, NECs, or billet? For example, a system administrator requires NAVEDTRA 43469 for privileged access into the system.

    b.   For MRCs that indicate or require unique qualifications such as: SPO, DCPO, gage calibration or NECs, does the assigned individual(s) hold that qualification or billet? Utilize school completion certificates, position descriptions or FLTMPS for verification.

19. **Attribute 12**:

    a.   Is a check note made for maintenance actions not completed or rescheduled during the week and retained in SKED?

    b.   Do all check note entries match all entries in SKED?

    c.   Do check notes that require a JCN or Requisition number accurately placed into SKED?

20. **Attribute 13:**

    a.   Is a unique tag out serial number or "tag out not required" entered as a "check note" for maintenance actions requiring a lock out or tag out and marked as complete?

    b.   No entry is required for maintenance not completed.

21. **Attribute 14:**

    a.   Have the minimum number of spot checks and monitored checks been accomplished?

    b.   Are all required spot checks completed per this instruction?

22. **Attribute 15:**

    a.   Are FBRs being tracked in SKED, "Action Taken" block updated by WCS?

    b.   Does the WC retain copies of FBR responses requiring changes to PMS documents until reflected in the FR?

    c.   Are FBRs being tracked in SKED?

    d.   Are FBR responses entered in SKED when received and action taken updated within seven days?

    e.   If no outstanding FBRs, mark as NA.

23. **Attribute 16 (*):**

    a.   Is the start of an inactive period correctly annotated and approved by DH?

    b.   Does WC IEM tab annotate the proper IEM status?

    c.   If WC has systems or equipment in IEM status II, is a JSN, work documentation, DH authorization and outside activity or repair WC annotated?

    d.   Did the WC obtain DH written authorization prior to placing equipment in IEM?

    e.   Does the equipment in IEM for being sunset or retired in place, have an appropriate Divestment or sunset message?

    e.   If there is no equipment in IEM in the last 13 weeks, mark as NA.

24. Attribute 17:

    a.   Are all IEM requirements properly scheduled?

    b.   Does the WC annotate the proper scheduling of all applicable IEM maintenance (e.g., LU and PM)?

    c.   If there is no equipment in IEM in the last 13 weeks, mark as NA.

25. Attribute 18:

    a.   Is the completion of the inactive period correctly annotated?

    b.   Does the WC schedule annotate the proper scheduling when removing equipment from IEM (e.g., SU and OT)?

    c.   If there was no equipment removed from IEM in the last 13 weeks, mark as NA.

APPENDIX A

SECTION I-B1

COMMAND LEVEL EFFECTIVENESS REVIEW (CLER)

Using the attributes and grading criteria described below, conduct the CLER. Provide amplifying information for deficiencies causing point reduction on the remarks page.

Command:			Date:	
General Attributes			**Value**	**Points**
1.		Does the 3MC maintain:		
a.		A Change Accountability Log (including FBR Accountability Log in SKED)?	2	
b.	*	A log tracking the assignment of MRCs from split MIPs to ensure all applicable MRCs are assigned (if applicable)?	3	
c.		A LOEP containing locally generated MIPs and a record of the associated MRC files?	2	
d.	*	A current PMS DVD or downloaded file?	3	
2.		Does the command have a reliable system for backing up MDS and PMS data?	5	
3.	*	Does the 3MC have an effective system in place to track, route and explain externally provided PMS changes?	3	
4.		Is there an effective system in use (Spot Check Program) whereby supervisory personnel periodically and routinely monitor PMS performance?	10	
5.		Have all FBRs entered in SKED been properly reviewed by the CoC and submitted off station within seven days?	3	
6.		Have CSMP reconciliations been conducted per JFMM and TYCOM instructions?	5	
7.	*	Does the activity conduct internal audits (Quarterly Self-Assessments) of all WCs and retain for one year copies of deficiencies, corrections, and abatements? Are copies of assessments forwarded to the ISIC and TYCOM on a quarterly basis?	15	

8.	*	Does the 3MC provide weekly status reports to the 3-M Manager per specific TYCOM directives?	3	
9.	*	Does the 3MC have an approved master copy of 3-M PQS?	3	
10.	*	Does the 3MC maintain an auditable record of PMS PQS for the command (e.g., copy of service record entries, signed copy of PQS cover letter, officer verified divisional training record or FLTMPS report)?	3	
11.		Does the 3MC maintain the status of command FBRs, responses and follow up actions taken in SKED?	3	
12.		Does the activity conduct 3-M program training per directives?	10	
13.		Does the 3MC have an active AWN account with proper permissions?	2	
14.		Does the activity conduct equipment validations via AWN?	3	
15.		Are changes annotated on validation and entered in AWN?	3	
16.		Does the 3MC retain 13 weeks' worth of validations?	2	
17.		Does the 3MC retain one years' worth of quarterly reports?	2	
18.		Are the quarterly reports signed and dated by the CoC?	2	
19.		Are the Check Note Reports included?	1	

Totals (**Attributes evaluated as NA are not calculated**)

Total Points Available: (88)   Total Points Awarded:_____

(Score = Points Awarded Divided by Points Available)

☐ **SAT**   ☐ **UNSAT**

Inspector Name and Command (Print and Sign)

* Electronic Version Acceptable   **Sat = 80 percent or better**

Attribute Scoring:
          80% or above = Satisfactory = Full Credit
          Less than 80% = Unsatisfactory = No Credit

APPENDIX A

SECTION I-B2

CLER REMARKS

Provide amplifying information describing the deficiencies and associated point deductions. Significant deficiencies will be reported via the final inspection report.

Attribute #	Amplifying Information

Print Name: _____Signature: _____

Command: _____ Date: _____

APPENDIX A

SECTION I-B3

CLER CHECKLIST GRADING ATTRIBUTES

* Indicates electronic versions acceptable.

1. Attribute 1: Does the 3MC maintain:

2. Attribute 1a. Does the 3MC maintain:

    (1)   A Change Accountability Log (including FBR Accountability Log in SKED)?

    (2)   Is the Accountability Log and FBR record in SKED updated?

3. Attribute 1b. Does the 3MC maintain:

    (1)   A log tracking the assignment of MRCs from split MIPs to ensure all applicable MRCs are assigned (if applicable)?

    (2)   Is a log available and approved by the XO to track the assignment of MRC(s) from split MIPs?

4. Attribute 1c. Does the 3MC maintain:

    a.   A LOEP containing locally generated MIPs and a record of the associated MRC files?

    b.   Does the 3MC maintain a LOEP that contains locally generated MIPs?

    c.   Does the 3MC maintain a master file with the locally generated MRC documentation?

    d.   Shore stations that do not have a locally generated LOEP or associated locally generated MRC documentation mark as "NA".

5. Attribute 1d (*). Does the 3MC maintain:

    a.   A current PMS DVD or downloaded file?

    b.   The latest PMS FR loaded and finalized on the first Monday of the quarter or on the later date as authorized by TYCOM?

    c.   The latest version of SKED implemented?

6. Attribute 2 (*):

    a.   Does the command have a reliable system for backing up MDS and PMS data?

    b.   Are back-ups and daily systems checks conducted?

    c.   Are external back-ups available?

    d   Are multiple data points saved on NMCI or ONE-NET servers as required?

7. Attribute 3 (*):

    a.   Does the 3MC have an effective system in place to track, route and explain externally provided PMS changes?

    b.   Does the 3MC route, maintain and track externally provided PMS changes?

8. Attribute 4:

    a. Is there an effective system in use (Spot Check Program) whereby supervisory personnel periodically and routinely monitor PMS performance?

    b. Does the 3MC maintain a Spot Check Matrix for the current week and the past 13 weeks?

9. Attribute 5:

    a. Have all FBRs entered in SKED been properly reviewed by the CoC and submitted off hull within seven days?

    b. Are all FBRs entered in SKED?

    c. Are all FBRs reviewed and processed off station (Planned Maintenance System – Management Information System) within seven days?

10. Attribute 6:

    a. Have CSMP reconciliations been conducted per JFMM and TYCOM instructions?

    b. Does the command or activity routinely submit CSMP reports to the ISIC and TYCOM per TYCOM direction?

    c. Does the command conduct CSMP Reconciliations during PB4M?

11. Attribute 7 (*):

    a. Does the activity conduct internal audits (Quarterly Self-Assessments) of all WCs and retain for a one (1) year the copies of deficiencies, corrections, and abatement? Are copies of assessments forwarded to the ISIC and TYCOM on a quarterly basis?

    b. Does the unit conduct quarterly internal audits or self-assessments of all WC PMS?

    c. Are quarterly self-assessments retained for one year?

    d. Are complete quarterly self-assessment deficiencies and POAM submitted to ISIC and TYCOM?

12. Attribute 8 (*):

    a. Does the 3MC provide weekly status reports to the 3-M Manager per specific TYCOM directive?

    b. Does 3MC provide weekly status reports to the 3-M Manager as per this instruction?

    c. Does 3MC retain the last 13 weeks of weekly reports plus the current week?

    d. Does 3MC retain the cover pages of one years' worth of weekly reports signed by the CoC?

13. Attribute 9:

    a. Does the 3MC have an approved master copy of 3-M PQS specifically tailored for the command?

    b. Does 3MC have a master copy of 3-M PQS specifically tailored for the command that is approved by the CO?

    c.   Is the command using the latest version of 3-M PQS?

14. Attribute 10 (*):

    a.   Does the 3MC maintain an auditable record of PMS PQS for the command (e.g., copy of service record entries, signed copy of PQS cover letter, officer verified divisional training record, or FLTMPS report)?

    b.   Does the 3MC will maintain a list of all assigned 3-M positions and PQS qualifications?

    c.   Are all personnel qualified for their assigned 3-M positions?

15. Attribute 11:

    a.   Does the 3MC maintain the status of command FBRs, responses and follow up actions taken in SKED?

    b.   Are the FBR response actions noted in SKED Feedback Report Manager?

    c.   Are command generated FBRs, responses and action taken tracked in SKED.

    d.   Is the latest PMS 22 available? (Reports issued monthly.)

16. Attribute 12:

    a.   Does the activity conduct 3-M program training per directives?

    b.   Is 3-M training included in PB4T (Planning Board for Training).

    c.   Is 3-M training scheduled and published in the POW or POD?

    d.   Does the 3MC retain copies of 3-M training muster sheets for a minimum of one (1) year?

17. Attribute 13:

    a.   Does the 3MC have an active AWN account with proper permissions?

    b.   Can the 3MC demonstrate creating a new AWN account?

18. Attribute 14: Does the activity conduct equipment validations via AWN?

19. Attribute 15:

    a.   Are changes annotated on validation and entered in AWN?

    b.   Does the 3MC ensure that pen and ink changes annotated on the validation aid are entered in AWN?

20. Attribute 16:

    a.   Does the 3MC retain 13 weeks' worth of validations?

    b.   Does 3MC ensure all required validations are completed?

21. Attribute 17: Does the 3MC retain one years' worth of quarterly reports?

22. Attribute 18: Are the quarterly reports signed and dated by the CoC?

23. Attribute 19: Are the Check Note Reports included?

APPENDIX A

SECTION II-A

SPOT CHECK ACCOMPLISHMENT RATING (SCAR)

Using the basic definitions and guidelines described, determine the PMS Spot Check Accomplishment Rating (SCAR) for each WC. Enter the values determined on the Spot Check Monitor Form, section II-A of this appendix. The number of Spot Checks has been established:

Periodic= 2%

Situational= 0.5%

For all completed maintenance (including daily, weekly, and bi-weekly) from the last 13 weeks. Every WC will receive at least one periodic and one situational documented spot check. The maximum spot checks accomplished during the inspection will be five per WC.

1. Complete an MRC Evaluation, SCAR Check Sheet, Section II-A of this appendix, for each MRC selected. Based on the results, evaluate the overall effectiveness of the accomplishment of each MR selected. Enter a numeric evaluation of each assessment attribute and provide amplifying information describing the deficiencies and associated point deductions. Significant deficiencies will be reported via the final inspection report.

2. The SCAR Check Sheet reflects a series of questions to be asked to determine the accomplishment status of an MRC previously reported as accomplished. Although, the sheet may be used as a reference for conducting a real time monitored MRC evaluation, for the purposes of conducting a 3MI, all spot checks will be conducted on accomplished (historic) MRCs.

3. Due to the nature of MRC completion, supporting programs such as Tag-Outs and HAZMAT are encountered. Care should be taken to avoid expanding the spot check to a review of the processes of those programs thereby preventing the assessor from determining the accomplishment status of the MRC under review.

4. The following is expanded guidance for completion of the SCAR check sheet. Items identified in ( ) are the SCAR check sheet inspection attributes. Best practices or other policies not supported by source documentation will not be included in evaluating compliance:

   a. (1.a.) Determine if the MP is qualified to perform the maintenance task. PQS 301 is required for all MRCs but attention should also be paid to other qualifications required such as Quality Maintenance (see Volume 5, Part I, Chapter 3, paragraph 3.4 of this manual) or graduation from a required school such as gage calibration technician.

   b. (1.b.) Determine if the correct TPMTE were used during the performance of the MRC. If the MP did not have the required TPMTE, it is unlikely that the maintenance person would have been able to complete all the procedural steps of the MRC as required. If an item of TPMTE was required to perform a conditional step and that step was not required to be accomplished, it is not considered deficient. If the required test equipment required calibration, ensure that the calibration is within date and the equipment is of sufficient scale to accomplish the MRC.

   c. (1.c.) Determine if the MP maintained the correct equipment.

d. (1.d.) Examine the MRC to determine that any locally applied changes are authorized by procedural notes, external correspondence, or allowed by reference (a).

e. (1.e.) Determine applicability of the MRC to the component that the MP signed for completion on the 13-Week Accountability Log.

NOTE: **IF A PROCEDURAL STEP WAS NOT COMPLETED, THE MRC SHOULD NOT HAVE BEEN REPORTED AS COMPLETE AND THEREFORE THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

f. (2.a.) From a variety of potential techniques, determine if the MP performed all the required steps of the MRC. This may be accomplished via re-enactment, a discussion regarding the steps or re-performance. The inspector should come away with a clear impression that all the steps of the MRC were either fully accomplished or not.

NOTE: **IF A REQUIRED TAG-OUT WAS NOT CONDUCTED IN SUPPORT OF ACCOMPLISHING THE MRC, THE MRC SHOULD NOT HAVE BEEN CONDUCTED AND REPRESENTS A SERIOUS SAFETY VIOLATION. THEREFORE, THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

g. (2.b.) If required by the MRC, verify that a Tag-Out was hung before the maintenance was performed. Ensure the isolation boundaries were appropriately identified and correctly positioned to ensure complete isolation of the maintained equipment. If no tag-out was required, write NA on the sheet.

NOTE: **FAILURE TO ADHERE TO A SAFETY PRECAUTION PROVIDED ON THE MRC CONSTITUTES A SERIOUS SAFETY VIOLATION AND THE FAILURE TO PERFORM THE MRC AS WRITTEN. THE ATTRIBUTE GRADE WILL BE ZERO AND ALL SUBSEQUENT ATTRIBUTES WILL ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

h. (2.c.) Determine compliance with all specific safety precautions listed on the MRC. If no safety requirements were invoked, write NA on the sheet.

i. (3.a.) By physical examination of the maintained equipment, determine if maintenance of the nature required by the MRC had been performed. Take note of fasteners that would have had to be disturbed, dirt in filters, fresh oil, etc. to make a judgment as to whether the maintenance has been performed.

NOTE: **DUE TO THE POTENTIAL LIABILITY INCURRED BY IMPROPER USE AND DISPOSAL OF HAZMAT, SOME WCS HAVE ASSIGNED SPECIALLY TRAINED PERSONNEL TO PROVIDE HAZMAT AND DISPOSAL SERVICES FOR SURPLUS MATERIAL INSTEAD OF THE MP. THIS IS ACCEPTABLE PROVIDED THE INSPECTOR CAN DETERMINE FULL COMPLIANCE.**

j. (3.b.) Determine through questioning and record verification that HAZMAT was properly used and disposed of as a means of determining whether the MRC was

accomplished. Once the inspector has determined that the HAZMAT was used and disposed of correctly, this attribute is considered fulfilled. If no HAZMAT was required to be utilized, write NA on the sheet.

k.　(3.c.) Determine if the MP could have performed the MRC from a standpoint of being trained and proficient in the tasks called out for by the procedure.

l.　(4.a.) Determine if the MP filled out the 13-Week Accountability Log or annotated proper disposition of maintenance in SKED correctly for the accomplished MRC with the appropriate accomplishment date. Ensure that if a tag-out isolation was used; the tag serial number is recorded in the space allowed or as a check note in SKED. Ensure that the printed name and legal signature of the MP who performed the maintenance is recorded or, in case of group performed PMS, the MP in charge of the group.

m.　(4.b.) From reviewing the discussions and findings during the spot check, determine if an FBR had been submitted if required. If no FBR was required, write NA on the sheet.

n.　(4.c.) Determine if a material deficiency was noted during the PMS; if so, examine the CSMP to ensure the deficiency was documented. If no material deficiency was noted, write NA on the sheet. If material discrepancies are properly documented in the CSMP attribute graded as a two. Material discrepancies which are not documented in the CSMP will be entered with an automatic grade of zero.

5. When a Spot Check is determined to be below standards, the command undergoing inspection is likely to have numerous questions. To facilitate root cause analysis and the formulation of an effective corrective action plan, care should be taken to clearly identify factors contributing to deficiencies that led to the conclusion that the MRC was not conducted as written or not conducted at all.

APPENDIX A

SECTION II-B

SCAR CHECK SHEET

Planned Maintenance System (PMS) 3-M Spot Check Form						
COMMAND	DEPARTMENT	EQUIPMENT	WORK CENTER	DATE PERFORMED	MIP EVALUATED	MRC EVALUATED

Maintenance Person:	Spot Check Date:

NOTES:

1. If an attribute marked with an "*" is evaluated as unsatisfactory, all subsequent attributes will be graded as "0".

2. Attribute marked with a pound sign "#". Due to the potential liability incurred by improper use and disposal of HAZMAT, some WCs have assigned specially trained personnel to provide HAZMAT and disposal services for surplus material instead of the MP. This is acceptable provided the inspector can determine full compliance.

Inspection Attribute			Value	Grade	Notes
Contact the MP assigned responsibility for the accomplishment of the MRC, have the individual deliver MRC, and determine the following by questions, personal observation, or both.					
1.	a.*	Is the MP qualified (PQS) to perform the MR?	2		
	b.	Did the MP present the correct tools, Personal Protective Equipment, parts (NSN), material (Military Specification (MIL-SPEC)) and calibrated test equipment?	3		
	c.	Did the MP properly identify the equipment (location, equipment validation)?	4		
	d.	Are there unauthorized changes or corrections to the MRC?	3		

	e.	Is the MRC correct for the equipment maintained?	3		

Demonstrated all steps of MR including all Notes, Warnings and Cautions according to the MRC.

2.	a.*	Followed all steps of the MRC.	5		
	b.*	Correctly performed equipment Tag-Out.	5		
	c.*	Followed all safety precautions.	5		

Does the equipment condition reflect accomplishment of the MRC?

3.	a.	Is it apparent that maintenance was performed recently?	10		
	b.#	Correctly demonstrated use and disposal of Hazardous Material.	3		
	c.	Was the MRC within the capability of the assigned individual?	5		

PMS Reporting

4.	a.	MP reported status of MR to the WCS if Completed or Not Fully Accomplished and made appropriate updates in SKED.	2		
	b.	WC generated FBR for any problem with MRC.	2		
	c.	Material deficiencies detected by the PMS action were recorded in MDS.	2		

Attributes Evaluated as NA are not Calculated

Total Points Available:_____   Total Points Awarded:_____

Spot Check (SCAR) (Grade = Points Awarded ÷ Points Available): SCAR =

Above Standards (90% or greater)   At Standards (80-89.99%)   Below Standards (less than 80%)

☐	Above Standards	☐	At Standards	☐	Below

Standards

APPENDIX A

Below Standard grade requires immediate accomplishment (if XO determines re-performance is required) monitored by a Chief Petty Officer

Additional Remarks:

Printed Name:_____

Signature:_____

Command:_____ Date:_____

APPENDIX A

SECTION III

MAINTENANCE ACCOMPLISHMENT RATE (MAR)

1. The Maintenance Performance formula has been redefined to more effectively capture maintenance that was not scheduled.

2. The PAR and SAR reports are automatically generated by SKED.

3. The MAR grade will be determined utilizing the formula reflected and a date range consisting of the previous 13 weeks of maintenance.

MAR = PAR (.5) + SAR (.5)

MAR = PAR (If WC holds no situational maintenance)

PAR = Comp ÷ (Comp + Lost + Alerts + Omitted)

SAR = Comp ÷ (Comp + Lost + Omitted)

4. Omitted is defined as any maintenance action that should have been performed on any and every maintenance item and no matter the reason did not get scheduled. For example:

   a. Situational or state maintenance that did not get scheduled when the situation dictated.

   b. Improperly lined out periodic checks.

   c. Non-accomplished IEM checks.

   d. Non-accomplished maintenance added via ACN, FBR, Preliminary PMS, etc.

APPENDIX A

SECTION IV-A

CURRENT MAINTENANCE PROJECT VALIDITY FACTOR (CVF) CHECKLIST

COMMAND	DEPARTMENT	DIVISION	WC	DATE

General:	

Assessment Attributes	Value

CSMP Validity Raw Data	
1. Number of TA-1 Work Candidates.	
2. Number of TA-2 Work Candidates.	
3. Number of TA-3 Work Candidates.	
4. Number of TA-4 Work Candidates.	
5. Total Work Candidates Sum of 1, 2, 3, 4.	
6. Number of TA-2 Work Candidates over 180 days old (not reported to the ISIC).	
7. Number of TA-4 Work Candidates over 180 days old (not reported to the ISIC).	
8. Aged Work Candidates (WCO) Sum of 6 and 7.	
9. Material Correction Rate: WCO/3 (Aged TA-4) (#7÷3)÷#4 (percentage).	
10. CSMP Validity review results from CVF Sheet. (Enter score from CVF Worksheet).	
11. Ship's Force Work Candidates over seven days old that require parts and the parts are not yet ordered.	

12.	Open Ship's Force Work Candidates over 30 days old, not in the 2-K status.	
13.	**Total Work Candidate Deficiencies (WCD)** Sum (#11+#12)÷#4 (percentage).	
14.	Work Candidate Multiple #10 minus (#9 + #13).	
15.	Material deficiencies noted by MRC spot checks, or space walk-thru's that were not documented in the CSMP.	
16.	Deductions #15 ÷ #5 (percentage).	
17.	CSMP Validity Score #14 and #16.	

CSMP Validity

☐ **Above Standards**　　　☐ **At Standards**　　　☐ **Below Standards**

Above Standards (90% or greater), At Standards (80-89%), Below Standards (less than 80%)

APPENDIX A

SECTION IV-B

CVF WORK CANDIDATE WORKSHEET

CSMP VALIDITY FACTOR (CVF) WORK CANDIDATE WORKSHEET												
COMMAND:_____ DATE:_____ _____												
DEPARTMENT:_____ DIVISION:_____WORK CENTER:_____												
JCN	**EQUIPMENT**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**CVF**
CVF	**Average of all cells**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**

CSMP entry was reviewed with the following results:	Score
1. Problem description adequate.	**10**
2. Recommended solution adequate.	**10**
3. Write-up reflects maintenance level assigned.	**10**
4. First (1st) and second (2nd) contact person assigned.	**10**
5. Correct CSMP summary.	**10**

6. Correct type of availability (maintenance assignment) 1, 2, 3 or 4 work candidates.	**10**
7. Priority code correct.	**10**
8. Write-up matches the configuration item and is written on the correct configuration item.	**20**
9. Was the correct special purpose or safety block selected with the correct values assigned? If selected, was the required Block 35 remarks present?	**10**
10. Does the work candidate reflect the current and correct status of the material deficiency? (physical verification, space walk-throughs, spot checks)	**Yes or No**
For attributes not required due to class or type differences, "N/A" attribute and recalculate total value of each field.	
NOTE: IF ITEM #10 IS "NO", THE WORK CANDIDATE WILL BE ZERO.	

NOTE: ENTER ONLY NUMERIC PORTION OF JSN AFTER ENSURING THAT DEPARTMENT AND WC HEADER ARE FILLED IN.

APPENDIX A

SECTION V-A1

SKED 3.2 PROFICIENCY FACTOR (SPF) WORKSHEET

COMMAND				DEPARTMENT		DIVISION	WC	DATE
Individual Evaluated:							**3M Billet Assigned:**	

							Proficiency Required	**Proficiency Attribute**	**Yes or No**

	Proficiency Required						**Proficiency Attribute**	**Yes or No**

	MP	WCS	LCPO	DIVO	DH	3MC		Y/N Y/N Y/N Y/N Y/N Y/N
	WORK CENTER ACTIONS							
1	X	X	X	X	X	X	Able to log on.	
2	X	X	X	X	X	X	Able to open a WC.	
3	X	X	X	X	X	X	Able to view the Schedule, Review, Forecast, Situational, IEM, Journal and PMS Document displays.	
4	X	X	X	X	X	X	Able to annotate disposition of maintenance.	
5	X	X	X	X	X	X	Able to view previous 13-weeks.	
6	X	X	X	X	X	X	Able to view Check Details.	
7		X	X	X	X	X	Able to schedule Spot Checks and update Spot Check results.	
8	X	X	X	X	X	X	Able to enter and view Check Note remarks.	
	SCHEDULE ACTIONS							
9		X	X	X	X	X	Able to add, delete or modify MIPs/MRCs in Revision Mode.	
10		X	X			X	Able to perform MRC lineout.	
11		X	X	X	X	X	Able to modify MRC line out justification.	
12			X	X		X	Able to approve MRC lineout.	
13			X	X		X	Able to perform weekly closeout.	
14			X	X	X	X	Able to acknowledge PMS Alerts.	
15		X	X	X		X	Able to reschedule checks.	

#							Description	
16		X	X	X		X	Able to assign maintenance responsibilities.	
17		X	X			X	Able to modify equipment associations.	
18						X	Able to archive 13-weeks.	
EVENT LIST ACTIONS								
19		X	X			X	Able to create an Event List.	
20		X	X			X	Able to add checks to an Event List.	
21		X	X	X		X	Able to trigger a Local Event.	
22						X	Able to trigger a Global Event.	
FEEDBACK REPORT ACTIONS								
23		X				X	Able to generate an FBR.	
24			X	X	X	X	Able to review and approve an FBR.	
REVISION ACTIONS								
25			X	X		X	Able to start a revision.	
26			X	X	X		Able to approve a revision.	
27					X	X	Able to finalize a revision.	
REPORTS								
28		X	X	X	X	X	Able to generate and view PMS reports.	
ADMINISTRATIVE ACTIONS								
29						X	Able to add users.	
30			X	X	X	X	Able to edit users.	
31			X	X		X	Able to disable users.	
32			X	X	X	X	Able to view and modify the CoC.	
TOTALS								
	8	19	26	23	18	32	Divide total Yes by Proficiency required totals for the billet held by the individual.	Total Yes
SKED PROFICIENCY FACTOR								

	SAT = 85% or better MP	**SPF (%):**

	WCS **LCPO** **DIVO** **DH** **3MC**	
COMMENTS		

APPENDIX A

SECTION V-A2

SPF DESCRIPTION AND GRADING ATTRIBUTES

1. **Ability to log on**.

    a. Click on SKED 3.2 desktop icon.

    b. Enter username and password.

    c. Click "**Enter**".

2. **Ability to open a Work Center**.

    a. On the view tab bar, click "**WORKCENTER**". A box should open.

    b. Click to highlight the WC to be opened.

    c. Click "**Open**" or double click the highlighted WC to open it.

3. **Ability to view the Schedule, Review, Forecast, Situational, IEM, Journal and PMS Document display**.

    a. From the WC toolbar, click "**Schedule**".

    b. From the WC toolbar, click "**Review**".

    c. From the WC toolbar, click "**Forecast**".

    d. From the WC toolbar, click "**Situational**".

    e. From the WC toolbar, click "**IEM**".

    f. From the WC toolbar, click "**Journal**".

    g. From the WC toolbar, click "**PMS Documents**".

4. **Ability to annotate disposition of maintenance**. (Mark a check as complete etc.)

    a. From an open WC, in the grid, click to highlight the desired check.

    b. Right click the selected item and select the "**Complete** (Green X) **Check**" icon from the menu.

    c. The icon (Green X) will be displayed in the grid.

    d. To unmark the check, right click the same item and click the (Green X) again.

NOTE: **WHEN THE PIN ACCOUNTABILITY FEATURE IS ENABLED THE CREW MEMBER THAT WAS ASSIGNED THE MAINTENANCE MUST BE PRESENT TO INPUT PIN WHEN WCS MARKS THE CHECK COMPLETE.**

5. **Ability to view previous 13-Weeks**.

    a. From an open WC, in Schedule display view, on the secondary tool bar, click on the "**Quarterly**" icon drop down arrow.

    b. Click one of the available quarters in the past to be reviewed.

c. Once done reviewing, click on the "**Quarterly**" icon drop down arrow and select the current quarter.

6. Ability to view Check Details.

a. From an open WC, in Schedule display view, highlight a check in the grid and right click it.

b. From the menu, select "**View Details**".

c. From the "**Check Details**" window, select the desired tab, such as General, SPMIG, MIP Document and MRC Document.

d. Close when done.

7. Ability to schedule Spot Checks and update Spot Check results.

a. **Ability to update Spot Check results**:

(1) From an open WC, in Schedule display view, highlight a check that has been scheduled for a spot check. A circle with a yellow ✓ (check mark), is the spot check icon.

(2) Double click it.

NOTE: **A SPOT CHECK MUST HAVE BEEN ALREADY ASSIGNED ON THE SCHEDULE.**

(3) The check details box opens, select the "Spot Checks", click on the "**Edit Spot Check**" icon and a spot check window displays.

(4) Fill in the scores of the spot check. The task will be in your task list.

(5) Double click the task to edit the spot check results.

b. **Ability to Schedule Spot Check**.

(1) On the view bar tab, click "**SPOT CHECK**".

(2) On the secondary tool bar select "**Schedule Spot Check**".

(3) The Spot Check scheduling wizard will appear**.** Click "**Next**".

(4) Select "**Spot Check**".

(5) Select the person that will be conducting the spot check, then click "**Next**".

(6) Select the date the spot check will be conducted and the WC the spot check will be conducted in.

(7) Select the check, click "**Next**".

(8) Review the information and click "**Finish**".

8. Ability to view and enter Check Note remarks.

a. From an open WC, in Schedule display view, click to highlight the desired check.

b. Right click the highlighted check.

c. Select the "**Check Note**" icon from the menu.

d.   Enter your remarks (Lost, Not Applicable, Reschedule etc.).

e.   Click "**OK**".

9. **Ability to add, delete or modify MIPs and MRCs in Revision Mode**.

NOTE: **THE WC MUST BE PUT IN REVISION MODE, DONE BY THE LCPO (STEP #25 LCPO OR 3MC ONLY). PROCEDURES 12 THROUGH 16 ARE PERFORMED FROM THE REVISION EDITOR.**

a.   Ability to add a New MIP**.**

(1)   On the Revision Editor toolbar, click "**New MIP"** icon.

(2)   The Add MIP dialog box opens.

(3)   Select the MIP to be added to your WC.

NOTE: **IF YOUR MIP IS NOT LISTED, ENTER THE MIP NUMBER IN THE BLANK PROVIDED IN THE LOWER PORTION OF THE SCREEN. THIS WILL ONLY BE AN ADMINISTRATIVE CHANGE UNTIL THE NEW MIP IS ADDED TO THE FR DVD. CLICK "OK". THE NEW MIP WILL BE GREEN.**

b.   Ability to make a maintenance item active or inactive (Delete).

(1)   Follow the MIP outline to the desired maintenance item and highlight it.

(2)   On the toolbar, click the "**Make Active or Inactive**" icon. The maintenance item icon in the outline will become blue for active and gray for inactive. Clicking the button will toggle back and forth.

NOTE: **MAKING A MAINTENANCE ITEM ACTIVE OR INACTIVE WILL AUTOMATICALLY MAKE ALL MRCS FOR THAT MAINTENANCE ITEM ACTIVE OR INACTIVE TO MATCH THE MAINTENANCE ITEM.**

c.   Ability to add MRCs (Same as add cross MIP related MRCs). Follow the MIP outline to the desired maintenance item and highlight the item.

(1)   On the toolbar, click the "**New MRC**" icon. The add MRC wizard opens.

(2)   Click "**Next".**

(3)   Click the check box next to Check to select an MRC from the reference data. A check appears and the MIP Outline on the screen becomes active.

(4)   Follow the MIP Outline to the MRC to be added. Highlight the MRC and click "**Next**".

(5)   Review the MRC details and make needed adjustments. Click "**Next**".

(6)   Click "**Finish**" and the MRC is added to the WC's MIP Outline.

NOTE: **STEPS 4 AND 5 MAY BE SKIPPED BUT THE INDIVIDUAL BEING EVALUATED NEEDS TO MANUALLY ENTER ALL DETAILS OF THE MRC IN STEP 6.**

d.   Ability to modify the details of a maintenance item or MRCs.

(1)   Follow the MIP outline to the desired maintenance item or MRC and highlight the item.

(2)   Modify or add data in the white grids only on the right pane of the window. The maintenance item or MRC icon on the MIP outline and the grid that has changed becomes yellow.

NOTE: **"BOLD" TEXT INDICATES A STATUS CHANGE FOR THAT MRC. THE MRC SYSCOM CONTROL NUMBERS (MRC CODE) MAY NOT BE EDITED. IF A REVISED DOCUMENT IS RECEIVED BECAUSE OF AN FBR OR DIT REPLY, THE "ADD MRC" FUNCTIONALITY IS USED TO ADD THE DOCUMENT.**

10. Ability to perform MRC lineout.

NOTE: **DHS MUST APPROVE LINEOUTS BEFORE THEY ARE PRINTED.**

a.   From an open WC, click "**PMS Documents**".

b.   Expand the appropriate MIP folder and follow the path to the MRC.

c.   On the secondary toolbar, click "**Customize MRC**". The Customize MRC Document dialog box opens.

d.   Scroll through the MRC and double click and highlight the procedure lines that are to be omitted.

e.   To remove a lineout, double click the procedure line again.

f.   Type the notes to appear on the MRC in the Tools, Parts and Materials Custom Note field. Click "**OK**".

g.   Your custom note is now part of the MRC and all the icons in the organizational outline become red. (**Not yet approved.**)

11. Ability to modify MRC line out justification.

a.   From an open WC, click the "**PMS Documents**" button on the top of the screen.

b.   Expand the MIP for the MRC that needs changes.

c.   Expand the tree for that MIP to get to the list of MRC(s) under that MIP.

d.   Highlight the MRC that needs modification.

e.   Click on the "**Pencil**" icon on the top left-hand corner of the screen (this the "customize MRC" icon).

f.   A "Customize MRC Document" box will come up containing the MRC selected.

(1)   Scroll through the MRC and click on the procedural step(s) that need(s) to be lined out. The affected procedural step will have a red line going through it. The red line indicates that the lineout has been performed but not yet approved. Lineouts approved by LCPO or higher turn the lineout from red to blue.

(2)   In the Tools, Parts, and Materials Custom Note on the bottom, refer to the specific procedural step lined out and provide detailed justification for lineout (e.g., Step 1.a.(2)(a) – Step omitted per FBR 2025-18).

(3)   To reverse a lineout marked in red, click on the procedural step again. As long as the lineout is not yet approved, this will clear the lineout.

12. Ability to approve MRC lineout.

a.   "MY TASKS" displays MRCs that have custom review and omit line outs which require lineout for a WC in your role in the CoC. Since multiple users may belong to the same role in the CoC, only one of the user's needs to approve the lineout to remove it from everyone's list. Lineouts appear in red, indicating they are not yet approved. When approving or disapproving lineouts, the requirement is to approve All or None of the lineouts. Partial lineouts are not allowed.

b.   Expand the Lineout approval list.

c.   Highlight the desired row.

d.   Double click the row. The Approve Customizations details screen displays for the selected item.

e.   On the "View Details" toolbar, click "**Approve and Close or Reject and Close**". The task is removed from your "My Task" list.

13. Ability to perform weekly closeout.

a.   From an open WC, on the "Toolbar", click to open the WC menu.

b.   Scroll down to "Weekly Closeout" and click it. A window opens, if there are no issues in the WC to resolve, the "**Close Out**" icon at the top of the window will be active.

c.   Select it and the week will be closed out.

d.   If there are issues, they must be resolved prior to the week being closed out.

14. Ability to acknowledge PMS Alerts.

a.   "MY TASKS" displays PMS Alerts for MRCs that are out of periodicity. When PMS cannot be accomplished before going out of periodicity, the WCS must provide a reason, which should be specific and include well-defined details. The CoC, from the LCPO to the 3MC sees the alerts displayed in their "MY TASKS" list. Only one user needs to acknowledge the alert to remove it from everyone's list.

b.   On the secondary toolbar at the top of the screen click on "**Tasks**".

c.   Expand the PMS Alert list.

d.   Highlight the desired row, double click it, or on the tool bar select "**VIEW DETAILS**" icon.

e.   Click "**OK**".

NOTE: **IF "CANCEL" IS SELECTED, THE PMS ALERT IS NOT ACKNOWLEDGED AND THEREFORE NOT REMOVED FROM THE TASK LIST.**

15. **Ability to Reschedule Checks.** Checks that are manually added or reschedule checks when the periodicity is **weekly or greater**.

   a.   From an open WC in the grid, right click a check. A menu will open.

   b.   Scroll down to the "**Reschedule**" calendar icon and click it.

   c.   A calendar opens with the originally scheduled date highlighted.

   d.   Click the date the check is to be rescheduled. (**Only the white dates are available for the check to be rescheduled to.)**

   e.   Click "**Next**". Click "**Finish**".

NOTE: **PER COMNAVIFOR 4790.1, A CHECK NOTE MUST BE ENTERED FOR RESCHEDULED, OUT OF PERIODICITY, NON-ACCOMPLISHED CHECKS.**

16. **Ability to assign maintenance responsibilities**.

   a.   From an open WC, in Schedule display view.

   b.   In the grid, click to highlight the desired check.

   c.   On the "Toolbar", click "**Assign Crew Member**" icon, or right click the desired check and select "**Assign Crew**" from the menu.

   d.   Under the column heading for Crew Member, click the drop-down arrow to view available crew members.

   e.   Click the crewmember's name.

   f.   Click the small box to apply changes. A checkmark will appear in this box.

   g.   Click "**OK**".

17. **Ability to modify equipment associations**.

   a.   From an open WC, on the toolbar, click to open the WC menu.

   b.   Select "**Edit Equipment Details**".

   c.   Follow the MIP outline to the desired maintenance item and highlight the item.

   d.   Click the ellipses button in the SHIP RIN or CDM RIN row, which is found in the white grids. A dialog box will open. Use the drop-down menus to locate criteria or enter search text. Click "**GO**". Highlight the row of data needed. Click "**OK**".

   e.   Alternately, from the Revision Editor:

   f.   Follow the MIP outline to the desired maintenance item and highlight the item.

   g.   Click the ellipse button in the SHIP RIN or CDM RIN row, which is found in the white grids.

h.   A dialog box will open. Use the drop-down menus to locate criteria or enter search text. Click "**GO**". Highlight the row of data needed. Click "**OK**".

18. Ability to archive 13-weeks.

NOTE: **THIS IS PERFORMED ONLY BY THE 3MC. ALL WCS MUST BE UP TO DATE WITH THE LAST WEEK OF THE CURRENT QUARTER CLOSED OUT FOR THE QUARTER BEING ARCHIVED. WHEN THE 3MC ARCHIVES A QUARTER, A NEW QUARTER WILL BE CREATED.**

a.   On the view tab bar, click "**ADMIN**".

b.   From the "Admin" drop down on the top of screen, click "**Archive Quarter**".

c.   If any WC has not closed out a week in the quarter being archived, a message will appear, and the archive process will not be allowed to continue until close issues are resolved.

19. Ability to create an Event List.

a.   Local Event List.

(1)   Click on **"Reports tab".**

(2)   Double click **"Local Events"** from the left-side menu**.**

(3)   Click **"Next".**

(4)   Select your WC from the drop-down menu. Click **"Next".**

(5)   Select your date ranges when prompted. Click **"Next".**

(6)   Click **"Finish"** to run your report.

b.   Situational "**Event List**".

(1)   Click on "**Reports tab**".

(2)   Double click **"Situational Events"** from the left-side menu. Click "**Next**".

(3)   Select your WC from the drop-down menu. Click "**Next**".

(4)   Select your situational event from the drop-down menu. Click "**Next**".

(5)   Click "**Finish**" to run your report.

20. Ability to add checks to an Event List.

a.   Click "**Add Trigger"** on the toolbar. A dialog box opens.

b.   Select a trigger from the menu. Use the scroll bar to view all selections.

c.   Click the date the trigger is to occur. The trigger icon now displays on the EVENTS calendar.

21. Ability to trigger a Local Event.

a.   From the Situational view, on the secondary toolbar, click "**Events**".

b.   In the left pane, open the desired MIP outline.

    c.   Click to highlight the maintenance item.

    d.   Click the **"ADD TRIGGER"** icon to launch the Add Trigger Wizard.

    e.   From the list, highlight a trigger. Then select the date for the trigger to occur.

    f.   Click "**OK**".

22. Ability to trigger a Global Event.

NOTE: **THIS IS PERFORMED ONLY BY THE 3MC.**

23. Ability to generate an FBR.

NOTE: **THERE ARE SEVERAL WAYS TO CREATE AN FBR IN SKED 3.2. THE FOLLOWING IS JUST ONE WAY OF DOING IT.**

    a.   From an open WC, highlight a check from the grid.

    b.   On the WC toolbar menu, scroll down to "**Submit Feedback Report**" and click it.

    c.   Select "**Technical MIP Changes** or **Technical MRC Changes**".

    d.   The Feedback Report Wizard opens.

    e.   Several choices will be available for your selection. Choose one. Click **"Next"**.

    f.   Enter any additional comments. Click "**Next**".

    g.   Your information will be displayed. If changes are required, click the back button, or click "**Finish".**

24. Ability to review and approve an FBR.

    a.   "My Tasks" displays FBRs awaiting your review and approval.

    b.   Expand the FBR list.

    c.   Highlight the desired row.

    d.   Double-click the row. The FBR Details block opens.

    e.   The ability to view, approve, modify, make urgent or reject the FBR is here.

    f.   The LCPO, DIVO, and DH must review and sign the FBR before it goes to the 3MC.

NOTE: **THE 3MC CAN BYPASS THE CoC IF REQUIRED TO GET THE FBR TRANSMITTED ASAP.**

25. Ability to start a revision.

NOTE: **THE LCPO WILL PUT THE WC IN REVISION MODE FOR THE WCS.**

    a.   Open the WC, on the "Toolbar". Click to open the "Work Center" menu.

    b.   Scroll down to "**Start Revision**" and click it. The Start Revision wizard opens.

    c.   Click "**Next**". The Start Revision dialog box opens.

    d.   Select the Revision Type.

    e.   Enter a valid Revision Name. Click "**Next**".

f.   Provide a revision reason. A reason for starting a revision for anything other than an FR is required. Click "**OK**", then click "**Finish**".

g.   The Revision editor will load. The evaluated individual should now be in **Revision Editor Mode**.

26. Ability to approve a revision.

a.   "MY TASKS" displays revisions ready for approval.

b.   Expand the revision approval list. Highlight the desired row.

c.   Double click the row. The Revision Editor opens. Expand the path to the revision.

d.   On the toolbar, click "**Approve**" (Star icon)

e.   The Revision Editor screen closes and is removed from your task list.

27. Ability to finalize a revision.

a.   Same as paragraph 26, except that if performed by the DH or 3MC once they click on "**Approve**" (Star icon), the revision is finalized.

b.   Revisions should be approved (signed) by the LCPO and DIVO before being approved by the DH. When the DH goes in to approve the revision, they will see a window indicating whether the revision was approved by the LCPO and DIVO. The DH can choose to approve the revision regardless.

28. Ability to generate and view PMS Reports.

a.   Open the "REPORTS" tab at the bottom right of the SKED 3.2 program.

b.   A window opens with two panes. The left-hand pane has all the reports available to view. The right-hand pane is blank. This is where your data will be displayed.

c.   Double click the report of your choice and follow the report wizard to display your requested data.

29. Able to add users.

a.   Select the Admin tab (Last tab on the lower right).

b.   Select User Management from the top menu.

c.   Click "**Add User**" icon. The Edit User Details, New User dialog box opens.

d.   Enter pertinent information for the new user.

e.   Click the General, Feedback Reports, and Work Center tabs to check allowed permissions.

30. Ability to edit users.

a.   Select the Admin tab (Last tab on the lower right).

b.   Select User Management from the top menu.

c.   Highlight a crewmember from the display grid, and double click it.

d.   The User Details box opens.

e.   Update User information in the appropriate fields.

f.   Click "**OK**" to save changes.

31. Ability to disable users.

a.   Select the Admin tab (Last tab on the lower right).

b.   Select User Management from the top menu.

c.   Highlight a crewmember from the display grid, and double click it.

d.   The User Details box opens.

e.   Click the Status Field arrow. Select disabled.

f.   Click "**OK**" to save changes.

32. Ability to view or modify the CoC.

a.   Select the Admin tab (Last tab on the lower right).

b.   Select chain of command from the top menu.

c.   A screen displays for the activity and lists the username, role, rate, last name, first name, and signature.

d.   Click the plus sign at the far left to view by department, division, and WC.

e.   Select the "**Edit Chain of Command**" icon (top left corner, under File menu). An Edit CoC display box opens. Edit accordingly (add or delete) DH, DIVO, LCPO, or WCS.

APPENDIX A

SECTION V-B

MAINTENANCE DATA SYSTEM PROFICIENCY FACTOR (MPF) WORKSHEET

COMMAND			DEPARTMENT			DIVISION	WORK CENTER	DATE
Individual Evaluated:						**3-M Billet Assigned:**		
Proficiency Required						**Proficiency Attribute**		**Yes or No**
	MP	RPPO	WCS	LCPO	DIVO	DH			
1	X	X	X	X	X	X	3-M PQS Qualification completed.		
2	X	X	X	X	X	X	Able to Log-on.		
CSMP ACTIONS									
3	X	X	X	X	X	X	Display Work Candidate or Maintenance Action.		
4	X	X	X	X	X		Add Work Candidate or Maintenance Action.		
5	X	X	X	X	X		Change Work Candidate or Maintenance Action.		
6	X	X	X	X	X		Close Work Candidate or Maintenance Action.		
CONFIGURATION MAINTENANCE ACTIONS									
7	X	X	X	X	X	X	Display Equipment File or Configuration Item.		
8			X	X	X		Report Installation of Equipment.		
9			X	X	X		Report Modification of Equipment File (to include Validation and WC Change)		
10			X	X	X		Report Removal of Equipment.		

SUPPLY REQUISITIONING								
1 1		X	X	X	X		Order Maintenance Parts from Allowance Parts List (ONETOUCH)	
1 2		X	X	X	X		Order Maintenance Parts not Listed (COSAL FBR)	
1 3		X	X	X	X		Order Non-Maintenance Related Items (Open Purchase)	
1 4		X	X	X	X		Review Parts Ordered Status (RSUPPLY, ONETOUCH)	
1 5				X	X	X	Execute Parts Approval.	
PRINT REPORTS								
1 6			X	X	X		Validation Aid Report.	
1 7		X	X	X	X	X	CSMP Reports with Parts Status.	
REVIEW AND APPROVAL								
1 8			X	X	X	X	Review Work Candidate (Add, Mod, Complete).	
1 9			X	X	X	X	Review Configuration Item (Add, Mod, Delete).	
2 0			X	X	X	X	Review Work Related to Configuration Item.	
TOTALS								
	7	12	19	20	20	9	Divide Total Yes by Proficiency Required totals for the billet held by the individual.	Total Yes
							MPF (%)	

Comments:

SAT = 80% or better

APPENDIX A

SECTION VI

3-M INSPECTION COMMAND TOTAL SCORE (CTS)

1. CNIF CTS = ((SCAR X .15) + (MAR X .10) + (SEER X .15) + (CLER X .10) + (SPF X .5)) + ((CVF X .40) + (MPF .5))

* For commands without a billeted or collateral duty 3MC:

2. CNIF CTS = ((SCAR X .20) + (MAR X .10) + (SEER X .20) + (SPF X .5)) + ((CVF X .40) + (MPF .5))

A minimum grade point of 80 is required for a passing score.

APPENDIX B

DIVISION INACTIVE EQUIPMENT MAINTENANCE (IEM) PLAN

From: Division Leading Chief Petty Officer,
To: Department Head,

Subj: Division Inactive Equipment Maintenance (IEM) Plan

Ref: (a) COMUSFLTFORCOMINST 4790.3

Encl: (1) Inactive Equipment Maintenance Plan Matrix

1. Per reference (a), the following systems or equipment will be placed in an IEM status in SKED while the command conducts.

2. Enclosure (1) lists all Systems and Equipment that this division will place in IEM for the upcoming maintenance period. This list was checked for accuracy and linked to the appropriate system or equipment restoration and key event. The IEM Plan is considered a living document; reviews will occur when key events timelines change.

3. A current copy of this plan will be provided to the command 3MC and be made available to the LMA, CTE, and Project Superintendent.

//SIGNATURE//
I.M. CHIEF

5. I concur with placing the Systems or Equipment identified in Encl (1) in an IEM Status.

// SIGNATURE//
Department Head

System or Equipment	MIP	CAT 1 / 2	LU	PM	SU/OT	Due MRs	Restoration Key Event	Estimated Restoration Date
#1 Burner	5151/902	1	LU-3 LU-4	PM-1 PM-2	SU-2 SU-3 OT-1	A-8	43 Ventilation Restore	12/25/16

Enclosure (1)

VI-19-3-B-2

APPENDIX C

FORMAT FOR REPORTING 3-M INSPECTIONS

4790
Ser
Date

From: Accomplishing Activity
To: Commanding Officer (Command Name)

Subj: REPORT OF 3-M INSPECTION OF

Ref: (a) NAVSEAINST 4790.8; Ships' Maintenance and Material Management (3-M) Manual

(b) COMUSFLTFORCOMINST 4790.3; Joint Fleet Maintenance Manual, Volume VI, Chapter 19

Encl: (1) (as required)

1. Per references (a) and (b), a 3-M Inspection of (_____) was conducted during the period (Date) to (Date).

2. During this inspection, the following significant deficiencies were discovered:

   a. (List) by enclosure

Specific department and WC deficiencies are provided in enclosure(s) (1) through ( ).

3. The following overall activity or department numerical assessments are assigned:

   a. 3-M Total Score _____

   b. 3-M Inspection _____

   (Above, At or Below Standards)

Copy to:
Immediate Superior In Command (with enclosures)
Type Commander (with enclosures)

VOLUME VI

CHAPTER 19-4

NAVAL INSTALLATIONS COMMAND

<u>REFERENCES</u>.

(a)   <u>OPNAVINST 4790.4</u> - Ships Maintenance and Material Management System Policy
(b)   <u>NAVSEAINST 4790.8</u> - Ships' Maintenance and Material Management (3-M) Manual
(c)   <u>NAVEDTRA 43241</u> - Personnel Qualification Standard for Ship's Maintenance and Material Management (3-M) System

<u>LIST OF APPENDICES</u>.

A   Inspection Criteria
B   Division Inactive Equipment Maintenance (IEM) Plan
C   Format for Reporting 3-M Inspections

19-4.1 <u>ROLES and RESPONSIBILITIES</u>.

a.   Type Commander. The Type Commander (TYCOM) exercises primary responsibility for the effective operation and support of the Maintenance and Material Management (3-M) System. Areas of responsibility include but are not limited to the following:

(1)   Ashore Maintenance Data System (MDS).

(a)   Maintenance Figure of Merit family of systems.

(b)   Maintenance Data Analysis Tool.

(2)   Planned Maintenance System (PMS) Scheduling (SKED) software.

(3)   Configuration Data Managers Database - Open Architecture (CDMD-OA).

(4)   Current Shore Maintenance Project (CSMP).

(5)   The screening and processing of feedback reports (FBR).

(6)   Maintaining an inspection data file per paragraph 19-4.4.2.f of this chapter.

(7)   Ensuring units are manned with Navy Enlisted Classification (NEC) qualified 3-M Coordinator (3MC) (as required).

(8)   Analyzing 3-M inspection and self-assessment data, identifying common concerns, conducting problem root cause analysis with the development and implementation of solutions.

(9)   Ensuring TYCOM inspection team members are qualified to inspect assigned areas.

b.   TYCOM 3-M Team. The 3-M team consists of representatives from Port Operations (N31), Air Operations (N32), and Force Protection (N34). This team is responsible for:

   (1)   Assisting and advising Commander Naval Installations Command (CNIC) commands in administration of the 3-M System.

   (2)   Conducting reviews of PMS feedback reports and responses.

   (3)   Conducting 3-M System training, assists and inspections.

   (4)   Monitoring overall implementation and effectiveness of the 3-M System.

   (5)   Review of self-assessment results to identify trends and provide prompt support to stations as required.

   (6)   Maintaining liaison with Commander, U.S. Fleet Forces Command, Naval Sea Logistics Centers (NSLC) and other commands on 3-M matters.

c.   Immediate Superior In Command and Regional Commander. The Immediate Superior In Command (ISIC) and Regional Commander are responsible for the routine monitoring and evaluation of the 3-M System for all assigned activities. Areas of responsibility include but are not limited to the following:

   (1)   Monitoring and evaluating 3-M Program for all assigned units in accordance with reference (a) and (b).

   (2)   Ensuring 3-M Inspections (3MI) are current.

   (3)   Ensuring subordinate commands conduct rigorous quarterly 3-M Self-Assessments and report results to the TYCOM 3-M team.

   (4)   Monitoring the status of troubled systems using the quarterly 3-M Self-Assessment.

   (5)   Ensuring subordinate commands comply with standard Work Center (WC), division and department structure.

   (6)   Tracking and monitoring 3-M major milestones, training events, and conducting 3-M Spot Checks during ISIC or staff visits.

d.   Commanding Officer or Officer In Charge. The Commanding Officer (CO) or Officer In Charge is responsible for establishing an aggressive Self-Assessment Program that validates the administration and execution of maintenance and detects improperly conducted maintenance or falsely reported accomplishments. The designate the 3MC in writing as the primary duty of an officer, Chief Petty Officer (CPO) or Petty Officer First Class (who has been assigned a secondary Navy Enlisted Classification (NEC) of 9517). As an exception to this policy, commands not having

an allowance for a 3MC will assign these duties in writing as the most significant collateral duty of an appropriately qualified officer, CPO or Petty Officer First Class.

e.   Executive Officer. The Executive Officer (XO) is the command's 3-M System Manager responsible to the CO for the overall management of the 3-M Program. The XO will:

(1)   Chair quarterly 3-M System meetings with Department Heads (DH) and the 3MC.

(2)   Brief the CO on the status of 3-M.

(3)   Ensure personnel receive adequate and effective 3-M System training.

(4)   Ensure the effectiveness of the command's 3-M Self-Assessment Program.

f.   Command Master Chief. The Command Master Chief (CMC) will:

(1)   Attend the XO's quarterly 3-M System meetings providing senior enlisted feedback.

(2)   Conduct PMS Spot Checks following the command's policy to ensure required maintenance is being properly performed and documented.

g.   Command 3-M Coordinator. The 3MC will:

(1)   Serve as the key 3-M System assistant to the XO.

(2)   Maintain a file of 3-M System directives, newsletters, notes, and correspondence containing current 3-M Program information and ensure distribution to WC personnel.

(3)   Maintain copies of the current Force Revision (FR) NAVY PMS Digital Video Disk (DVD), List of Effective Pages (LOEP) for every WC, changes issued between FRs in their original format and classified Maintenance Requirement Cards (MRCs). Digital copies are allowed unless there have been changes between FRs.

(4)   Advise, monitor, and assist DHs, Division Officers (DIVOs), Leading Chief Petty Officers (LCPOs) and Work Center Supervisors (WCS) in matters concerning the 3-M System.

(5)   Monitor the 3-M Personnel Qualification Standard (PQS) Program and maintain an auditable record of personnel qualified in 3-M PQS.

(6)   Maintain a master accountability log of all PMS changes.

(7)   Develop and maintain a Split Maintenance Index Page (MIP) Log.

(8)   Administer the configuration management program.

(9)   Supervise the command's 3-M Self-Assessment Program and provide a weekly status to the XO.

(10)   Develop and administer the PMS Spot Check Program.

(11)   Generate a weekly PMS Spot Check assignment matrix for officers, CPOs, and designated supervisory personnel.

(12)   Ensure corrective actions are taken on all unsatisfactory PMS Spot Checks and report same to the XO as part of weekly PMS reporting.

(13)   Ensure a complete back up of the SKED system is made on removable media (e.g., DVD or CD-ROM) following completion of the FR update and retain as part of the PMS Master File.

(14)   Ensure two complete backups of the SKED database are produced weekly and saved in two separate locations (e.g., local hard drive, share drive).

(15)   Ensure situational requirements are triggered in SKED and completed based on unit events.

(16)   Ensure that Triggers are properly set at the command level.

(17)   Screen all FBRs, verify content, validity, serialize and forward within seven days of origination.

(18)   Maintain accountability of all submitted FBRs and actions taken until corrected or new PMS documentation is received.

(19)   Ensure the FBR originator and all applicable WCs are apprised of action taken and that changes or corrections are implemented when received.

(20)   Ensure 3-M documents such as Maintenance Action Form OPNAV 4790/2K, Configuration Change Forms OPNAV 4790/CK, etc. that require forwarding to a data processing activity are forwarded within seven days of origination or as operationally feasible.

(21)   Ensure 3-M documents returned for the correction of data are promptly revised and resubmitted.

h.   Department Head. The DH is responsible to the XO for the operation and execution of the 3-M System within the department. Delegating review and approval authority will not relieve the DH of his or her duties and responsibilities in maintaining an effective 3-M Program. The DH will:

(1)   Ensure departmental 3-M assistant, DIVOs, LCPOs and WCSs are qualified in accordance with reference (c) and designated in writing as applicable.

(2)   Ensure maintenance is prioritized to facilitate accomplishment.

(3)   Review and approve all department PMS schedules and revisions.

(4)   Review maintenance action annotations.

(5)   Implement a Self-Assessment Program within the department to validate properly accomplished and reported maintenance.

(6)   Take corrective action on all "Unsatisfactory" PMS Spot Checks and report to the XO via 3MC as part of weekly PMS reporting.

(7)   Ensure all material deficiencies are documented and promptly reported.

(8)   Review and verify the content and validity of all FBRs, digitally sign FBRs within five days of origination.

(9)   Ensure the Configuration Management Database accurately reflects equipment changes whether the action is performed by command personnel or outside activities.

(10)   Authorize placement of equipment into an Inactive Equipment Maintenance (IEM) status, ensure PMS scheduling is annotated accordingly.

(11)   Review and approve department work candidates within four days of creation; ensure completeness, accuracy, and the correct assignment of priority.

(12)   Review all work candidates in the departmental CSMP every 90 days.

(13)   Ensure that no classified data is reflected on 3-M documents.

(14)   Conduct quarterly meetings with DIVOs, LCPOs and WCSs and provide status of departmental 3-M System to the XO.

i.   Department Leading Chief Petty Officer or Departmental 3M Assistant. The department LCPO is responsible for the proper operation of the 3-M System within their department. The department LCPO will:

(1)   Provide 3-M System guidance and training to DIVOs and division LCPOs within their department.

(2)   Participate in quarterly Self-Assessments.

(3)   Ensure the proper testing and inspection of work done by outside activities prior to job acceptance.

j.   Division Officer. The DIVO is responsible to the DH for the execution of maintenance within the division. The DIVO will:

(1)   Ensure all PMS scheduling changes have been properly annotated and applied prior to DH review and finalization.

(2)   Review the 13-Week Accountability Log at the beginning of the PMS week and sign at the end of the week if not using electronic accountability in SKED or when SKED is not available.

(3)   Review and verify the content and validity of PMS FBRs within three days of origination.

(4)   Ensure 3-M documents generated within the division are complete, accurate and promptly submitted to the DH.

(5)   Conduct 3-M Self-Assessments as directed by the command's policy.

(6)   Provide weekly updates to the DH concerning the status of the 3-M System within the division.

(7)   Incorporate 3-M System training into the Divisional Training Plan.

(8)   Ensure divisional personnel are properly trained and qualified to conduct maintenance.

(9)   Review divisional work candidates and the CSMP for validity and accuracy.

(10)   Conduct monthly briefings for the DH on the status of all work candidates.

(11)   Acknowledge PMS Alerts.

k.   Division Leading Chief Petty Officer. The division LCPO is responsible for the proper operation of the 3-M System within their division. The division LCPO will:

(1)   Supervise WCSs in the execution of daily maintenance.

(2)   Ensure WCSs are properly trained, equipped and are knowledgeable of all WC divisional equipment maintenance requirements.

(3)   Verify all divisional WC equipment is covered by PMS.

(4)   Ensure PMS is properly scheduled and conducted, including all special evolution situational "R" checks.

(5)   Review WC PMS records (e.g., FRs, Advanced Change Notices (ACN) and PMS FBRs and Responses), approve all lineouts and additions on the LOEP, MIP, and PMS schedules prior to DIVO and DH reviews. Ensure proper justification is noted on each lineout.

(6)   Review and approve non-applicable procedural steps lined-out on MRCs.

(7)   Review and sign the 13-Week Accountability Log at the end of the PMS week and ensure checks added that week are hand-written into the blank accountability log (if not using electronic accountability in SKED or when SKED is not available).

(8)   Review the PMS Scheduling Forecasting Report to ensure that all Tools, Parts, Material and Test Equipment (TPMTE) are available to support upcoming maintenance actions.

(9)   Provide the DIVO a weekly status of the division's Self-Assessment Program, CSMP and PMS.

(10)   Ensure the Configuration Management Database reflects current configuration.

(11)   Ensure FBRs are submitted requesting LOEP changes to reflect system, equipment and component installs or removals.

(12)   Review and verify the content and validity of PMS FBRs within two days of origination.

(13)   Ensure the divisional CSMP accurately reflects material conditions.

(14)   Review and approve work candidates, act as the second point of contact for work candidates and provide the DIVO a weekly brief on the status of all work candidates in the CSMP.

(15)   Ensure proper testing and inspection of work done by outside activities prior to job acceptance.

(16)   Coordinate repair activities within the division.

(17) Review all quarterly Self-Assessments and promptly correct discrepancies found within the division.

(18) Review, approve, and close out weekly schedules. This closeout of the previous week's schedules must occur on the first day of the following week (i.e., Monday).

(19) Review Check Notes for required and updated information.

(20) Write PMS Alert details to include why planning allowed loss of periodicity and the plan to complete PMS.

l. Work Center Supervisor. The WCS will be a Senior Petty Officer assigned to the WC and qualified per reference (c) or civilian equivalent. The WCS will:

(1) Maintain a detailed working knowledge of all equipment deficiencies within the WC. Record all equipment deficiencies within their WC, utilizing AWN or authorized equivalent to ensure all required 3-M System documents are submitted to the division LCPO.

(2) Ensure WC personnel have completed 3-M PQS training commensurate with position held.

(3) Ensure PMS covers all maintenance worthy equipment in the WC.

(4) Maintain an accurate and current LOEP.

(5) Ensure 3-M System WC files and publications are complete, current, and available to WC personnel.

(6) Ensure WC initiated 3-M documentation is correct, legible, promptly prepared and submitted.

(7) Maintain a 13-Week Accountability Log containing the current and previous 13-Week Log if not using electronic accountability in SKED or when SKED is not available.

(8) Prepare weekly WC schedule, obtain required approval, assign maintenance personnel, and update schedule to reflect status.

(9) Ensure equipment changes, adds and removals are reflected in the Configuration Management Database and, if not, report via 4790/CK to the Configuration Data Manager (CDM).

(10) Ensure FBRs are submitted whenever:

(a) Maintenance requirements are not fully understood.

(b) Errors are believed to exist.

(c) Entries in the TPMTE block are wrong or inadequate.

(d) Additional coverage is needed.

(e) Performance of the maintenance requirement would cause a hazardous condition to exist.

(11)   Ensure prompt reporting of all material deficiencies and completed maintenance actions.

(12)   Ensure test and measurement equipment or other portable support equipment is delivered for test or calibration as scheduled.

(13)   Ensure the DIVO and division LCPO or LPO are advised of all 3-M System activity within the WC.

(14)   Spot check completed equipment file validations. Ensure accuracy of the information and PMS scheduling equipment associations.

(15)   Review the PMS Scheduling Forecasting Report to ensure that all TPMTE is available to support upcoming maintenance actions.

(16)   Ensure all WC weekly schedules are updated daily.

(17)   Use the Edit Equipment Details function of SKED to the maximum extent possible to associate maintenance items to the CDMD-OA database embedded in SKED 3.2 for configuration items. The association should be made to the highest level (piece) of the applicable equipment being maintained (i.e., #1 Torpedo Tube vice the Slide Valve).

m.   Maintenance Personnel. Maintenance personnel will perform all PMS as assigned utilizing PMS documents in SKED and ensure Check Notes contain amplifying information and tag-out identifiers as required. Maintenance personnel will:

(1)   Perform assigned maintenance.

(2)   Notify the WCS when:

    (a)   An MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

    (b)   There are issues with the TPMTE block of the MRC.

    (c)   The technician has doubts concerning his or her ability to perform the maintenance.

    (d)   Equipment deficiencies or casualties are discovered.

    (e)   Factors exist which would make performance of the maintenance unwise or dangerous.

(3)   Initiate FBRs when discrepancies are discovered during the performance of an MRC.

(4)   Inform the WCS when planned maintenance requirements are complete.

(5)   Annotate PMS schedule to reflect accomplishment of maintenance.

(6)   Sign 13-Week Accountability Log (if not using electronic accountability in SKED or when SKED is not available).

19-4.2 <u>QUALIFICATIONS</u>. All personnel assigned to billets associated with the 3-M System must be 3-M PQS qualified for the assigned billet per reference (c) and Table 19-4-1.

    a.   Evidence of qualification in support of 3-M requirements must be maintained by the command in an auditable fashion.

    b.   Personnel checking into the command with a 3-M qualification obtained from a previous command may be required to re-qualify. They may re-qualify directly to the highest level previously obtained and they do not have to re-qualify at lower levels.

Table 19-4-1 - Required PQS Qualifications	
3-M Coordinator	PQS-307
Departmental 3-M Assistant	PQS-305
Department Head	PQS-306
Department LCPO	PQS-305
Division Officer	PQS-304
Division LCPO	PQS-304
Work Center Supervisor	PQS-303
Repair Parts Petty Officer	PQS-302 or RPPO Continuing Training and Qualifications Software
Maintenance Personnel	PQS-301

19-4.3 <u>PLANNED MAINTENANCE</u>

19-4.3.1 <u>Minimum Standards</u>. MRC accomplishment is critical for maintaining equipment in a ready state and achieving expected service life. The maintenance tasks directed by MRCs are the minimum standards for organizational (activity) planned maintenance and therefore equipment degradation can be assumed if maintenance is deferred. The following provisions are provided to maximize on time performance of PMS and provide increased fleet latitude in maintaining equipment.

    a.   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. The MRC will be accomplished in sequential order, adhering to all Warnings, Cautions and Notes. Routine sub-steps (e.g., fastener removal, steps to don and remove personnel protective equipment, 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.

    b.   Per Naval Sea Systems Command (NAVSEA), procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. 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:

    (1)   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.

    (2)   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.)

    (3)   Specify every possible action of the maintainer.

c.   Leadership will 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 (not necessarily step-by-step performance).

d.   If a step is missing that is necessary to complete the task, and that step is not obvious to the Maintenance Person (MP), an FBR should be submitted.

e.   MRC completion status is dependent on the accomplishment of all procedural steps on all the equipment listed on the MRC or its accompanying Equipment Guide List or items listed on the Location Guide List (LGL) section of the MRC.

f.   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).

g.   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. Substitution requirements are provided by reference (b) and other technical documents.

19-4.3.2 <u>Functional Components</u>.

a.   PMS Master File. The Master File, maintained by the units 3MC, contains information relative to PMS requirements that are specific to equipment for which the command is responsible. The Master File provides for duplicate issue of missing MIPs and MRCs, contains supplementary information provided by NSLC Detachments Norfolk or San Diego and serves as a repository for changes received between FR distributions, which must be retained on file until the changes are reflected in a subsequent FR. Master File content is delineated in appendix A, section I-B the Command Level Effectiveness Review (CLER).

b.   Work Center PMS File. The WC File provides a ready reference of planned maintenance requirements and information to be retained in the working area for use

by the WCS and maintenance personnel. The WC File contains only the documents and information applicable to a specific WC. The content of the WC File is delineated in appendix A section I-A, Scheduling and Execution Effectiveness Review (SEER).

c.   PMS Administrative Requirements. In lieu of a WC or a Master File the following should be retained:

    (1)   Work Center

        (a)   Current locally generated LOEP and MRCs.

        (b)   Current Tailored Force Revision reports.

    (2)   3-M Coordinator

        (a)   SKED 3.2 Help file.

        (b)   Split MIP Tracking Log (updated to current FR).

        (c)   Applicable 3-M instructions (Activity, ISIC, or TYCOM).

        (d)   Current 3-M messages and guidance.

        (e)   Current 3MC Tailored Force Revision (TFR) Reports.

        (f)   Master classified MRCs.

        (g)   Current SKED Database back-up files on DVD or CD-ROM and an Excel spread sheet from the SKED report Checks and Maintenance Outlook Report of all WCs, for the current and next future quarter.

    (3)   3-M Program short and long range training plan approved by the XO.

    (4)   The following post-quarter SKED reports will be generated by the 3MC and forwarded to the ISIC by the third Monday of the quarter as conditions permit. These reports will be analyzed and electronically routed through the applicable DH to the XO. These reports will be retained as objective quality evidence, by the 3MC for four quarters.

        (a)   PMS Analysis Spreadsheet.

        (b)   Spot Checks – Passed & Failed Reports.

d.   Interim MRC Procedures. The activity may develop interim MRC procedures based on experience and applicable technical manuals in support of equipment or systems without PMS coverage until formal documentation is received. Before scheduling preliminary MIP requirements, the WCS and the DH must verify their applicability to installed equipment.

e.   Weekly Status Report. The weekly PMS monitoring status reports will be retained, electronically if desired, by the 3MC for six months. These reports from the 3MC to the XO will contain, as a minimum:

    (1)   Completed Spot-Check and Monitored MRC results.

    (2)   Completed WC audits and results.

(3)   The number of FBRs over seven days old that have not been reviewed by the Chain of Command (CoC).

(4)   Abatement and corrective actions completed because of a monitoring program finding.

(5)   IEM Details Summary Report.

(6)   Overdue (Alerting) MRCs and plan of corrective action.

f.   Change Service Accountability Log. The Change Service Accountability Log (CSAL) (Figure 19-4-1) provides a definitive record of all changes to a command's 3-M Program. Whenever a change to a command's 3-M Program is directed, be it from an FR, FBR, ISIC direction, etc., the change will be routed to the concerned WCS(s) via a memorandum. Whenever such a memorandum is issued, it must be recorded in the CSAL. Once the WCS reports the directed change has been completed, the 3MC will file the WCS's response and annotate the CSAL that the action is complete.

(1)   The CSAL is comprised of the actual log sheet, a copy of all memos routed to the WCS and the memo from the WCS to the 3MC indicating completion.

(2)   The importance of the CSAL cannot be overstated. In essence, it provides for a day-to-day, year-to-year record of changes to a command's planned maintenance program. It is also a turnover document at deployment sites, allowing a current command to quickly identify all changes from a previous command. Finally, it will be inspected during all command 3-M assessments and inspections, providing visibility as to how well a command manages 3-M from one inspection to another.

Figure 19-4-1 - Change Service Accountability Log

FR Change Number or Authority	Date RCVD	Cognizant Dept. or WC	Date Cover Sheet Issued	Date Cover Sheet Returned	Date Master File Updated or Item Closed	Summary of Change

19-4.3.3 <u>Related Maintenance</u>. Related maintenance, so designated by the ISEA or Technical Warrant Holder, is determined from the MIP. The "RELATED MAINT" column of the MIP reflects related maintenance requirements. Related requirements are positioned on the MIP to line up directly across from the MRC to which they are related. Related maintenance requirements are also identified in the TPMTE section of the MRC under "MISCELLANEOUS".

NOTE: **MANDATORY RELATED REQUIREMENTS MUST BE LINKED IN SKED TO BE AUTOMATICALLY SCHEDULED.**

a.   Related Maintenance Categories.

   (1)   Mandatory Related. Mandatory related maintenance requirements are those maintenance actions that must be accomplished concurrently with another maintenance requirement. The mandatory relationship is indicated with the use of the # sign. If the mandatory related maintenance resides on the same MIP, it will be reflected in the "RELATED MAINT" column as "periodicity#" (e.g., M-3#). If the related maintenance resides on another MIP, it will be reflected as "MIP:Periodicity#" (e.g., IC-013/033:M-4#). Mandatory related maintenance requirements are automatically scheduled by SKED.

   (2)   Convenience Related. Convenience related maintenance requirements are those maintenance actions that can be accomplished concurrently with another maintenance requirement to save time, such as preliminary steps and tag-outs already accomplished, or for work force considerations. If the convenience related maintenance resides on the same MIP, it will be reflected in the "RELATED MAINT" column as "periodicity" (e.g., M-5). If the related maintenance resides on another MIP, it will be reflected as "MIP:Periodicity" (e.g., EL-010/001:M-4)). In both cases, the # symbol is omitted. The WCS manually schedules convenience related requirements.

   (3)   Conditional Related. Conditional related maintenance requirements are those maintenance actions that are performed when specific conditions are present or specified parameters are not met on the referencing MRC. Conditional related maintenance will appear on the MIP in the same manner as convenience related maintenance. The WCS manually schedules conditional related requirements.

   (4)   None. No related maintenance is reflected as "None" in the "RELATED MAINT" column.

b.   Work Center Supervisor Actions. WCSs are encouraged to review their schedules on a regular basis for opportunities to perform other PMS when an equipment or system has maintenance actions scheduled. Rescheduling of PMS to take advantage of other system maintenance (convenience related) is highly recommended.

   (1)   If an MRC has related maintenance from another MIP, review the related MIP and MRC and determine if it requires assistance from another WC.

(2)   If the related MIP and MRC does not require assistance from another WC and is not on the lead WC LOEP, submit an FBR to have it added to the LOEP.

(3)   If the related MIP and MRC requires assistance or completion by another WC and is mandatory, convenience or conditional related then it should also be on the lead WC LOEP. If it is not on the lead WC LOEP, submit an FBR to have it added to the LOEP. If the related MRC requires technical assistance, a special NEC, or another rating, that is not part of the lead WC, then the person with the technical training, special NEC or required rating should be temporarily added to the lead WC "Crew List" and assigned the related maintenance in either an assist or performance role. All WCSs involved will collaboratively plan the required maintenance and may adjust schedules based upon individual workload. When the maintenance is completed, the lead WCS will mark the MRC as completed.

19-4.3.4 <u>Inactive Equipment Maintenance</u>.

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

(1)   Status I. Equipment that will:

(a)   Remain onboard.

(b)   Is not scheduled for corrective maintenance or overhaul.

or

(c)   Will be inactive during extended shutdown periods and maintenance availabilities as determined by the DH.

(2)   Status II. Equipment that is inactive and:

(a)   Subject to corrective maintenance, overhaul, or removal for safe storage.

or

(b)   Temporarily transferred to another activity for maintenance responsibility for extended shutdown periods as determined by the DH.

(c)   When system(s) components are scheduled for replacement.

b.   Implementation and Responsibility. While inactive, minimum maintenance is performed to ensure the success of the reactivation. The IEM section of the MIP will cover this maintenance. However, consideration should also be given to active PMS maintenance checks (e.g., M-1, Q-1, A-1) that can be manually added and performed during this period of inactivity.

(1)   The activity will develop an IEM plan for all inactive equipment. The plan will include reason for inactivation, and duration. DH approval of this plan will be documented in the "SKED IEM" remarks. Use Appendix (B)

(2)   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 personnel will conduct PMS during an inactive period. MIPs in each WC will be reviewed to determine if equipment has IEM coverage (e.g., Lay-up (LU), Periodic Maintenance (PM), Start-up (SU) and Operational Test (OT)), if the coverage is adequate, and what procedures to follow if there is no IEM coverage on the MIP in question 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 DH 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.

(3)   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 IEM section of the MIP. When IEM procedures are inadequate, submit an FBR. The unit 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.

(4)   The lack of IEM requirements on a MIP does not prohibit placing that system or equipment into an inactive state. Additionally, certain locations require precautions and maintenance not required force-wide. The unit should consider all factors that affect equipment deterioration and take necessary precautionary measures. The WCS or LCPO is responsible for identifying factors that are inadequate and may require additional preparation and maintenance of the inactive equipment while reporting same to the DH for approval. Factors may include environmental conditions, equipment location or susceptibility to damage. For those actions that are recurring in nature, the WCS should submit an FBR for possible MRC development.

c.   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 following 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) ten days to the right and will not go into "alert" until after the tenth day. This allows the MP or 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 activity personnel. LU checks will automatically be added to the schedule at the beginning of IEM by SKED and may be marked "NA" if the LU check did not support the equipment being removed from the activity 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) ten days to the right and will not go into "alert" until after the tenth day. This allows the MP or WCS scheduling flexibility within the plus side of the date range of the MRC.

NOTE: **WHERE THE GOAL OF 100% ACCOMPLISHMENT CANNOT BE REACHED, THE UNIT'S CoC MUST BE KEPT INFORMED OF THE CIRCUMSTANCES THAT PREVENT ACCOMPLISHMENT OF SCHEDULED MAINTENANCE.**

19-4.3.5 Scheduling. PMS is a portion of the command's 3-M Program that provides, in one authoritative system, the scheduling information and technical procedures governing planned maintenance. PMS provides a simple method for scheduling and documenting the execution of planned maintenance procedures. Fleet policy and scope are listed in Chapter 19 of this volume.

a.   Situational maintenance scheduling will be managed utilizing the tools provided by the computer based PMS scheduling software employed by the activity. All event driven situational requirements will be "triggered" when required and performed per reference (a).

b. The MP will be assigned prior to commencing the week and must complete the maintenance as directed. If a different person is required, the WCS will reassign the PMS accordingly.

c. Check Notes are required in SKED under the following circumstances.

(1) When PMS is marked as "lost".

(2) When PMS is marked as not-applicable.

(3) When PMS is marked with the '¢' symbol, "satisfied by Higher Level Maintenance."

(4) When PMS requires a tag-out, the tag-out program of record identifier will be entered.

d. After the FR is approved, the 3MC will conduct quarter archival to maintain one completed quarter, one current quarter, and at least four future quarters. This permits the ability to review past records and forecasting of upcoming maintenance actions.

19-4.3.6 <u>SKED</u>. The use of SKED version 3.2 or subsequent versions for PMS scheduling constitutes full compliance with all administrative provisions of the 3-M Manual.

a. Guidance for use of SKED is provided via the SKED users guide with help menus, and wizards associated with SKED functionality.

b. The Navy PMS DVD or CD-ROM is used to update the command or unit's SKED PMS data

c. The SKED program uses days to schedule and keep track of calendar periodicities. MRCs are displayed as out of periodicity when they fall outside the established date ranges in the SKED program. These date ranges are as reflected in Table 19-4-2.

Table 19-4-2 - SKED Periodicity – Date Ranges	
Periodicity	Date Range
Daily	None
2D	None
3D	None
Weekly	None
2W	9 - 19 days
3W	14 - 28 days
Monthly	21 - 41 days
2M	41 - 83 days
Quarterly	61 - 121 days
4M	83 - 165 days

Table 19-4-2 - SKED Periodicity – Date Ranges	
Periodicity	Date Range
Semi-Annually	121 - 243 days
8M	165 - 331 days
9M	+ or - 90 days from scheduled date
Annual	+ or - 90 days from scheduled date
Multi-month after annual	+ or - 90 days from scheduled date

19-4.3.7 <u>SKED Server Failure</u>. In the event of a SKED server failure, operation of PMS performance and tracking is as follows:

a. Retrieve Maintenance Outlook Report that was created following approval of current FR.

b. The WCS or LCPO will maintain the assignment of PMS with the Maintenance Outlook Report until server is restored.

c. Print assigned MRCs from the PMS viewer program that is located on the FR DVD.

d. Document and retain accomplished maintenance on printed blank 13-Week Reports that are in the documents folder on the FR DVD.

e. When the server is restored, update SKED based on accomplished maintenance documented on 13-Week Reports.

19-4.3.8 <u>Accomplishing PMS</u>. Maintenance personnel use MRCs to accomplish assigned planned maintenance as described in sub-paragraphs 19-4.3.8.a. through 19-4.3.8.h of this chapter.

a. From SKED "My Task" view, review the 13-Week Report.

b. Determine maintenance task(s) assigned.

c. Determine when the maintenance task(s) are due.

d. Determine what tools, parts, material, test equipment or supplies are needed. For MRCs that contain inspections and then maintenance actions based upon the inspection findings, the TPMTE needed to perform the follow-on maintenance caused by the inspection findings does not need to be obtained prior to performing the MRC but rather, may be obtained as needed.

e. Perform the maintenance on schedule.

f. Notify the WCS immediately whenever one or more of the following conditions exist:

(1) Anything on an MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

(2) TPMTE prescribed by the MRC is not available, is not correct or questions about substitutions arise.

(3)   Any doubt exists about your capability, training, or experience to properly perform the maintenance requirement as prescribed.

(4)   Factors exist which would make performance of the maintenance requirement unwise or dangerous (e.g., disassembly of equipment needed for operations, radiation when prohibited, situations causing safety hazard to exist, etc.).

(5)   Equipment deficiencies or casualties are discovered.

(6)   Any provisions or requirements on the MRC cannot be accomplished as prescribed.

g.   If an MRC can be completed step-by-step as written, then the maintenance action can be signed off as completed. Report completed planned maintenance actions to the WCS, update the PMS schedule to reflect the completed maintenance, annotate and sign the 13-Week Report. If multiple maintenance personnel are assigned to a single maintenance action, the most senior person assigned must update the PMS schedule, annotate, and sign the 13-Week Report or Check Note if using SKED 3.2 electronic accountability.

h.   If inspection criteria or a threshold inspected by the MRC does not meet the intended criteria, then those maintenance actions cannot be signed off as completed until the discrepancies are corrected. Maintenance actions not fully completed will be reported to the WCS. However, if material deficiencies or casualties, which are unrelated to that MR, are discovered, the MR can be checked off (provided the MR was fully completed) but the discrepancy must be reported via the MDS. The only exceptions are:

(1)   Systems designed with redundancy capability (e.g., AN/GPN-30, AN/URN 32, AN/FPN63, etc.) if one channel or stack meets the MRC criteria then maintenance action can be signed off as complete. However, the discrepancy must be recorded via MDS (Maintenance Data Analysis Tool for Air Operations).

(2)   Maintenance actions that can be signed off as complete are those discrepancies where the PMS documents (MRC or MIP) have an actual statement that directs a CSMP entry(s) to be made if there are discrepancies. The statement to inform the WCS of discrepancies, by itself, is not sufficient to sign the maintenance action as complete when discrepancies exist.

19-4.3.9 Non-Accomplished Categories. The WCS or LCPO will add a brief description for each check note or alert for non-accomplished categories using subparagraphs 19-4.3.9.a through 19-4.3.9.g of this chapter.

a.   System or Equipment Failure. System or equipment is not operational or in a reduced operational status thus preventing maintenance from being accomplished. CSMP Job Sequence Number (JSN) required in additional text description.

b.   Inadequate Maintenance Procedures. MRC procedure or steps cannot be accomplished to a point where the maintenance can be considered accomplished. FBR number required in additional text description.

c.   Unit Operational Requirements. Operations prevent the maintenance from being accomplished. Requires additional text description.

d.   System or Equipment Operational Requirements. Required operation of system or equipment prevents maintenance from being accomplished. Requires additional text description.

e.   Lack of Hazardous Material. Correct Hazardous Material (HAZMAT) not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

f.   Missing or Incorrect TPMTE. Correct or calibrated TPMTE was not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

g.   Other. Requires additional text description.

19-4.3.10 Accountability. The credibility of the Navy PMS program relies heavily on the individual accomplishing the maintenance. The required dedication and integrity of that individual cannot be overstressed.

a.   To maintain accountability, personnel are required to sign for the completion of assigned maintenance on the 13-Week Accountability Sheet. The WCS is required to review and sign the Accountability Sheet weekly to verify the accuracy and completeness of entries. Accountability sheets will be maintained in the WC PMS Manual for the current and previous quarter.

b.   Electronic Accountability may be utilized by commands employing SKED 3.2. When an individual updates the disposition of a check, this is the same as signing and dating a check completion on a 13-Week Accountability Sheet. The disposition of a check will become permanent when the weekly closeout is performed. All PMS maintenance assigned to a MP is presented to them immediately upon SKED 3.2 log-on; and CoC review can be tracked on the Weekly Closeout Signature Sheet. However, commands must still print, sign, and retain 13-Week Accountability Sheets as prescribed in para 19-4.3.10.a. of this chapter to retain accomplishment record in the event of a database loss.

19-4.3.11 Force Revision Implementation. In addition to the requirements of reference (a), the following steps ensure the most efficient and thorough implementation of an FR:

a.   MRC deletions on MIPs will be marked to indicate the reason for deletion:

(1)   Scheduling Aids (SA). Indicate applicable scheduling aid "(e.g., SA-.".

(2)   Split MIP. Indicate responsible WC (e.g., "EA01") if the MRC is applicable to the activity, the responsible WC designation will be used versus a scheduling aid.

(3)   "Other" includes approved responses to FBRs, ACNs (e.g., "NSWC ltr Ser 4790.005."), Message Date Time Group (e.g., "NUWC R124535Z AUG 05."), dual periodicity. Indicate guiding notation for deletion: "SA-1" or "Note 1", configuration change number.

b.   The FR will be completed on or before the first Monday of the new calendar quarter. When operational schedules do not provide adequate time to implement the revision prior to the start of the quarter, the XO may direct an alternate implementation date. This deferred FR will be reported to the ISIC.

c.   It is advisable to complete the FR process through DH approval before conducting quarterly audits by a chief or more senior.

d.   The 3MC will:

    (1)   Route the Service Brief to the CoC for review.

    (2)   Enter the FR number from the ALID in the PMS Supersedure and Accountability Log.

    (3)   Update PMS and TFR data into SKED prior to routing the change documentation to WCs.

    (4)   Route the FR to WCS for implementation. See Figure 19-4-2 and Figure 19-4-3 of this chapter for an example of a routing memorandum and an FR implementation checklist, respectively)

    (5)   Delete SKED FBRs after reflection within the FR.

e.   The WCS, upon receipt of the change document from the 3MC, will:

    (1)   Make the appropriate entry in the WC Record of Change Log

    (2)   Make appropriate LOEP, MIP, MRC, etc. changes to the WC PMS File.

    (3)   Apply changes to the WC PMS schedule utilizing SKED Revision Editor.

    (4)   Route revision changes to division LCPO for review and concurrence.

f.   The division LCPO will:

    (1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

    (2)   Review line outs on LOEPs, MIPs and MRCs. Initial all such line-outs to indicate concurrence.

    (3)   Submit PMS schedule to DIVO for review and concurrence.

g.   The DIVO will:

    (1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

    (2)   Review line outs on LOEPs, MIPs and MRCs. Initial all such line-outs to indicate concurrence.

    (3)   Submit PMS schedule to DH for review and approval.

h.   The DH will:

    (1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Review and approve lined-out MIPs on the LOEP, and MRCs on the MIPs.

(3)   Review and approve WC PMS Schedules.

i.   The WCS makes final entries in the WC Record of Change Log, completes the PMS Change Documentation Routing Memorandum, and returns it to the 3MC.

j.   The 3MC updates the CSAL and notifies the XO that the FR has been installed after receiving all FR PMS Change Documentation Routing Memorandums from the WCs.

Figure 19-4-2 - Force Revision Routing Memorandum

MEMORANDUM

From: 3-M Coordinator

To: _____ Work Center Supervisor

Subj: FORCE REVISION PACKAGE X-XX

Encl: (1) Force Revision Implementation Checklist

         (2) List of Effective Pages

1. Force Revision Serial: X-XX has arrived from NSLC

2. The SKED Force Revision (FR) update is complete. Begin your WC FR implementation using Enclosures (1) and (2). Complete through your Department Head no later than Day/Month/Year.

3. Corrections, including those to LOEP, MIP and MRC, should be made immediately. Make certain ACNs and FBR responses are reflected in the FR. If not, maintain the copies and changes to your MIP(s) and MRC(s) until reflected in a subsequent FR.

4. MRCs with procedural line-outs previously approved by the LCPO must again be reviewed by the LCPO to confirm they continue to meet the requirements of COMUSFLTFORCOMINST 4790.3, Volume VI, Chapter 19. Specifically, in the procedure block, Work Center Supervisors may line-out the non-applicable line items (alternate procedures) that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of an FBR is not required.

                                                      R/

                                                      3MC

Figure 19-4-3 - Force Revision Implementation Checklist

MEMORANDUM

From   _____ Work Center Supervisor

To: 3-M Coordinator

Subj: FORCE REVISION IMPLEMENTATION CHECKLIST COMPLETION

1. The following actions have been accomplished in SKED to implement Force Revision X-XX.

Task Description	Initial
Verified all equipment is listed under each MIP.	
Verified new or changed MRCs (green or yellow) are added to the correct Maintenance Item (equipment).	
Verified all applicable MRCs for each piece of equipment are active.	
Verified all MRC's have associated "Related Maintenance" attached.	
Verified that all MIP lineout's have a technical reason documented for deletion. (Select the "Pencil" Icon on top row)	
Verify Maintenance Item Serials & Locations are correct.	
Upon completion of implementation Marked Complete for digital approval by: LCPO, Division Officer and Department Head.	LCPO
	DIVO
	DH

2. After DH approval:

LCPO run SKED report PMS Documents and Customized MRCs – Line-outs. Verify each procedural lineout meets JFMM volume VI chapter **19-4.3.12.** requirements.	
WCS create an excel spread sheet from the Maintenance Outlook Report as a minimum electronic backup forecasting as many quarters in advance as available and store it on your hard drive (not a LAN drive) in the event of the LAN crashing.	
WCS select "Work Center" from the upper menu and "Update Unassigned Slots." Initially, any MRC without ownership will be assigned to the WCS. Reassignment by the WCS or LCPO will follow.	

3. Printing requirements for MRCs are determined by individual command policy. Printed MRCs must come from "PMS Documents" (not PMS Viewer).

4. Approval Signatures:

POSITION	SIGNATURE
LCPO	
DIVO	
DH	
3MC	

19-4.3.12 <u>Planned Maintenance System Feedback Reports</u>. PMS FBRs are used to identify problems with PMS documentation or to request the addition or deletion of PMS coverage. Issues with the periodicity, rates, man-hours, TPMTE and procedure may all be reported via an FBR. An FBR is also used to request copies of classified MRCs, request the addition or deletion of an MRC (maintenance requirement) to or from a MIP, splitting a MIP between WCs, shifting of maintenance responsibility or to request PMS coverage for newly installed systems or equipment. Paragraphs 19-4.3.12.a. through 19-4.3.12.j of this chapter. provide amplifying information dealing with the issues that may prompt the submission of an FBR.

a. Periodicity. An FBR can be used to request the increase or decrease in the frequency of a maintenance action, i.e., an MRC. However, the originator needs to keep in mind that the ship or unit has the prerogative to increase the frequency because of harsh weather, unusual operating conditions or corrective maintenance and associated testing requirements. A 726 Class submarine submitted an FBR requesting the frequency of cleaning a specific electronics cabinet filter be increased from quarterly to monthly. Research revealed this MRC was applicable to all 726 Class units and no other ship had submitted a similar request. In fact, two other units had requested the frequency be decreased to semi-annual. It was determined that the submitting unit was in an extended upkeep period and increased foot traffic by shipyard personnel near the electronic cabinet was the most likely cause of the filter becoming clogged. The ship was authorized to increase the frequency to support the extended upkeep period and the periodicity of the MRC was not changed.

b. Rates. The Rates block on the MRC represents the developer's recommendation of the skill level (rate and rank) best suited to accomplish the maintenance action. The key word is recommendation. Qualified personnel other than the rate and ranking specified may be assigned. When an NEC is assigned or Damage Control Petty Officer or Safety Petty Officer, substitution of other personnel is not allowed other than those exceptions as noted in reference (a). An FBR requesting the rate on an MRC be changed from an ET2 to an FT2 will probably not pass TYCOM screening, yet an FBR requesting the addition or deletion of personnel will generally pass to the cognizant technical activity for review.

c. Man-hours. The MRC reflects the average time per equipment, per person. It does not reflect or account for gathering and putting away tools, tag-outs or time removing and replacing interferences. From a maintainer's perspective, this is not an accurate representation of the time required to accomplish the maintenance action. The Future of PMS initiative will attempt to do a better job of accounting for this additional time but until then, FBRs should be submitted only when the allotted time per equipment is significantly out of synch with the actual time required. For example, an MRC calls out 0.5 man-hours per equipment, but it takes 1.0 man-hours.

d. Tools, Parts, Material and Test Equipment. TPMTE FBRs should be submitted when the procedure calls for an item not listed in the TPMTE block or when the TPMTE block lists an item not called out in the procedure. Updating the MRC to reflect

common hand tools, administrative or office supplies and basic housekeeping items is addressed in paragraph 19-4.3.12.k.(1) of this chapter.

e. Procedure. Procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. MRCs exist to provide standardized proven procedures, specify consistent acceptance criteria and to communicate warnings and cautions relative to the specific maintenance action. They are not intended to specify every possible action of the maintainer. There may be instances where an obvious typographical error exists on the MRC (example: Turn switch to ON; however, switch may already be ON and the intent of the step is to turn unit off, the card should read Turn switch to OFF). This type of error should not prevent the scheduling or performance of maintenance. However, in this situation, the accomplishment of the MRC is not possible until the WCS reviews the error and concurs that it is safe to proceed. A temporary notation including the reason for the correction must be made on the MRC, initialed by the WCS and an FBR submitted. Extreme caution will be taken when reviewing MRCs for this type of error. Errors must be obvious typographical errors and a PMS FBR must be submitted immediately upon discovered. Do not permanently alter the MRC until authorized by the applicable Systems Command (SYSCOM), ISEA or NSLC Detachment. If a step is missing that is necessary to complete the task, and that step is not obvious to the maintenance person, submit an FBR to have it added. An FBR submitted to request procedural changes should include the originators contact information and supporting rationale or justification. If, however, a step is missing that is clearly obvious, such as a ladder was used to install a fixture, but steps were not provided to put the ladder back in stowage, an FBR only serves to overload a process that should be focused on more technical issues.

f. Duplicate MRCs. Unclassified MIPs and MRCs are now available from the DVD. Copies of classified MRCs still require an FBR request due to handling requirements.

g. Addition or Deletion of an MRC. During the life cycle of a system, equipment, or component it may become necessary to add a maintenance action to prevent an age related functional failure or to delete a maintenance action due to inherent reliability not foreseen during maintenance development. An FBR submitted to request the addition or deletion of an MRC should include the originator's contact information and supporting rationale or justification.

h. Newly Installed or Removed Equipment. While an FBR request for PMS coverage will provide initial maintenance coverage or deletion of MIP(s) because of equipment removal, submission of an OPNAV 4790/CK is still required to initiate the rest of the logistic support change process. This point cannot be overstressed; the submission of the FBR does not relieve the ship or unit from initiating an OPNAV 4790/CK. The OPNAV 4790/CK initiates supply support, CDMD-OA changes, selected record drawing updates and class maintenance plan updates.

i. Splitting a MIP. There are instances in which a MIP includes MRCs for more than one WC to perform. When this occurs, a decision is required by the command as to whether the MIP will be split or will be scheduled singly by one WC. Only the XO

can authorize the splitting of a MIP if an MRC requires another WC to perform the entire maintenance action. If the decision is made not to split the MIP, then the MRs will be accomplished through the coordination of WCSs.

(1)   If the MIP is split, the following procedures apply:

    (a)   Submit to the XO a non-technical PMS FBR requesting approval to split the maintenance responsibility.

    (b)   Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR stating, "XO concurs with splitting MIP maintenance responsibility".

(2)   Upon receipt of the FBR approval:

    (a)   Utilizing the SKED Revision Editor, delete the MRC from the MIP and show the reason for deletion as the designation of the WC assuming responsibility (e.g., EE01).

    (b)   If the WC assuming responsibility does not reflect the MIP and maintenance items, utilize the SKED Revision Editor to add them. Schedule only the MRC(s) that pertain to the WC. Reflect remaining as deleted with the reason for deletion the designation of the parent (lead) WC (e.g., EA01).

(3)   If the situation occurs where a WC removes a split MIP, the following procedures apply:

    (a)   Submit an XO approved, non-technical PMS FBR reporting the decision to remove the split maintenance responsibility. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with removing split MIP maintenance responsibility".

    (b)   Upon receipt of FBR approval, utilize the SKED Revision Editor, remove the MIP, MRC(s) and maintenance item(s) from the WC no longer involved. Ensure that the lead WC assumes full responsibility for the MIP and MRC(s) and annotates their schedules accordingly.

j.   Shift of Maintenance Responsibility. Individual units sometimes consider it necessary to shift maintenance responsibility from one WC to another, to combine two or more existing WCs or to split an existing WC. These requests for changes of PMS maintenance responsibility require XO concurrence and may require final approval by the applicable TYCOM. Due to the considerable administrative burden, requests for this type of change should not be submitted to accommodate a temporary situation such as short-term assignment of two WCs to one supervisor.

(1)   The following factors should be carefully considered before submitting such requests:

    (a)   Composition of WCs by size and ratings.

    (b)   Scope of maintenance responsibilities.

(c)   WC workload.

(d)   Ease of administration of a WC as a cohesive maintenance group.

(e)   Importance of WC grouping to equipment maintenance responsibilities, PMS scheduling, MDS reporting and CSMP listings.

(2)   When changes in maintenance responsibility are considered necessary, the following procedures apply:

(a)   Submit a PMS FBR (Non-technical). Indicate from which WC(s) equipment is to be deleted and to which it is to be transferred. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with the shift of maintenance responsibility

(b)   WC or equipment changes will also be reported in the OMMS or SNAP system via a configuration change request OPNAV 4790/CK through the CSMP up-line reporting process.

(3)   Upon receipt of the FBR approval, perform the following actions:

(a)   The PMS Master File is updated to reflect deletion of the MIP from one WC and addition to the WC receiving the responsibility. The originating FBR serial number is annotated on the affected line item on the LOEP for both WCs. The PMS Master File must contain a record of deleted equipment until the change is reflected in a future FR.

(b)   Utilizing the SKED Revision Editor, load the affected MIP(s) and MRC(s) to the WC receiving maintenance responsibility. Delete the MIP(s) and MRC(s) from WC shifting responsibility.

(c)   Utilizing SKED, perform a revision to move the equipment from the original WC's current schedule to the WC receiving the maintenance responsibility. Data is exported from one and imported to the other maintaining equipment history.

k.   MRC Changes Not Requiring Feedback Reports. The only MRC modifications shipboard or unit personnel may make without submitting a PMS feedback report are as listed in subparagraphs 19-4.3.12.k.(1) and (2) of this chapter.

(1)   TPMTE Block

(a)   Common hand tools, administrative or office supplies and basic housekeeping items may be substituted or added by the WCS. The WCS may add notes to the MRC to reflect these substitutions. In the case where specific common tools are called out by description, substitutions are not authorized. For example, substitutions such as using synthetic fiber brushes in place of animal hairbrushes or rags and paper towels in place of lint free cloths are not allowed.

(b) Approved parts, materials and miscellaneous item substituted from the supply system, technical manual, or Military Specification, etc., which meet or exceed the requirements may be used. Ensure that substitutions satisfy both the basic maintenance and safety requirements of the MRC. If there is any doubt, a PMS FBR should be submitted specifying substitution desired and reason.

(c) Test equipment or certified tools, which meet or exceed the Sub-Category code requirement, may be used.

(d) When an MRC pertains to multiple configurations of equipment and the TPMTE block contains tools, parts, test equipment and materials for each unique configuration, the TPMTE block may be tailored for the unit's specific configuration by lining out the items that do not pertain to equipment held.

(e) Exception to TPMTE block change: If an item listed in the TPMTE block is not called for in the procedures block, submit an FBR explaining the circumstances. Conversely, if a tool, piece of test equipment, part or material is called for in the procedure block and is not listed in the TPMTE block an FBR should be submitted.

(2) In the procedure block, WCSs may line-out the non-applicable line items (alternate procedures) that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of an FBR is not required. If a step or steps in the procedure block have been   lined-out and tools, parts, materials, and test equipment in the TPMTE block pertain only to that step or steps, then they will be lined-out as well with a reference to the step or steps lined-out and approved by the division LCPO. Warnings, Cautions and Notes associated with the lined-out step or steps will also be lined-out.

l. Types of Feedback Reports. There are two types of FBRs, Technical and Non-Technical.

(1) Technical. These FBRs are used to report technical discrepancies inhibiting PMS performance. Technical feedbacks normally adjudicated by an ISEA responsible for the system or equipment covered by the PMS documentation require all the supporting information the originator can provide. The originator should identify the issue, providing as much supporting technical information (Allowance Parts List, Reparable Identity Code, drawing or Hierarchical Structure Code) as available and a proposed response or solution if known. Most importantly, provide point of contact information (name and phone number) so that the ISEA can contact the originator should they have questions. Bottom line, the FBR must be accurate and complete to "stand alone", that is, the FBR will be understood without additional explanation. The better the FBR describes the problem, the more likely the originator will receive a timely response. There are two sub-categories of technical FBRs:

(a)   Routine. An FBR will be considered routine when it relates to the technical requirements of PMS. It is used to report technical discrepancies or request clarification of procedures.

(b)   Urgent. An FBR will be considered urgent when it relates to the technical requirements of PMS and involves safety of personnel, safety of ship or the potential for equipment damage. Urgent FBRs will be forwarded by naval message containing a PMS Feedback Serial Number, to both NSLC Detachments Norfolk and San Diego, with info to the cognizant SYSCOM, TYCOM and the Naval Safety Center. The message must describe the unsafe procedure(s) or condition(s), must identify the MIP and MRC involved and reflect the serial number of the FBR generated in SKED or Planned Maintenance System – Management Information System (PMS-MIS). Once the message has been sent, include the date time group of the message in the FBR and submit.

(2)   Non-technical. These FBRs are intended to support PMS requests that do not require technical review, including WC changes, such as shift of maintenance responsibility. Non-technical FBRs are submitted to request classified or other PMS documentation which cannot be obtained locally or to request clarification of issues not of a technical nature.

m.   Feedback Report Submission. SKED users will generate FBRs via SKED using the Feedback Report Wizard. Command 3MCs will then export FBR text file for submission to NLSC for uploading to the Planned Maintenance System Management Information System (PMSMIS). Following adjudication NLSC will send FBR response to command 3MC for uploading into SKED for implementation as required. Non-SKED user can also generate FBRs in PMSMIS at https://pmsmis.navy.mil/Default.aspx by selecting the "Feedback" tab and "Feedback Report Wizard" from the drop-down tab. Non-SKED users accessing this web site 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 confirming your account and providing access to the main screen.

n.   Feedback Report Screening.

(1)   Initial screening is accomplished by the originator or WCS who is responsible for ensuring all data is accurate and complete.

(2)   The division LCPO or DIVO accomplishes the second level screening and verifies the content and validity of the FBR within three days of origination.

(3)   The DH, next to screen the FBR, is responsible for verifying the content and validity of the FBR and digitally signing FBRs within five days of origination.

(4)   The 3MC is responsible for screening, serializing, and forwarding FBRs within seven days of origination. The 3MC will also:

(a) Maintain accountability for all PMS FBRs submitted and actions taken until updated PMS documentation is received.

(b) Ensure that the originator and all applicable WCs are kept apprised of action taken and ensure the originating and other applicable WCSs implement the changes or corrections when received.

o. Feedback Report Screening (External to Activity). FBRs are next processed by the TYCOM. The TYCOM will verify the content and validity of the FBR and either return the document to the originator or pass it on for further processing and resolution.

p. Feedback Processing Activities.

(1) The central control points for processing FBRs are the Planned Maintenance System Coordinating Activities (PMSCA). Depending on the type of FBR and level of technical authority necessary to answer the FBR, the PMSCAs will either respond to the originator with a resolution or forward the FBR to the appropriate technical authority for action.

(2) ISEAs are those activities designated by NAVSEA as the technical experts for specific systems or equipment. Naval Surface Warfare Center, Philadelphia Detachment is the ISEA for the majority of non-nuclear hull, mechanical and electrical equipment installed on most ships. ISEAs under the direction of the NAVSEA Technical Warrant Holder adjudicate the FBR request and forward the response to the PMSCAs. The PMSCAs provide the final response to the originator and update the PMS database to reflect ISEA changes. PMS changes are issued with the next available FR.

NOTE: **IT IS POSSIBLE AN FBR RESPONSE MAY NOT MAKE A SPECIFIC FR BASED ON THE DATE THE RESPONSE WAS RECEIVED BY NAVSEALOGCEN. PROCESSING TIME AND HANDLING MAY CAUSE THE REVISED DOCUMENTATION TO MISS AN FR CUTOFF DATE. HOWEVER, SINCE ALL FRS ARE NOW RECEIVED QUARTERLY, IF A REVISION MISSES THE CURRENT FR CUTOFF WINDOW, THE REVISED DOCUMENTATION WILL BE AVAILABLE WITHIN THE NEXT THREE (3) MONTHS.**

q. Feedback Processing. FBRs are processed per NAVSEA policy:

(1) Urgent FBRs.

(a) The PMSCA will provide a message response to all urgent FBRs within one working day of receipt. If the FBR is forwarded to a Design Activity or ISEA for resolution, then the Design Activity or ISEA will provide a message response informing the originator of specific actions or required changes as a result of the adjudication of the FBR within one working day of receipt. This message response must be addressed to the originator and 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.

(b)   The PMSCA will distribute revised PMS documentation to all affected users within 30 calendar days of receipt of the FBR, via special issue or ACN.

(2)   Routine FBRs.

(a)   The PMSCA will perform technical review, research, and provide a response to routine FBRs where resolution does not require technical authority action.

(b)   FBRs that the PMSCA cannot resolve will be sent to the cognizant Design Activity or ISEA. The cognizant Design Activity or ISEA will provide the response to the appropriate PMSCA describing the action taken. The PMSCAs will provide the response to the originator by electronic means.

(c)   Distribution of the revised MRC to the originator and other affected users will be accomplished via ACN or the next available FR.

(d)   NAVSEA's existing policy calls for technical review activities and ISEAs to provide FBR responses in less than 21 working days from time of receipt. In addition, NAVSEA has established a goal of providing answers to FBRs in one day. While some FBRs will require extensive research and days, weeks or in some cases months to resolve, the vast majority of FBRs can and should be answered much sooner. One day may be overly optimistic, but the intent is to put the emphasis back on the timely resolution of FBRs.

(e)   If no revision to PMS documentation is required, pertinent comments will be provided in the response to the PMSCA. When not concurring with the feedback report, the rationale for the non-concurrence must be provided to the PMSCA.

r.   Feedback Response Implementation. Units will implement responses to FBRs based on the category and content as determined by the unit's 3MC.

(1)   Urgent FBR. Within 24 hours of receipt of FBR response.

(2)   Urgent FBR with an ACN. Within 24 hours of receipt, the ship or unit will implement an administrative change to incorporate the new PMS documentation. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(3)   Routine FBR:

(a)   Technical. The response deals with content such as a revision to technical specifications, tolerances, test equipment, materials, acceptance criteria or the sequence of procedural steps. These changes need to be implemented within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window.

(b)   Administrative. The response deals with issues that do not affect the technical content or procedural steps. Administrative changes might be added steps to provide a better degree of clarity, formatting revisions to tables or figures that do not change technical content, or updating of "Notes, Warnings or Cautions" that do not impact the performance of the MRC. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required before the next scheduled accomplishment date of the MRC.

(4)   Routine FBR with an ACN:

(a)   Technical. These changes need to be implemented via an administrative change within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(b)   Administrative. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required via an administrative change before the next scheduled accomplishment date of the MRC.

19-4.3.13 Assessment Procedure MRCs. Assessment Procedure (AP) MRCs need not be scheduled within SKED, but they will be maintained "active" through the FR and TFR process. AP MRCs need only be printed on an "as needed" basis. The completion of AP MRCs is recorded on the work candidate. There is no need for recording unit participation in an assessment event on their PMS schedule within SKED. FBRs submitted requesting deletion of a MIP that only contains AP MRCs will be disapproved and returned to the originator.

19-4.4 MAINTENANCE AND MATERIAL MANAGEMENT EVALUATION CRITERIA.

19-4.4.1 Self-Assessments. The ability of an activity to perform critical self-assessments is instrumental to the success of the command's PMS program. The PMS Self-Assessment Program needs to address all aspects of 3-M.

a.   TYCOM Policy. Each command and subordinate command(s) must conduct a rigorous quarterly 3-M Self-Assessment. The 3-M checklists contained in appendix A will be utilized and retained for 12 months. The CO will receive a formal briefing of the findings of the Self-Assessment and intended corrective actions.

b.   Self-Assessment Elements. The major program elements of a Self-Assessment include an evaluation of the PMS Performance Rate (PPR) and CSMP Validity, monitoring MRC performance (monitored MRC), and conducting PMS Spot-Checks, WC audits, and deficiency abatement. 3MCs will retain monitored PMS results, Spot

Checks and WC audits from the last completed quarter in either hard copy or digital format for review supporting the self-assessment.

(1) PMS Performance Rate. The PPR is made up of the Maintenance Accomplishment Rate (MAR) multiplied by the Spot Check Accomplish Rate (SCAR) divided by 100.

$$PPR = MAR \times SCAR \div 100$$

(2) CSMP Validity. The CSMP Validity factor is evaluated utilizing the check sheets provided via Section IV (MDS) of the TYCOM's 3-M Inspection Criteria, Appendix (A).

(3) Monitored MRC. Supervisory personnel must periodically monitor the performance of PMS to provide feedback and training to maintenance personnel and to enforce command maintenance standards. Personnel charged with monitoring must be system matter experts (SME) for the system, equipment, or component for which the MRC applies. LCPOs, LPOs or personnel with similar system knowledge are appropriate. Monitored checks can be used like on the job training to teach the "right way" to conduct maintenance. These monitored MRCs will be documented as a monitored evolution and findings will be provided to the WC's CoC for inclusion into training and deficiency abatement. The value of monitor maintenance cannot be overstated, and commands are encouraged to establish a robust monitored maintenance program.

(4) PMS Spot Check. PMS Spot Checks are utilized to validate that previously scheduled and accomplished MRCs were performed and the degree to which they were performed. The checklist contained in appendix A Section II, is the tool supervisory personnel utilize to determine the accomplishment status of a completed MRC. Deficiencies noted and the final grade will be provided to the WC's CoC for abatement. The WCS will record the Spot Check grade into SKED to generate the SCAR for the quarterly PMS Performance Report. Spot Checks will involve all elements of the CoC to include the CO, CMC, XO, 3MC, department CPOs, DHs, DIVOs, divisional CPOs, and first class petty officers. By following the checklist, the inspector can determine if the sailor is competent, the maintenance was accomplished, required TPMTE was available and used, and safety precautions were followed. The focus should be less on administration and more on the condition of the gear.

(a) Avoid Spot-Checks of MRCs with insufficient complexity. Performing a Spot-Check on a 3 or 5 step MRC does not provide the CoC an accurate picture of the health of the command's maintenance program. Selected MRCs should be of sufficient content to provide the auditor with evidence of satisfactory performance (e.g., tag-outs, QA packages, parts required, off-hull reporting, test equipment, safety equipment, etc.).

(b) Command 3MCs can request modification of the Spot Check matrix if it is believed that due to the size of the command and location of their

WCs, they are unable to accomplish that requirement. Requests must be submitted in writing to CNIC 3-M team (via Regional Commander as applicable) and include their proposed Spot Check matrix for review. If approved by CNIC, the command 3MC will retain a copy of the request approval.

(c)   Spot-Checks evaluated as "below standards" will require immediate training and re-performance as determined by the XO. Any re-accomplishment of the MRC must be monitored by the LCPO to ensure noted deficiencies are not repeated.

(d)   Table 19-4-3 represents the minimum number of Spot Checks for CNIC activities.

(5)   Work Center Audits. Each WC must receive an audit once per quarter by a supervisory individual, CPO or above. Deficiencies noted from this audit will be reported to the WC's CoC for abatement. The 3MC will report recurring deficiencies to the XO for further investigation and corrective action.

(6)   Deficiency Abatement. The status of discovered deficiencies will be kept current within the monitoring program. Recurring deficiencies must be reported to the XO for further investigation and corrective action. Deficiencies that have been reported as corrected will be subject to follow up monitoring to ensure corrective action was effective and results of the follow up monitoring will be reported to the XO. The unit's 3-M Abatement Program will include the previous quarter's audits, Spot-Checks, monitored evolutions and CSMP validity audits noting trends and corrective actions.

.Table 19-4-3 - CNIC Spot Checks		
Management Level	Number of Checks	Interval
CO or Officer in Charge	1	Quarterly
XO or AOIC	2	Quarterly
CMC	1	Quarterly
DH	2	Monthly
DIVO	2	Monthly
3MC	1	Weekly
LCPO	2	Monthly

19-4.4.2 Inspections. The goal of the 3MI is to evaluate the effectiveness of the unit's 3-M Program. It is critical that the inspection be conducted in a similar fashion in every command and detachment across the force. CNIC does not have a dedicated 3M inspection team or 3MO to conduct independent 3MIs. Inspections will be completed concurrently with other TYCOM or ISIC inspections or visits by N31, N32, and N34 representatives. Inspections will be conducted

at the department level with results provided to CNIC N32 Ground Electronics Officer for consolidation and retention.

a.   Frequency of Inspections. The TYCOM or ISIC (command exercising administrative control) will conduct a complete inspection of each command under their cognizance as follows:

    (1)   When deemed necessary by the TYCOM, ISIC or the unit's CO.

    (2)   Every 24 months in conjunction with other TYCOM inspections and not to exceed 36 months.

b.   Inspection Team Composition. The team will be comprised of members from the respective TYCOM N-code that is conducting the primary inspection.

c.   Method for Assignment of Numerical Evaluations. The minimum performance requirements are as identified below:

    (1)   Formula Acronyms:

        (a)   CLER = Command Level Effectiveness Review

        (b)   CTS = Command Total Score

        (c)   CVF = CSMP Validity Factor

        (d)   DTS = Department Total Score

        (e)   MAR = Maintenance Accomplishment Rate

        (f)   MDS = Maintenance Data System

        (g)   MPR = MDS Performance Rate

        (h)   PAR = Periodic Accomplishment Rate

        (i)   PPR = PMS Performance Rate

        (j)   SAR = Situational Accomplishment Rate

        (k)   SEER = Scheduling and Execution Effectiveness Review

        (l)   SCAR = Spot Check Accomplishment Rating

    (2)   CTS must 80 percent or higher. Any CTS score evaluated below 80 percent will be re-evaluated on a case by case basis.

        CNIC CTS = Sum of all Departments ÷ Total number of Departments

            (Example 1: CTS = N31 DTS + N32 DTS + N34 DTS ÷ 3)

    (3)   Each Department is required to meet the DTS minimum of 80 percent.

        (a)   DTS = Sum of all Work Center Scores ÷ Total number of Work Centers

        (b)   Work Center Score= (PPR x .5) + (CVF/MDS x .3) + (SEER x .2)

        (c)   PPR = 50% of the Work Center Score

        (d)   CVF/MDS = 30% of the Work Center Score

(e)   SEER = 20% of the Work Center Score

(f)   PPR = MAR x SCAR ÷ 100

(g)   MAR = (PAR x .5) + (SAR x .5)

(h)   MAR = PAR (If WC holds no situational maintenance)

(i)   SCAR = Sum of Spot Check Scores ÷ Total number of spot checks

(4)   Ranking Standards.

(a)   Commands, departments, and WCs will be evaluated as "Above Standards" overall in 3-M if the unit's total score is 90% or higher.

(b)   Commands, departments, and WCs will be evaluated as "At Standards" overall in 3-M if the unit's total score is between 80% and 89.99%.

(c)   Commands, departments, and WCs will be evaluated as "Below Standards" overall in 3-M if the unit's total score is less than 80%.

(d)   All calculations will be rounded to two decimal places.

d.   Inspection Procedures. Appendix A provides a standard means for evaluating the 3-M Program. These procedures, centered on a set of core attributes applicable to all, are used to conduct 3-M Inspections. Inspection procedures are divided into six major areas:

(1)   Section I - Work Center and Command Effectiveness Reviews

(a)   Scheduling and Execution Effectiveness Review.

(b)   Command Level Effectiveness Review.

(2)   Section II – Spot Check Accomplishment Rating (Spot Checks).

(3)   Section III - Assessment of Maintenance Accomplishment Rate.

(4)   Section IV - Maintenance Data System.

(5)   Section V – Proficiency

(6)   Section VI - 3-M Inspection Command Total Score.

e.   Inspection Reporting. Significant deficiencies and numerical assessments are reported to the assessed unit's CO, ISIC and TYCOM using the format shown in Appendix C. Reporting may be accomplished on the entire unit or on a departmental basis.

(1)   Significant deficiencies require a report of corrective actions taken by the unit to be forwarded to the TYCOM via the ISIC within 30 days following the inspection.

(2)   Any command or department receiving an overall evaluation of below standard in either PPR or CVF and MDS must be re-evaluated within a reasonable period, not to exceed six months, to ensure below standard areas have been corrected.

f.   Inspection Data Retention. CNIC will maintain an inspection data file for each unit. As each command is evaluated, the individual evaluation standards and calculated values identified will be recorded in the data file with a copy of the inspection report provided to the inspected command. Section I through Section VI of Appendix A of this chapter provides specific criteria to be used in the assessment of each command.

APPENDIX A

INSPECTION CRITERIA

APPENDIX A

SECTION I-A1

SCHEDULING AND EXECUTION EFFECTIVENESS REVIEW (SEER)

Complete the SEER checklist below for each WC. Enter a numeric evaluation of each inspection attribute and provide amplifying information to describe the deficiencies driving point deductions on the "Remarks" page provided. Significant deficiencies will be reported via the final inspection report.

Command	Department	Division	Work Center	Date	
General Attributes				Value	Points
1.		Does the WC PMS file contain:			
	a.*	The current Service Brief?		1	
	b.*	Current and applicable 3-M messages, notices, and supplementary information?		2	
2.		Do MIPs and MRCs accurately reflect equipment configuration; are non-applicable MRCs correctly lined-out and are applicable MRCs active?		10	
3.	*	Does the WC retain an auditable record of 3-M personnel qualification standards and designation letters?		5	
Maintenance Requirement Card (MRC) Deck					
4.		Is the WC deck of MRCs, including classified MRC locator cards, complete and current? (Per TYCOM direction)		2	
5.		Are locally generated MRCs complete and current?		3	
6.		Are blanks requiring installation data (including MRC location block) filled in prior to use? Specific location must reflect BLDG # with Room #.		3	
Chain of Command SKED Administration					
7.		Are all administrative changes approved at the appropriate level?			
	a.	Is the FR approved by DH? (Verify using Journal tab.)		2	
	b.	Are weekly closeouts are performed by close of business on the first workday of the week by the LCPO?		2	
	c.	Are lineouts and MRC customization approved by the LCPO?		2	
	d.	Are check notes reviewed, and alerts approved by the DH?		2	
Location Guide Lists					

8.	a.	Do LGLs contain required information (e.g., equipment name, equipment location, equipment serial number or unique identifier)?	3	
	b.	Are maintenance items in SKED associated to the existing equipment configuration?	3	
Situational Requirements				
9.	*	Are all situational (states, triggered or metered) events being scheduled and executed in SKED?	8	
PMS Execution and Accountability				
10.		Are check note entries accurate, valid, and complete?	3	
11.	*	Was maintenance assigned only to qualified maintenance personnel for MRCs requiring unique qualifications, NECs, or billet?	4	
12.		Are current quarter and previous quarter 13-week reports maintained?	3	
13.		Is a check note made for maintenance actions not completed or rescheduled during the week and retained in SKED?	2	
14.		Is a unique tag-out serial number or "tag-out not required" entered as a "check note" for maintenance actions requiring a lock out or tag-out and marked as complete?	2	
15.		Have the minimum number of spot checks and monitored checks been accomplished?	3	
FBR File				
16.		Are FBRs tracked in SKED, "Action Taken" block updated by WCS?	3	
Inactive Equipment Maintenance				
17.	*	Is the start of an inactive period correctly annotated and approved by DH?	2	
18.		Are all **Inactive Equipment Maintenance** requirements properly scheduled?	5	
19.		Is the completion of the inactive period correctly annotated?	2	
Totals (Attributes evaluated as NA are not calculated)	Total Points Available:_____		Total Points Awarded:_____	
SAT ☐ **SAT is 80% or better			UNSAT ☐	
(Score = Points Awarded Divided by Points Available)				

* **Electronic Versions Acceptable**

Attribute Scoring:

$\geq$ 85% = Satisfactory = Full Credit

< 85% = Unsatisfactory = No Credit

APPENDIX A

Example - Attribute 18 – If 85% or better of IEM requirements were properly scheduled, points awarded would be five (5). If less than 85% of IEM requirements were properly scheduled, points awarded would be zero (0).

APPENDIX A

SECTION I-A2

SEER REMARKS

Provide amplifying information to describe the deficiencies driving point deductions. Significant deficiencies must be reported via the final inspection report.

Attribute #	Amplifying Information

Print Inspector's Name: _____   Signature: _____

Command: _____   Date: _____

APPENDIX A

SECTION I-A3

SKED 3.2 SEER CHECKLIST GRADING ATTRIBUTES

* Indicates electronic versions acceptable.

1. **Attribute 1**: Does the WC PMS file contain:

2. **Attribute 1a. (*)**:

   a.   Current Service Brief?

   b.   Is the latest FR PMS Service Brief available?

3. **Attribute 1b. (*)**:

   a.   Current and applicable 3-M messages, notices, and supplementary information?

   b.   Are applicable messages and bulletins that provide additional guidance, information or areas of focus that pertain to MIPs or MRCs available?

4. **Attribute 2:**

   a.   Do MIPs and MRCs accurately reflect equipment configuration; are non-applicable MRCs correctly lined-out and are applicable MRCs active? (May be MIP standardization violations)

   b.   Does WC meet TYCOM MIP standardization requirements? Are any MRCs listed on MIP lined-out that are applicable to installed equipment configuration and within the cognizance of the WC to perform maintenance? (Split MIP log will be verified against the LOEP and MIP.)

   c.   Are applicable MRCs active on all applicable maintenance items?

   d.   Are non-applicable MRCs lined-out? MRCs that are not applicable to the WC's installed equipment configuration.

   e.   Are line out justifications on MIPs accurate?

5. **Attribute 3 (*):**

   a.   Does the WC retain an auditable record of personnel PQS qualifications and designation letters?

   b.   Does the WC have record of the following: Designation letters for the 3MC, DIVO, Departmental 3-MA, LCPO and WCS; 3-M PQS completion validation for 3MC (307), DH (306), Departmental 3M Assistant (305), DIVO (304), LCPO (304), WCS (303), MP (301)? FLTMPS report, if available, must be used. If FLTMPS is not available, PQS watch station cover sheets signed by the XO or DH must be used.

6. **Attribute 4**:

   a.   Is the WC deck of MRCs, including classified MRC locator cards, complete and

current? (Per TYCOM direction)

b. Does WC MRC deck contain all MRCs that are not lined-out on MIP? As a minimum, the deck will contain all quarterly checks and below, all R-checks, and all MRCs with fill in the blanks or pen and ink changes. Any MRC completed within the previous 13 weeks must be retained in the WC MRC deck. Verify SYSCOM MRC control number against MIPs per the 3-M Manual or TYCOM guidance?

c. Does MRC location block contain one of the following entries, as appropriate?

(1) BLDG # with room #;

(2) "See LGL,"

(3) "See Metbench Calibration Management System (MCMS),"

(4) "See Account Inventory Summary (AIS),"

(5) "LGL attached."

d. Is the MRC SYSCOM correct and matches the SYSCOM number on the MIP?

7. Attribute 5:

a. Are locally generated MRCs complete and current?

b. Does the command perform local maintenance?

c. Has the local maintenance been recently updated?

d. Is there a locally generated LOEP with MIPs associated to these MRCs?

e. Shore stations that do not have a locally generated MRC documentation mark as "NA".

8. Attribute 6:

a. Are blanks requiring installation data (including MRC location block) filled in prior to use? Specific location must reflect BLDG # with Room #.

b. Are all WC MRCs with blank fields or tables within the MRC procedure block requiring data completed?

9. Attribute 7: Are all administrative changes approved at the appropriate level?

10. Attribute 7a: FR approved by DH. (Verify using Journal tab.) Has the final approval of revisions (FR, ACNs, FBR, Document Information Transmittals (DIT), and administrative changes) been completed by DH?

11. Attribute 7b:

a. Weekly closeouts are performed by close of business on the first workday of the week by the LCPO?

b. Is the weekly closeout completed on the first workday of the week?

c. Is the weekly closeout completed by LCPO?

12. Attribute 7c: All lineouts and MRC customization approved by the LCPO. Are all lineouts approved and initialed by LCPO?

13. Attribute 7d:

    a.   Are check notes reviewed, and alerts approved by the DH?

    b.   Are check notes and alert details approved by DH?

14. Attribute 8a (*):

    a.   Do LGLs contain required information (e.g., equipment name, equipment location, equipment serial number or unique identifier)?

    b.   WCs with LGLs: Does the LGL have equipment nomenclature, serial number or unique identifier, and location (BLDG # and Room #) block completed for each line item?

    c.   If equipment manufacture serial number is available, it must be used.

15. Attribute 8b:

    a.   Are maintenance items in SKED associated to existing equipment configuration?

    b.   Are maintenance items in SKED correctly associated with equipment configuration?

16. Attribute 9 (*):

    a.   Are all situational (states, triggers, metered) events being scheduled and executed in SKED?

    b.   Are all local triggers and states executed as required?

    c.   Are all required R-Checks listed on the accountability logs and scheduled in SKED?

    d.   Are metered readings entered and tracked in SKED (if applicable)?

17. Attribute 10:

    a.   Are check note entries accurate, valid, and complete?

    b.   For all entries on the WC schedule that are not marked complete, is there a corresponding check note entry?

    c.   Does the check note entry begin with either: rescheduled, out of periodicity, non-accomplished, not applicable (NA) for situational checks and with the date the check went out of periodicity, the reason why the MR was not accomplished, or the reason check was not applicable?

    d.   Cent (¢) sign entries will begin with "Performed by" and followed by the detailed information of the outside activity completing the maintenance, JSN, work order or applicable documentation used to complete the maintenance. Proof of the completion will be maintained in the WC PMS file until the next accomplishment of the maintenance action. DH will sign for accountability of all maintenance actions completed by outside activities.

18. Attribute 11:

    a.   Was maintenance assigned only to qualified maintenance personnel for MRCs requiring unique qualifications, NECs, or billet?

b.   For MRCs that indicate or require unique qualifications such as: Safety Petty Officer, Damage Control Petty Officer, gage calibration or NECs, does the assigned individual(s) hold that qualification or billet? (Utilize school completion certificates, position descriptions or FLTMPS for verification.)

19. Attribute 12: Current quarter and previous quarter 13-week reports? (Due to unreliability of SKED 3.2 ashore databases hard copy 13-week reports are required in the event of database corruption.)

20. Attribute 13:

a.   Is a check note made for maintenance actions not completed or rescheduled during the week and retained in SKED?

b.   Do all check note entries match all entries in SKED?

21. Attribute 14:

a.   Is a unique tag-out serial number or "tag-out not required" entered as a "check note" for maintenance actions requiring a lock out or tag-out and marked as complete?

b.   No entry is required for maintenance not completed.

22. Attribute 15:

a.   Have the minimum number of spot checks and monitored checks been accomplished?

b.   Are all required spot checks completed per Table 19-4-3 of this chapter.

23. Attribute 16:

a.   Are FBRs being tracked in SKED, "Action Taken" block updated by WCS?

b.   Does the WC retain copies of FBR responses requiring changes to PMS documents until reflected in the FR?

c.   Are FBRs being tracked in SKED?

d.   Are FBR responses entered in SKED when received and action taken updated within seven days?

e.   If no outstanding FBRs, mark as NA.

24. Attribute 17 (*):

a.   Is the start of an inactive period correctly annotated and approved by DH?

b.   Does WCIEM tab annotate the proper IEM status?

c.   If WC has systems or equipment in IEM Status II , is a JSN, work documentation, DH authorization and outside activity or repair WC annotated?

d.   Did the WC obtain DH written authorization prior to placing equipment in IEM?

e.   If there is no equipment in IEM in the last 13 weeks, mark as NA.

25.   Attribute 18:

a.   Are all IEM requirements properly scheduled?

b. Does the WC annotate the proper scheduling of all applicable IEM maintenance (e.g., LU and PM)?

c. If there is no equipment in IEM in the last 13 weeks, mark as NA.

26. Attribute 19:

a. Is the completion of the inactive period correctly annotated?

b. Does the WC schedule annotate the proper scheduling when removing equipment from IEM (e.g., SU and OT)?

c. If there was no equipment removed from IEM in the last 13 weeks, mark as NA.

APPENDIX A

SECTION I-B1

COMMAND LEVEL EFFECTIVENESS REVIEW

Using the attributes and grading criteria described below, conduct the CLER. Provide amplifying information for deficiencies causing point reduction on the remarks page.

Command			Date	
General Attributes			**Value**	**Points**
1.		Does the 3MC maintain:		
a.		A Change Accountability Log (including FBR Accountability Log in SKED)?	2	
b.	*	A log tracking the assignment of MRCs from split MIPs to ensure all applicable MRCs are assigned (if applicable)?	3	
c.		A LOEP containing locally generated MIPs and a record of the associated MRC files?	2	
d.	*	A current PMS (and where applicable TFR) DVD or downloaded file?	3	
2.		Does the command have a reliable system for backing up MDS and PMS data?	5	
3.	*	Does the 3MC have an effective system in place to track, route and explain externally provided PMS changes?	3	
4.		Is there an effective system in use (Spot Check Program) whereby supervisory personnel periodically and routinely monitor PMS performance?	10	
5.		Have all FBRs entered in SKED been properly reviewed by the CoC and submitted off station within seven days?	3	
6.		Have CSMP reconciliations been conducted per JFMM and TYCOM instructions?	5	
7.	*	Does the activity conduct internal audits (Quarterly Self-Assessments) of all WCs and retain for one year copies of deficiencies, corrections, and abatements?	15	
8.	*	Does the 3MC provide weekly status reports to the 3-M Manager per specific TYCOM directives?	3	
9.	*	Does the 3MC have an approved master copy of 3-M PQS specifically tailored for the command?	3	
10.	*	Does the 3MC maintain an auditable record of PMS PQS for the command (e.g., copy of service record entries, signed copy of	3	

		PQS cover letter, officer verified divisional training record or FLTMPS report)?		
11.		Does the 3MC maintain the status of command FBRs, responses and follow up actions taken in SKED?	3	
12.		Does the activity conduct 3-M Program training per directives?	10	
13.		Does the 3MC have an active AWN account with proper permissions?	2	
14.		Does the 3MC retain one years' worth of quarterly reports?	2	
15.		Are the quarterly reports signed and dated by the CoC?	2	
16.		Are the Check Note Reports included?	1	

Totals (**Attributes evaluated as NA are not calculated**)

    Total Points Available: (80)   Total Points Awarded:_____

(Score = Points Awarded Divided by Points Available)

        ☐   **SAT**   ☐   **UNSAT**

Inspector Name and Command (Print and Sign)

* Electronic Version Acceptable   **Sat = 80 percent or better**

   Attribute Scoring:

        80% or above = Satisfactory = Full Credit

        Less than 80% = Unsatisfactory = No Credit

APPENDIX A

SECTION I-B2

COMMAND LEVEL EFFECTIVENESS REVIEW REMARKS

Provide amplifying information describing the deficiencies and associated point deductions. Significant deficiencies will be reported via the final inspection report.

Attribute #	Amplifying Information

Print Name: _____ Signature: _____

Command: _____ Date: _____

APPENDIX A

SECTION I-B3

CLER CHECKLIST GRADING ATTRIBUTES

        * Indicates electronic versions acceptable.

1. Attribute 1: Does the 3MC maintain:

2. Attribute 1a:

    a.   A Change Accountability Log (including FBR Accountability Log in SKED)?

    b.   Is the Accountability Log and FBR record in SKED updated?

3. Attribute 1b:

    a.   A log tracking the assignment of MRCs from split MIPs to ensure all applicable MRCs are assigned (if applicable)?

    b.   Is a log available and approved by the XO to track the assignment of MRC(s) from split MIPs?

4. Attribute 1c:

    a.   A LOEP containing locally generated MIPs and a record of the associated MRC files?

    b.   Does the 3MC maintain a LOEP that contains locally generated MIPs?

    c.   Does the 3MC maintain a master file with the locally generated MRC documentation?

    d.   Shore stations that do not have a locally generated LOEP or associated locally generated MRC documentation mark as "NA".

5. Attribute 1d (*):

    a.   A current PMS (and where applicable TFR) DVD or downloaded file?

    b.   Is the latest PMS FR and TFR loaded and finalized on the first Monday of the quarter or on the later date as authorized by TYCOM?

    c.   Is the latest version of SKED implemented?

6. Attribute 2 (*): Does the command have a reliable system for backing up MDS and PMS data?

    a. Are back-ups and daily systems checks conducted?

    b. Are external back-ups available?

    c. Are multiple data points saved on NMCI or ONE-NET servers as required?

7. Attribute 3 (*):

    a.   Does the 3MC have an effective system in place to track, route and explain externally provided PMS changes?

    b.   Does the 3MC route, maintain and track externally provided PMS changes?

8.   Attribute 4:

   a.   Is there an effective system in use (Spot Check Program) whereby supervisory personnel periodically and routinely monitor PMS performance?

   b.   Does the 3MC maintain a Spot Check Matrix for the current week and the past 13 weeks?

9.   Attribute 5:

   a.   Have all FBRs entered in SKED been properly reviewed by the CoC and submitted off hull within seven days?

   b.   Are all FBRs entered in SKED?

   c.   Are all FBRs reviewed and processed off station (PMSMIS) within seven days?

10.   Attribute 6:

   a.   Have CSMP reconciliations been conducted per JFMM and TYCOM instructions?

   b.   Does the command or activity routinely submit CSMP reports to the ISIC or TYCOM per TYCOM direction?

11.   Attribute 7 (*):

   a.   Does the activity conduct internal audits (Quarterly Self-Assessments) of all WCs and retain for a one year the copies of deficiencies, corrections, and abatement?

   b.   Does the unit conduct quarterly internal audits or self-assessments of all WC PMS?

   c.   Are quarterly self-assessments retained for one year?

   d.   Are complete quarterly self-assessment deficiencies and POAM submitted to ISIC or TYCOM?

12.   Attribute 8 (*):

   a.   Does the 3MC provide weekly status reports to the 3-M Manager per specific TYCOM directive?

   b.   Does 3MC provide weekly status reports to the 3-M Manager ?

   c.   Does 3MC retain the last 13 weeks of weekly reports?

   d.   Does 3MC retain the cover pages of one years' worth of weekly reports signed by the CoC?

13.   Attribute 9:

   a.   Does the 3MC have an approved master copy of 3-M PQS specifically tailored for the command?

   b.   Does 3MC have a master copy of 3-M PQS specifically tailored for the command that is approved by the CO?

   c.   Is the command using the latest version of 3-M PQS?

14. Attribute 10 (*):

a.   Does the 3MC maintain an auditable record of PMS PQS for the command (e.g., copy of service record entries, signed copy of PQS cover letter, officer verified divisional training record, or FLTMPS report)?

b.   Does the 3MC will maintain a list of all assigned 3-M positions and PQS qualifications?

c.   Are all personnel qualified for their assigned 3-M positions?

15. Attribute 11:

a.   Does the 3MC maintain the status of command FBRs, responses and follow up actions taken in SKED?

b.   Are the FBR response actions noted in SKED Feedback Report Manager?

c.   Are command generated FBRs, responses and action taken tracked in SKED.

16. Attribute 12:

a.   Does the activity conduct 3-M Program training per directives?

b.   Is 3-M training included in PB4T (Planning Board for Training).

c.   Is 3-M training scheduled and published in the POW or POD?

d.   Does the 3MC retain copies of 3-M training muster sheets for a minimum of one year?

17. Attribute 13: Does the 3MC have an active AWN account with proper permissions?

18. Attribute 14: Does the 3MC retain one years' worth of quarterly reports?

19. Attribute 15: Are the quarterly reports signed and dated by the CoC?

20. Attribute 16: Are the Check Note Reports included?

APPENDIX A
SECTION II-A
SPOT CHECK ACCOMPLISHMENT RATING (SCAR)

Using the basic definitions and guidelines described, determine the PMS Spot Check Accomplishment Rating (SCAR) for each WC. Enter the values determined on the Spot Check Monitor Form, section II-A of this appendix.

For all completed maintenance (including daily, weekly, and bi-weekly) from the last 13 weeks. Every WC will receive at least one periodic and one situational documented spot check. The maximum spot checks accomplished during the inspection will be five per WC.

1.   Complete an MRC Evaluation, SCAR Check Sheet, section II-A of this appendix, for each MRC selected. Based on the results, evaluate the overall effectiveness of the accomplishment of each MR selected. Enter a numeric evaluation of each assessment attribute and provide amplifying information describing the deficiencies and associated point deductions. Significant deficiencies will be reported via the final inspection report.

2.   The SCAR Check Sheet reflects a series of questions to be asked to determine the accomplishment status of an MRC previously reported as accomplished. Although, the sheet may be used as a reference for conducting a real time monitored MRC evaluation, for the purposes of conducting a 3MI, all spot checks will be conducted on accomplished (historic) MRCs.

3.   Due to the nature of MRC completion, supporting programs such as Tag-Outs and HAZMAT are encountered. Care should be taken to avoid expanding the spot check to a review of the processes of those programs thereby preventing the assessor from determining the accomplishment status of the MRC under review.

4.   The following is expanded guidance for completion of the SCAR check sheet. Best practices or other policies not supported by source documentation will not be included in evaluating compliance:

   a.   (1.a.) Determine if the MP is qualified to perform the maintenance task. PQS 301 is required for all MRCs but attention should also be paid to other qualifications required such as Quality Maintenance (see volume 5, part I, chapter 3, paragraph 3.4 of this manual) or graduation from a required school such as gage calibration technician.

   b.   (1.b.) Determine if the correct TPMTE were used during the performance of the MRC. If the MP did not have the required TPMTE, it is unlikely that he or she would have been able to complete all the procedural steps of the MRC as required. If an item of TPMTE was required to perform a conditional step and that step was not required to be accomplished, it is not considered deficient. If the required test equipment required calibration, ensure that the calibration is within date and the equipment is of sufficient scale to accomplish the MRC.

   c.   (1.c.) Determine if the MP maintained the correct equipment.

   d.   (1.d.) Examine the MRC to determine that any locally applied changes are authorized by procedural notes, external correspondence, or allowed by reference (b).

e.   (1.e.) Determine applicability of the MRC to the component that the MP signed for completion on the 13-Week Accountability Log.

NOTE: **IF A PROCEDURAL STEP WAS NOT COMPLETED, THE MRC SHOULD NOT HAVE BEEN REPORTED AS COMPLETE AND THEREFORE THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

f.   (2.a.) From a variety of potential techniques, determine if the MP performed all the required steps of the MRC. This may be accomplished via re-enactment, a discussion regarding the steps or re-performance. The inspector should come away with a clear impression that all the steps of the MRC were either fully accomplished or not.

NOTE: **IF A REQUIRED TAG-OUT WAS NOT CONDUCTED IN SUPPORT OF ACCOMPLISHING THE MRC, THE MRC SHOULD NOT HAVE BEEN CONDUCTED AND REPRESENTS A SERIOUS SAFETY VIOLATION. THEREFORE, THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

g.   (2.b.) If required by the MRC, verify that a Tag-Out was hung before the maintenance was performed. Ensure the isolation boundaries were appropriately identified and correctly positioned to ensure complete isolation of the maintained equipment. If no tag-out was required, write NA on the sheet.

NOTE: **FAILURE TO ADHERE TO A SAFETY PRECAUTION PROVIDED ON THE MRC CONSTITUTES A SERIOUS SAFETY VIOLATION AND THE FAILURE TO PERFORM THE MRC AS WRITTEN. THE ATTRIBUTE GRADE WILL BE ZERO AND ALL SUBSEQUENT ATTRIBUTES WILL ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

h.   (2.c.) Determine compliance with all specific safety precautions listed on the MRC. If no safety requirements were invoked, write NA on the sheet.

i.   (3.a.) By physical examination of the maintained equipment, determine if maintenance of the nature required by the MRC had been performed. Take note of fasteners that would have had to be disturbed, dirt in filters, fresh oil, etc. to make a judgment as to whether the maintenance has been performed.

NOTE: **DUE TO THE POTENTIAL LIABILITY INCURRED BY IMPROPER USE AND DISPOSAL OF HAZMAT, SOME WCS HAVE ASSIGNED SPECIALLY TRAINED PERSONNEL TO PROVIDE HAZMAT AND DISPOSAL SERVICES FOR SURPLUS MATERIAL INSTEAD OF THE MP. THIS IS ACCEPTABLE PROVIDED THE INSPECTOR CAN DETERMINE FULL COMPLIANCE.**

j.   (3.b.) Determine through questioning and record verification that HAZMAT was properly used and disposed of as a means of determining whether the MRC was accomplished. Once the inspector has determined that the HAZMAT was used and

disposed of correctly, this attribute is considered fulfilled. If no HAZMAT was required to be utilized, write NA on the sheet.

k.   (3.c.) Determine if the MP could have performed the MRC from a standpoint of being trained and proficient in the tasks called out for by the procedure.

l.   (4.a.) Determine if the MP filled out the 13-Week Accountability Log or annotated proper disposition of maintenance in SKED correctly for the accomplished MRC with the appropriate accomplishment date. Ensure that if a tag-out isolation was used; the tag serial number is recorded in the space allowed or as a check note in SKED. Ensure that the printed name and legal signature of the MP who performed the maintenance is recorded or, in case of group performed PMS, the MP in charge of the group.

m.   (4.b.) From reviewing the discussions and findings during the spot check, determine if an FBR had been submitted if required. If no FBR was required, write NA on the sheet.

n.   (4.c.) Determine if a material deficiency was noted during the PMS; if so, examine the CSMP to ensure the deficiency was documented. If no material deficiency was noted, write NA on the sheet. If material discrepancies are properly documented in the CSMP attribute graded as a two. Material discrepancies which are not documented in the CSMP will be entered with an automatic grade of zero.

5. When a Spot Check is determined to be below standards, the command undergoing inspection is likely to have numerous questions. To facilitate root cause analysis and the formulation of an effective corrective action plan, care should be taken to clearly identify factors contributing to deficiencies that led to the conclusion that the MRC was not conducted as written or not conducted at all.

APPENDIX A

SECTION II-B

SCAR CHECK SHEET

Planned Maintenance System (PMS) 3-M Spot Check Form						
COMMAND	DEPARTMENT	EQUIPMENT	WORK CENTER	DATE PERFORMED	MIP EVALUATED	MRC EVALUATED

Maintenance Person:		Spot Check Date:

NOTES:

1. If an attribute marked with an "*" is evaluated as unsatisfactory, all subsequent attributes will be graded as "0".

2. Attribute marked with a pound sign "#" – Due to the potential liability incurred by improper use and disposal of HAZMAT, some WCs have assigned specially trained personnel to provide HAZMAT and disposal services for surplus material instead of the MP. This is acceptable provided the inspector can determine full compliance.

Inspection Attribute			Value	Grade	Notes
Contact the MP assigned responsibility for the accomplishment of the MRC, have the individual deliver MRC, and determine the following by questions, personal observation, or both.					
1.	a.*	Is the MP qualified (PQS) to perform the MR?	2		
	b.	Did the MP present the correct tools, personal protective equipment, parts (NSN), material (Military Specification (Military Specification)) and calibrated test equipment?	3		
	c.	Did the MP properly identify the equipment (location, equipment validation)?	4		
	d.	Are there unauthorized changes or corrections to the MRC?	3		
	e.	Is the MRC correct for the equipment maintained?	3		
Demonstrated all steps of MR including all Notes, Warnings and Cautions according to the MRC.					
2.	a.*	Followed all steps of the MRC.	5		
	b.*	Correctly performed equipment Tag-Out.	5		
	c.*	Followed all safety precautions.	5		
Does the equipment condition reflect accomplishment of the MRC?					
3.	a.	Is it apparent that maintenance was performed recently?	10		
	b.#	Correctly demonstrated use and disposal of Hazardous Material.	3		

	c.	Was the MRC within the capability of the assigned individual?	5		
PMS Reporting					
4.	a.	MP reported status of MR to the WCS if Completed or Not Fully Accomplished and made appropriate updates in SKED.	2		
	b.	WC generated FBR for any problem with MRC.	2		
	c.	Material deficiencies detected by the PMS action were recorded in MDS.	2		
Attributes Evaluated as NA are not Calculated					

Total Points Available:_____   **Total Points Awarded:**_____

Spot Check (SCAR) (Grade = Points Awarded ÷ Points Available): SCAR =

Above Standards (90% or greater)   At Standards (80-89.99%)   Below Standards (less than 80%)

☐	**Above Standards**	☐ **At Standards**	☐ **Below Standards**

Below Standard grade requires immediate accomplishment (if XO determines re-performance is required) monitored by a Chief Petty Officer

Additional Remarks:

Printed Name:_____

Signature:_____

Command:_____ Date:_____

APPENDIX A

APPENDIX A

SECTION III

MAINTENANCE ACCOMPLISHMENT RATE (MAR)

1. The Maintenance Performance formula has been redefined to more effectively capture maintenance that was not scheduled.

2. The PAR and SAR reports are automatically generated by SKED.

3. The MAR grade will be determined utilizing the formula reflected and a date range consisting of the previous 13 weeks of maintenance.

$$\textbf{MAR = (PAR x .5) + (SAR x .5)}$$

$$\textbf{MAR = PAR (If WC holds no situational maintenance)}$$

$$\textbf{PAR = Comp ÷ (Comp + Lost + Alerts + Omitted)}$$

$$\textbf{SAR = Comp ÷ (Comp + Lost + Omitted)}$$

4. Omitted is defined as any maintenance action that should have been performed on any and every maintenance item and no matter the reason did not get scheduled. For example:

    a. Situational or state maintenance that did not get scheduled when the situation dictated.

    b. Improperly lined-out periodic checks.

    c. Non-accomplished IEM checks.

    d. Non-accomplished maintenance added via ACN, FBR, Preliminary PMS, etc.

APPENDIX A

SECTION IV

CURRENT MAINTENANCE PROJECT VALIDITY FACTOR (CVF)
WORK CANDIDATE WORKSHEET

CSMP VALIDITY FACTOR (CVF) WORK CANDIDATE WORKSHEET													
COMMAND:_____ DATE:_____													
DEPART:_____ DIVISION:_____ WORK CENTER:_____													
JCN	**EQUIPMENT**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**CVF**	
CVF	**Average of all cells**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	**AVG**	

CSMP entry was reviewed with the following results:	Score
1. Problem description adequate.	**10**
2. Recommended solution adequate.	**10**
3. Write-up reflects maintenance level assigned.	**10**
4. First (1st) and second (2nd) contact person assigned.	**10**
5. Correct CSMP summary.	**10**
6. Correct type of availability (maintenance assignment) 1, 2, 3 or 4 work candidates.	**10**
7. Priority code correct.	**10**
8. Write-up matches the configuration item and is written on the correct configuration item.	**20**
9. Was the correct special purpose or safety block selected with the correct values assigned? If selected, was the required Block 35 remarks present?	**10**
10. Does the work candidate reflect the current and correct status of the material deficiency? (physical verification, space walk-throughs, spot checks)	**Yes or No**
For attributes not required due to class or type differences, "NA" attribute and recalculate total value of each field.	

NOTE	IF ITEM #10 IS "NO", THE WORK CANDIDATE WILL BE ZERO.
CSMP Validity:	

☐ **Above Standards**	☐ **At Standards**	☐ **Below Standards**

Above Standards (90% or greater) At Standards (80-89%)
Below Standards (less than 80%)

NOTE: **ENTER ONLY NUMERIC PORTION OF JSN AFTER ENSURING THAT DEPARTMENT AND WC HEADER ARE FILLED IN.**

APPENDIX A

SECTION V-A

SKED 3.2 PROFICIENCY FACTOR (SPF) WORKSHEET

COMMAND		DEPART		DIVISION		WC		DATE	
Individual Evaluated:						**3M Billet Assigned:**			
Proficiency Required						**Proficiency Attribute**		**Yes or No**	
WORK CENTER ACTIONS									
	MP	WCS	LCPO	DIVO	DH	3MC		Y/N Y/N Y/N Y/N Y/N Y/N	
1	X	X	X	X	X	X	Able to log on.		
2	X	X	X	X	X	X	Able to open a WC.		
3	X	X	X	X	X	X	Able to view the Schedule, Review, Forecast, Situational, IEM, Journal and PMS Document displays.		
4	X	X	X	X	X	X	Able to annotate disposition of maintenance.		
5	X	X	X	X	X	X	Able to view previous 13-weeks.		
6	X	X	X	X	X	X	Able to view Check Details.		
7		X	X	X	X	X	Able to schedule Spot Checks and update Spot Check results.		
8	X	X	X	X	X	X	Able to enter and view Check Note remarks.		
SCHEDULE ACTIONS									
9		X	X	X	X	X	Able to add, delete or modify MIPs and MRCs in Revision Mode.		
10		X	X			X	Able to perform MRC lineout.		
11		X	X	X	X	X	Able to modify MRC line out justification.		
12			X	X		X	Able to approve MRC lineout.		
13			X	X		X	Able to perform weekly closeout.		
14			X	X	X	X	Able to acknowledge PMS Alerts.		
15		X	X	X		X	Able to reschedule checks.		
16		X	X	X		X	Able to assign maintenance responsibilities.		
17		X	X			X	Able to modify equipment associations.		
18						X	Able to archive 13-weeks.		
EVENT LIST ACTIONS									
19		X	X			X	Able to create an Event List.		
20		X	X			X	Able to add checks to an Event List.		

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#								
21		X	X	X		X	Able to trigger a Local Event.	
22						X	Able to trigger a Global Event.	
FEEDBACK REPORT ACTIONS								
23		X				X	Able to generate an FBR.	
24			X	X	X	X	Able to review and approve an FBR.	
REVISION ACTIONS								
25			X	X		X	Able to start a revision.	
26			X	X	X		Able to approve a revision.	
27					X	X	Able to finalize a revision.	
REPORTS								
28		X	X	X	X	X	Able to generate and view PMS reports.	
ADMINISTRATIVE ACTIONS								
29						X	Able to add users.	
30			X	X	X	X	Able to edit users.	
31			X	X		X	Able to disable users.	
32			X	X	X	X	Able to view and modify the CoC.	
TOTALS								
	8	19	26	23	18	32	Divide total Yes by Proficiency required totals for the billet held by the individual.	Total Yes
SKED PROFICIENCY FACTOR								

SAT = 85% or better **MP** **WCS** **LCPO** **DIVO** **DH** **3MC**	**SPF (%):**

COMMENTS

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APPENDIX A

APPENDIX A

SECTION V-B

SPF DESCRIPTION AND GRADING ATTRIBUTES

1. **Able to log on**.

    a.   Click on SKED 3.2 desktop icon.

    b.   Enter username and password.

    c.   Click "**Enter**".

2. **Able to open a Work Center**.

    a.   On the view tab bar, click "**WORKCENTER**". A box opens.

    b.   Click to highlight the WC to be open.

    c.   Click "**Open**" or double click the highlighted WC to open it.

3. **Able to view the Schedule, Review, Forecast, Situational, IEM, Journal and PMS Document display**.

    a.   From the WC toolbar, click "**Schedule**".

    b.   From the WC toolbar, click "**Review**".

    c.   From the WC toolbar, click "**Forecast**".

    d.   From the WC toolbar, click "**Situational**".

    e.   From the WC toolbar, click "**IEM**".

    f.   From the WC toolbar, click "**Journal**".

    g.   From the WC toolbar, click "**PMS Documents**".

4. **Able to annotate disposition of maintenance**. (Mark a check as complete etc.)

    a.   From an open WC, in the grid, click to highlight the desired check.

    b.   Right click the selected item and select the "**Complete** (Green X) **Check**" icon from the menu.

    c.   The icon (Green X) will be displayed in the grid.

    d.   To unmark the check, right click the same item and click the (Green X) again.

NOTE: **WHEN THE PIN ACCOUNTABILITY FEATURE IS ENABLED THE CREW MEMBER THAT WAS ASSIGNED THE MAINTENANCE MUST BE PRESENT TO INPUT PIN WHEN WCS MARKS THE CHECK COMPLETE.**

5. **Able to view previous 13-Weeks**.

    a.   From an open WC, in Schedule display view, on the secondary tool bar, click on the "**Quarterly**" icon drop-down arrow.

    b.   Click one of the available quarters in the past to be reviewed.

c.   Once done reviewing, click on the "**Quarterly**" icon drop-down arrow and select the current quarter.

6.   **Able to view Check Details**.

a.   From an open WC, in Schedule display view, highlight a check in the grid and right click it.

b.   From the menu, select "**View Details**".

c.   From the "**Check Details**" window, select the desired tab, such as General, SPMIG, MIP Document and MRC Document.

d.   Close when done.

7.   **Able to schedule Spot Checks and update Spot Check results**.

a.   Able to update Spot Check results:

(1)   From an open WC, in Schedule display view, highlight a check that has been scheduled for a spot check. A circle with a yellow ✓ (check mark), is the spot check icon.

(2)   Double click it.

NOTE: **A SPOT CHECK MUST HAVE BEEN ALREADY ASSIGNED ON THE SCHEDULE.**

(3)   The check details box opens, select the "Spot Checks", click on the "**Edit Spot Check**" icon and a spot check window displays.

(4)   Fill in the scores of the spot check. The task will be in your task list.

(5)   Double click the task to edit the spot check results.

b.   Able to Schedule Spot Check.

(1)   On the view bar tab, click "**SPOT CHECK**".

(2)   On the secondary tool bar select "**Schedule Spot Check**".

(3)   The Spot Check scheduling wizard will appear. Click "**Next**".

(4)   Select "**Spot Check**".

(5)   Select the person that will be conducting the spot check, then click "**Next**".

(6)   Select the date the spot check will be conducted and the WC the spot check will be conducted in.

(7)   Select the check, click "**Next**".

(8)   Review the information and click "**Finish**".

8.   **Able to view and enter Check Note remarks**.

a.   From an open WC, in Schedule display view; click to highlight the desired check.

b.   Right click the highlighted check.

c.   Select the "**Check Note**" icon from the menu.

d.   Enter your remarks (Lost, Not Applicable, Reschedule etc.).

e.   Click "**OK**".

9. Able to add, delete or modify MIPs and MRCs in Revision Mode.

NOTE: **THE WC MUST BE PUT IN REVISION MODE, DONE BY THE LCPO (STEP #25 LCPO OR 3MC ONLY). PROCEDURES 12 THROUGH 16 ARE PERFORMED FROM THE REVISION EDITOR:**

a.   Able to add a New MIP**.**

    (1)   On the Revision Editor toolbar, click "**New MIP"** icon.

    (2)   The Add MIP dialog box opens.

    (3)   Select the MIP to be added to your WC.

NOTE: **IF YOUR MIP IS NOT LISTED, ENTER THE MIP NUMBER IN THE BLANK PROVIDED IN THE LOWER PORTION OF THE SCREEN. THIS WILL ONLY BE AN ADMINISTRATIVE CHANGE UNTIL THE NEW MIP IS ADDED TO THE FR DVD. CLICK "OK". THE NEW MIP WILL BE GREEN.**

b.   Able to make a maintenance item active or inactive (Delete).

    (1)   Follow the MIP outline to the desired maintenance item and highlight it.

    (2)   On the toolbar, click the "**Make Active or Inactive**" icon. The maintenance item icon in the outline will become blue for active and gray for inactive. Clicking the button will toggle back and forth.

NOTE: **MAKING A MAINTENANCE ITEM ACTIVE OR INACTIVE WILL AUTOMATICALLY MAKE ALL MRCS FOR THAT MAINTENANCE ITEM ACTIVE OR INACTIVE TO MATCH THE MAINTENANCE ITEM.**

c.   Able to add MRCs (Same as add cross MIP related MRCs). Follow the MIP outline to the desired maintenance item and highlight the item.

    (1)   On the toolbar, click the "**New MRC**" icon. The add MRC wizard opens.

    (2)   Click "**Next".**

    (3)   Click the check box next to Check to select an MRC from the reference data. A check appears and the MIP Outline on the screen becomes active.

    (4)   Follow the MIP Outline to the MRC to be added. Highlight the MRC and click "**Next**".

    (5)   Review the MRC details and make needed adjustments. Click "**Next**".

    (6)   Click "**Finish**" and the MRC is added to the WC's MIP Outline.

NOTE: **STEPS 4 AND 5 MAY BE SKIPPED BUT THE INDIVIDUAL BEING EVALUATED NEEDS TO MANUALLY ENTER ALL DETAILS OF THE MRC IN STEP 6.**

d.   Able to modify the details of a maintenance item or MRCs.

(1)   Follow the MIP outline to the desired maintenance item or MRC and highlight the item.

(2)   Modify or add data in the white grids only on the right pane of the window. The maintenance item or MRC icon on the MIP outline and the grid that has changed becomes yellow.

NOTE: **"BOLD" TEXT INDICATES A STATUS CHANGE FOR THAT MRC. THE MRC SYSCOM CONTROL NUMBERS (MRC CODE) MAY NOT BE EDITED. IF A REVISED DOCUMENT IS RECEIVED BECAUSE OF AN FBR OR DIT REPLY, THE "ADD MRC" FUNCTIONALITY IS USED TO ADD THE DOCUMENT.**

NOTE: **DHs MUST APPROVE LINEOUTS BEFORE THEY ARE PRINTED.**

10. Able to perform MRC lineout.

a.   From an open WC, click "**PMS Documents**".

b.   Expand the appropriate MIP folder and follow the path to the MRC.

c.   On the secondary toolbar, click "**Customize MRC**". The Customize MRC Document dialog box opens.

d.   Scroll through the MRC and double click and highlight the procedure lines that are to be omitted.

e.   To remove a lineout, double click the procedure line again.

f.   Type the notes to appear on the MRC in the Tools, Parts and Materials Custom Note field. Click "**OK**".

g.   Your custom note is now part of the MRC and all the icons in the organizational outline become red. (**Not yet approved**)

11. Able to modify MRC line out justification.

a.   From an open WC, click the "**PMS Documents**" button on the top of the screen.

b.   Expand the MIP for the MRC that needs changes.

c.   Expand the tree for that MIP to get to the list of MRC(s) under that MIP.

d.   Highlight the MRC that needs modification.

e.   Click on the "**Pencil**" icon on the top left-hand corner of the screen (this the "customize MRC" icon).

f.   A "Customize MRC Document" box will come up containing the MRC selected.

(1)   Scroll through the MRC and click on the procedural step(s) that need(s) to be lined-out. The affected procedural step will have a red line going through it.

The red line indicates that the lineout has been performed but not yet approved. Lineouts approved by LCPO or higher turn the lineout from red to blue.

(2)   In the Tools, Parts and Materials Custom Note on the bottom, refer to the specific procedural step lined-out and provide detailed justification for lineout (e.g., Step 1.a.(2)(a) – Step omitted per FBR 2025-18).

(3)   To reverse a lineout marked in red, click on the procedural step again. As long as the lineout is not yet approved, this will clear the lineout.

12. Able to approve MRC lineout.

a.   "MY TASKS" displays MRCs that have custom review and omit line outs which require lineout for a WC in your role in the CoC. Since multiple users may belong to the same role in the CoC, only one of the user's needs to approve the lineout to remove it from everyone's list. Lineouts appear in red, indicating they are not yet approved. When approving or disapproving lineouts, the requirement is to approve All or None of the lineouts. Partial lineouts are not allowed.

b.   Expand the Lineout approval list.

c.   Highlight the desired row.

d.   Double click the row; the Approve Customizations details screen displays for the selected item.

e.   On the "View Details" toolbar, click **"Approve and Close or Reject and Close"**. The task is removed from your "My Task" list.

13. Able to perform weekly closeout.

a.   From an open WC, on the "Toolbar", click to open the WC menu.

b.   Scroll down to "Weekly Closeout" and click it. A window opens, if there are no issues in the WC to resolve, the "**Close Out**" icon at the top of the window will be active.

c.   Select it and the week will be closed out.

d.   If there are issues, they must be resolved prior to the week being closed out.

14. Able to acknowledge PMS Alerts.

a.   "MY TASKS" displays PMS Alerts for MRCs that are out of periodicity. When PMS cannot be accomplished before going out of periodicity, the WCS must provide a reason, which should be specific and include well-defined details. The CoC, from the LCPO to the 3MC sees the alerts displayed in their "MY TASKS" list. Only one user needs to acknowledge the alert to remove it from everyone's list.

b.   On the secondary toolbar at the top of the screen click on "**Tasks**".

c.   Expand the PMS Alert list.

d.   Highlight the desired row, double click it, or on the tool bar select "**VIEW DETAILS**" icon.

e.   Click "**OK**".

NOTE: IF "CANCEL" IS SELECTED, THE PMS ALERT IS NOT
ACKNOWLEDGED AND THEREFORE NOT REMOVED FROM THE
TASK LIST.

15. Able to Reschedule Checks. Checks that are manually added or reschedule checks when the periodicity is **weekly or greater**.

a.   From an open WC in the grid, right click a check, a menu will open.

b.   Scroll down to the "**Reschedule**" calendar icon and click it.

c.   A calendar opens with the originally scheduled date highlighted.

d.   Click the date the check is to be rescheduled. (**Only the white dates are available for the check to be rescheduled to.)**

e.   Click "**Next**". Click "**Finish**".

NOTE: A CHECK NOTE MUST BE ENTERED FOR RESCHEDULED, OUT OF
PERIODICITY, NON-ACCOMPLISHED CHECKS.

16. **Able to assign maintenance responsibilities**.

a.   From an open WC, in Schedule display view.

b.   In the grid, click to highlight the desired check.

c.   On the "Toolbar", click "**Assign Crew Member**" icon, or right click the desired check and select "**Assign Crew**" from the menu.

d.   Under the column heading for Crew Member, click the drop-down arrow to view available crew members.

e.   Click the crewmember's name.

f.   Click the small box to apply changes. A checkmark will appear in this box.

g.   Click "**OK**".

17. Able to modify equipment associations.

a.   From an open WC, on the toolbar, click to open the WC menu.

b.   Select "**Edit Equipment Details**".

c.   Follow the MIP outline to the desired maintenance item and highlight the item.

d.   Click the ellipses button in the SHIP RIN or CDM RIN row, which is found in the white grids. A dialog box will open. Use the drop-down menus to locate criteria or enter search text. Click "**GO**". Highlight the row of data needed. Click "**OK**".

e.   Alternately, from the Revision Editor:

f.   Follow the MIP outline to the desired maintenance item and highlight the item.

g.   Click the ellipse button in the SHIP RIN or CDM RIN row, which is found in the white grids.

h.   A dialog box will open. Use the drop-down menus to locate criteria or enter search text. Click "**GO**". Highlight the row of data needed. Click "**OK**".

18. Able to archive 13-weeks.

NOTE: **THIS IS PERFORMED ONLY BY THE 3MC. ALL WCS MUST BE UP TO DATE WITH THE LAST WEEK OF THE CURRENT QUARTER CLOSED OUT FOR THE QUARTER BEING ARCHIVED. WHEN THE 3MC ARCHIVES A QUARTER, A NEW QUARTER WILL BE CREATED.**

a.   On the view tab bar, click "**ADMIN**".

b.   From the "Admin" drop-down on the top of screen, click "**Archive Quarter**".

c.   If any WC has not closed out a week in the quarter being archived, a message will appear, and the archive process will not be allowed to continue until close issues are resolved.

19.   Able to create an Event List.

a.   Local Event List.

(1)   Click on **"Reports tab".**

(2)   Double click **"Local Events"** from the left-side menu**.**

(3)   Click **"Next".**

(4)   Select your WC from the drop-down menu. Click **"Next".**

(5)   Select your date ranges when prompted. Click **"Next".**

(6)   Click **"Finish"** to run your report.

b.   Situational "**Event List**".

(1)   Click on "**Reports tab**".

(2)   Double click **"Situational Events"** from the left-side menu. Click "**Next**".

(3)   Select your WC from the drop-down menu. Click "**Next**".

(4)   Select your situational event from the drop-down menu. Click "**Next**".

(5)   Click "**Finish**" to run your report.

20. Able to add checks to an Event List.

a.   Click "**Add Trigger"** on the toolbar. A dialog box opens.

b.   Select a trigger from the menu. Use the scroll bar to view all selections.

c.   Click the date the trigger is to occur. The trigger icon now displays on the EVENTS calendar.

21. Able to trigger a Local Event.

a.   From the Situational view, on the secondary toolbar, click "Events".

b.   In the left pane, open the desired MIP outline.

c.   Click to highlight the maintenance item.

d.   Click the "ADD TRIGGER" icon to launch the Add Trigger Wizard.

e.   From the list, highlight a trigger. Then select the date for the trigger to occur.

f.   Click "OK".

22. Able to trigger a Global Event.

NOTE: **THIS IS PERFORMED ONLY BY THE 3MC.**

23. Able to generate an FBR.

NOTE: **THERE ARE SEVERAL WAYS TO CREATE AN FBR IN SKED 3.2. THE FOLLOWING IS JUST ONE WAY OF DOING IT.**

a.   From an open WC, highlight a check from the grid.

b.   On the WC toolbar menu, scroll down to "**Submit Feedback Report**" and click it.

c.   Select "**Technical MIP Changes** or **Technical MRC Changes**".

d.   The Feedback Report Wizard opens.

e.   Several choices will be available for your selection. Choose one. Click **"Next"**.

f.   Enter any additional comments. Click "**Next**".

g.   Your information will be displayed, if changes are required, click the back button, or click "**Finish".**

24. Able to review and approve an FBR.

a.   "My Tasks" displays FBRs awaiting your review and approval.

b.   Expand the FBR list.

c.   Highlight the desired row.

d.   Double-click the row, the FBR Details block opens.

e.   The ability to view, approve, modify, make urgent or reject the FBR is here.

f.   The LCPO, DIVO, and DH must review and sign the FBR before it goes to the 3MC.

NOTE: **THE 3MC CAN BYPASS THE CoC IF REQUIRED TO GET THE FBR TRANSMITTED ASAP.**

25. Able to start a revision.

NOTE: **THE LCPO WILL PUT THE WC IN REVISION MODE FOR THE WCS.**

a.   Open the WC, on the "Toolbar", click to open the "Work Center" menu.

b.   Scroll down to "**Start Revision**" and click it. The Start Revision wizard opens.

c.   Click "**Next**". The Start Revision dialog box opens.

d.   Select the Revision Type.

e.   Enter a valid Revision Name. Click "**Next**".

f.   Provide a revision reason. A reason for starting a revision for anything other than an FR is required. Click "**OK**", click "**Finish**".

g.   The Revision editor will load, and the evaluated individual should now be in **Revision Editor Mode**.

26. Able to approve a revision.

a.   "MY TASKS" displays revisions ready for approval.

b.   Expand the revision approval list. Highlight the desired row.

c.   Double click the row; the Revision Editor opens. Expand the path to the revision.

d.   On the toolbar, click "**Approve**" (Star icon)

e.   The Revision Editor screen closes and is removed from your task list.

27. Able to finalize a revision.

a.   Same as paragraph 26, except that if performed by the DH or 3MC once they click on "**Approve**" (Star icon), the revision is finalized.

b.   Revisions should be approved (signed) by the LCPO and DIVO before being approved by the DH. When the DH goes in to approve the revision, they will see a window indicating whether the revision was approved by the LCPO and DIVO. The DH can choose to approve the revision regardless.

28. Able to generate and view PMS Reports.

a.   Open the "REPORTS" tab at the bottom right of the SKED 3.2 program.

b.   A window opens with two panes; the left-hand pane has all the reports available to view, the right-hand pane is blank, this is where your data will be displayed.

c.   Double click the report of your choice and follow the report wizard to display your requested data.

29. Able to add users.

a.   Select the Admin tab (Last tab on the lower right).

b.   Select User Management from the top menu.

c.   Click "**Add User"** icon. The Edit User Details, New User dialog box opens.

d.   Enter pertinent information for the new user.

e.   Click the General, Feedback Reports, and Work Center tabs to check allowed permissions.

30. Able to edit users.

a.   Select the Admin tab (Last tab on the lower right).

b.   Select User Management from the top menu.

c.   Highlight a crewmember from the display grid, and double click it.

d.   The User Details box opens.

e.   Update User information in the appropriate fields.

f.   Click "**OK**" to save changes.

31. Able to disable users.

a.   Select the Admin tab (Last tab on the lower right).

b.   Select User Management from the top menu.

c.   Highlight a crewmember from the display grid, and double click it.

d.   The User Details box opens.

e.   Click the Status Field arrow. Select disabled.

f.   Click "**OK**" to save changes.

32. Able to view or modify the CoC.

a.   Select the Admin tab (Last tab on the lower right).

b.   Select CoC from the top menu.

c.   A screen displays for the activity and lists the username, role, rate, last name, first name, and signature.

d.   Click the plus sign at the far left to view by department, division, and WC.

e.   Select the "**Edit Chain of Command**" icon (top left corner, under File menu). An Edit CoC display box opens. Edit accordingly (add or delete) DH, DIVO, LCPO, or WCS.

APPENDIX A
SECTION VI
3-M INSPECTION COMMAND TOTAL SCORE (CTS)

The CTS is weighted equally between Departments.

CNIC CTS = Sum of all Departments ÷ Total number of Departments

(Example: CTS = N31 DTS + N32 DTS + N34 DTS ÷ 3)

A minimum grade point of 80 is required for a passing score.

APPENDIX B

DIVISION INACTIVE EQUIPMENT MAINTENANCE (IEM) PLAN

From: Division Leading Chief Petty Officer,

To: Department Head,

Subj: Division Inactive Equipment Maintenance (IEM) Plan

Ref: (a) COMUSFLTFORCOMINST 4790.3

Encl: (1) Inactive Equipment Maintenance Plan Matrix

1. Per reference (a), the following systems and equipment will be placed in an IEM status in SKED while the command conducts.

2. Enclosure (1) lists all Systems and Equipment that this division will place in IEM for the upcoming maintenance period. This list was checked for accuracy and linked to the appropriate system/equipment restoration and key event. The IEM Plan is considered a living document; reviews will occur when key events timelines change.

3. A current copy of this plan will be provided to the command 3MC and be made available to the LMA, CTE and Project Superintendent.

//SIGNATURE//

I.M. CHIEF

I concur with placing the Systems or Equipment identified in Encl (1) in an IEM Status.

//SIGNATURE//

Department Head

System or Equipment	MIP	CAT 1 / 2	LU	PM	SU/OT	Due MRs	Restoration Key Event	Estimated Restoration Date
#1 Burner	5151/902	1	LU-3 LU-4	PM-1 PM-2	SU-2 SU-3 OT-1	A-8	43 Ventilation Restore	12/25/16

Enclosure (1)

APPENDIX C

FORMAT FOR REPORTING 3-M INSPECTIONS

4790
Ser
Date

From: Accomplishing Activity

To: Commanding Officer (Command Name)

Subj: REPORT OF 3-M INSPECTION OF

Ref: (a) NAVSEAINST 4790.8 (series), Ships' Maintenance and Material Management (3-M) Manual

(b) COMUSFLTFORCOMINST 4790.3, Joint Fleet Maintenance Manual, Volume VI, Chapter 19

Encl: (1) (as required)

1. Per references (a) and (b), a 3-M Inspection of (_____) was conducted during the period (Date) to (Date).

2. During this inspection, the following significant deficiencies were discovered:

a. (List)

Specific department and WC deficiencies are provided in enclosure(s) (1) through ( ).

3. The following overall activity or department numerical assessments are assigned:

a. 3-M Total Score   _____

b. 3-M Inspection   _____
(Above, At or Below Standards)

Copy to:
Immediate Superior In Command (with enclosures)
Type Commander (with enclosures)

VOLUME VI
CHAPTER 19-5
NAVAL SUBMARINE FORCES

REFERENCES.

(a)   COMSUBLANT/COMSUBPAC INSTRUCTION 4790 - Maintenance And Material
      Management (3-M)
(b)   NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual
(c)   COMSUBPAC INST S3501.6 - Submarine Preparations for Extended Deployments
(d)   NAVEDTRA 43241 - Personnel Qualification Standard for Ship's Maintenance and
      Material Management (3-M) System
(e)   NAVEDTRA 43523 - Personnel Qualification Standard for Quality Maintenance
      Program

LIST OF APPENDICES.

A   Format for Reporting 3-M Inspections
B   Inspection Criteria
C   Format for Reporting K-MRC End-of-Quarter Resolution
D   Division IEM Plan for Fleet and CNO Availabilities

19-5.1 APPLICABILITY. All content of reference (a) has been incorporated into this chapter to
provide easier access to Maintenance and Material Management (3-M) guidance and
requirements. This chapter applies to Submarine Groups and Submarine Squadron Commanders
within the following assigned regions:

a.   Northeast Region. Commander, Submarine Squadron (COMSUBRON) 4 and
     COMSUBRON 12 in Groton, Connecticut, ships undergoing overhaul in Portsmouth
     Naval Shipyard, new construction submarines and shore based submarine support
     activities under Commander Submarine Force Atlantic (COMSUBLANT)
     cognizance.

b.   Mid-Atlantic Region. COMSUBRON 6 in Norfolk, Virginia, submarines undergoing
     overhaul in Norfolk Naval Shipyard, new construction submarines and shore based
     submarine support activities under COMSUBLANT cognizance.

c.   Southeast Region. Commander, Submarine Group (COMSUBGRU) 10,
     COMSUBRON 16 and COMSUBRON 20 in Kings Bay, Georgia, COMSUBGRU 8
     in Naples, Italy, Diego Garcia, and shore based submarine support activities under
     COMSUBLANT cognizance.

d.   Northwest Region. COMSUBGRU 9, COMSUBRON 17, COMSUBRON 19 and
     Commander, Submarine Development Squadron 5 in Bangor, Washington,
     submarines being maintained in Puget Sound Naval Shipyard and shore based

submarine support activities under Commander Submarine Force Pacific (COMSUBPAC) cognizance.

e. Southwest Region. COMSUBRON 11, Commanding Officer, Undersea Rescue Command in San Diego, California, and shore based submarine support activities under COMSUBPAC cognizance.

f. Mid Pacific Region. COMSUBRON 1 and COMSUBRON 7 in Pearl Harbor, Hawaii, submarines undergoing overhaul in Pearl Harbor Naval Shipyard and shore based submarine support activities under COMSUBPAC cognizance.

g. West Pacific Region. COMSUBGRU 7 in Yokosuka, Japan, COMSUBRON 15 in Guam and shore and tender based support activities under COMSUBPAC cognizance.

19-5.2 ROLES AND RESPONSIBILITIES.

a. Commander Submarine Forces. Commander Submarine Forces assigns the responsibility for management of the Submarine Force Maintenance and Material Management (3-M) Program to COMSUBLANT and COMSUBPAC, Director for Maintenance and Material Readiness (N4).

b. TYPE Commander. The Type Commander (TYCOM) 3-M Office is comprised of the headquarters staff (N43) and Fleet representatives (TYCOM 3-M REP) to fulfill the TYCOM requirements of reference (b). The TYCOM exercises primary responsibility for the effective operation and support of the 3-M System. Areas of responsibility include but are not limited to the following:

(1) Afloat Maintenance Data System (MDS).

(a) Organizational Maintenance Management System (OMMS) and Automated Work Notification.

(b) (R-Admin, R-Supply, Organizational Maintenance Management System – Next Generation (OMMS-NG)).

(2) Ashore MDS.

(a) Maintenance Figure of Merit family of systems.

(b) Advanced Industrial Management for Regional Maintenance Centers.

(c) Regional Maintenance Automated Information System.

(d) Maintenance Resource Management System.

(e) TRIDENT Logistical Data System.

(3) Planned Maintenance System (PMS) Scheduling Software (SKED).

(4) Alteration Management System.

(a) Navy Data Enterprise.

(b) Type Commander Alteration Management System.

(5) Current Ship's Maintenance Project (CSMP).

(6)   Master Job Catalog.

(7)   The screening and processing of feedback reports (FBR).

(8)   Maintaining an inspection data file per paragraph 19-5.5.2.f of this chapter.

(9)   Providing program enhancement requirements to the Fleet Commander via N43.

(10)   Ensuring ships and units are manned with Navy Enlisted Classification (NEC) qualified 3-M Coordinators (3MC).

(11)   Analyzing 3-M inspection (3MI) and self-assessment data, identifying common concerns, conducting problem root cause analysis with the development and implementation of solutions.

(12)   Ensuring TYCOM inspection team members are qualified to inspect assigned areas.

c.   TYCOM 3-M Regional Representatives. TYCOM 3-M Regional Representatives (3-M Rep) have been established at all submarine homeports. These positions were established to provide for the continuous monitoring of the 3-M Program on submarine assets and to assist submarine force activities and squadron commanders in the operation and administration of the 3-M Program. The 3-M Rep reports to the submarine force Maintenance Program Manager and organizationally supports the efforts of the ISIC and TYCOM. Areas of responsibility include but are not limited to the following:

(1)   Acting as team "lead" for all 3-M Inspections conducted on activities under their cognizance and using the format of Appendix A, provide inspection results to the ship or activity via the ISIC.

(2)   Originating all correspondence relating to 3-M Inspections, periodic monitoring, and reporting of non-compliance with reference (b) and this manual.

(3)   Carrying out the duties and responsibilities of the TYCOM during PMS installations.

(4)   Monitoring MDS documents and reporting deficiencies to the ISIC for corrective action.

(5)   Providing the following support to the ISIC:

(a)   3-M System monitoring.

(b)   TYCOM 3-M Assist Visits as described by reference (b).

(c)   PMS and MDS technical assistance.

(d)   On-site training in PMS, MDS and PMS Scheduling.

(e)   Assistance with the preparation and submission of FBRs.

(f)   Assistance in obtaining prompt correction to faulty PMS documentation (liaison with an In Service Engineering Agent (ISEA).

        (g)   On a case basis, provide authorization to use modified (red lined) PMS documentation.

        (h)   The review the ship's K-MRC plan for all Continuous Maintenance Availabilities (CMAV) to ensure compliance as discussed in Volume II, Part I, Chapter 4 of this manual.

    (6)   Initiating 3-M Program reviews when concerns regarding 3-M performance arise.

d.   The ISIC is responsible for the routine monitoring and evaluation of the 3-M system for all assigned activities. ISICs will fully employ the TYCOM 3-M REP to assist the ISIC 3-M Maintenance Officer (3MO) in the execution of these responsibilities. 3-M related matters will be communicated directly to the TYCOM 3-M Rep for resolution. As an incentive for sound 3-M performance, major commanders will consider 3-M performance as part of the annual intra-squadron efficiency competition. Areas of responsibility include but are not limited to the following:

    (1)   Designating a 3MO in writing. The 3MO is responsible for the satisfactory administration of 3-M Programs, per reference (b) and this chapter, for subordinate commands or activities. The 3MO will maintain staff PMS and Personnel Qualification Standards (PQS) records.

    (2)   Monitoring and evaluating the 3-M Program for all assigned units in accordance with ISIC monitoring instruction.

    (3)   Ensuring 3MIs are current.

    (4)   Ensuring subordinate commands conduct rigorous quarterly 3-M Self-Assessments and report results to the TYCOM 3MC.

    (5)   Monitoring the status of troubled systems and Top Management Attention Items using the quarterly 3-M Self-Assessment.

    (6)   Ensuring subordinate commands comply with standard Work Center (WC), division and department structure.

    (7)   Tracking and monitoring 3-M major milestones and training events, overseeing, and providing inspection teams and conducting 3-M Spot Checks during ISIC or staff visits.

    (8)   Ensuring assigned maintenance coordinators notify the tended activity of unsatisfactory work candidates submitted for action.

    (9)   Ensuring material failures are adequately examined for the detection of 3-M system inadequacies.

    (10)   Ensuring assigned staff has adequate knowledge of the 3-M system to detect inadequate 3-M performance during routine shipboard monitoring (i.e., PMS PQS 304 & 306).

    (11)   Directing the performance of a 3MI or Assist Visit when concerns regarding 3-M performance arise.

    (12)   Conducting a 3MI for all assigned activities per this chapter.

    (13)   Conducting routine monitoring to include:

        (a)   Review and approval of pre-deployment PMS plans per reference (c).

        (b)   Quarterly Maintenance Accomplishment Rate (MAR) Assessments and the direction of corrective actions for below standards performance.

e.   Commanding Officer or Officer In Charge. The Commanding Officer (CO) or Officer In Charge is responsible for establishing an aggressive Self-Assessment Program that validates the administration and execution of maintenance and detects improperly conducted maintenance or falsely reported accomplishments.

f.   Executive Officer. The Executive Officer (XO) is the command's 3-M System Manager responsible to the CO for the overall management of the 3-M Program. The XO will:

    (1)   Chair quarterly 3-M System meetings with Department Heads (DH) and the 3MC.

    (2)   Brief the CO on the status of 3-M.

    (3)   Integrate 3-M System training into the command's training and qualification program.

    (4)   Ensure personnel receive adequate and effective 3-M System training.

    (5)   Ensure the effectiveness of the command's 3-M Self-Assessment Program.

    (6)   Act as the final review officer for shifts of maintenance responsibility between departments.

g.   Command Master Chief or Chief of the Boat. The Command Master Chief or Chief of the Boat will:

    (1)   Attend the XO's quarterly 3-M System meetings providing senior enlisted feedback.

    (2)   Conduct PMS Spot Checks following the command's policy to ensure required maintenance is being properly performed and documented.

    (3)   Establish command's Zone Inspection Program.

h.   Command 3-M Coordinator. Due to the unique nature of submarine manning, the 3MC is routinely assigned as the availability coordinator and should, at a minimum, be a Chief Petty Officer (CPO). As both these functions are critical to the ship's material readiness, careful consideration should be given prior to assigning the 3MC additional collateral duties. The 3MC will:

    (1)   Serve as the key 3-M System assistant to the XO.

    (2)   Maintain a file of 3-M System directives, newsletters, notes, and correspondence containing current 3-M program information and ensure distribution to WC personnel.

(3)   Maintain copies of the current Force Revision (FR) NAVY PMS Digital Video Disk (DVD), List of Effective Pages (LOEP) for every WC, changes issued between FRs in their original format and classified Maintenance Requirement Cards (MRC). Digital copies are allowed unless there have been changes between FRs.

(4)   Advise, monitor, and assist DHs, Division Officers (DIVO), Leading Chief Petty Officers (LCPOs) and Work Center Supervisors (WCS) in matters concerning the 3-M System.

(5)   Monitor the Ship's 3-M PQS Program and maintain an auditable record of personnel qualified in 3-M PQS.

(6)   Maintain a master accountability log of all PMS changes.

(7)   Develop and maintain a Split Maintenance Index Page (MIP) Log.

(8)   Administer the configuration management program onboard the ship or unit.

(9)   Supervise the command's 3-M Self-Assessment Program and provide a weekly status to the XO.

(10)   Develop and administer the ship or unit's PMS Spot Check Program.

(11)   Generate a weekly PMS Spot Check assignment matrix for officers, CPOs, and designated supervisory personnel.

(12)   Ensure corrective actions are taken on all unsatisfactory PMS Spot Checks and report same to the XO as part of weekly PMS reporting.

(13)   Ensure a complete back up of the SKED system is made on removable media (e.g., DVD or CD-ROM) following completion of the FR update and retain as part of the PMS Master File.

(14)   Ensure that Global States and Triggers are properly set at the command level.

(15)   Screen all FBRs, verify content, validity, serialize and forward within seven days of origination.

(16)   Maintain accountability of all submitted FBRs and actions taken until corrected or new PMS documentation is received.

(17)   Ensure the FBR originator and all applicable WCs are apprised of action taken and that changes or corrections are implemented when received.

(18)   Ensure 3-M documents such as Ship's Maintenance Action Form OPNAV 4790/2K (2-Kilos), Ship's Configuration Change Form OPNAV 4790/CK, etc. that require forwarding to a data processing activity are forwarded within seven days of origination or as operationally feasible.

(19)   Validate 3-M MDS data elements following the 3-M validation specifications.

(20)   Ensure 3-M documents returned for the correction of data are promptly revised and resubmitted.

(21) Track the reporting of completed maintenance actions related to an alteration or as a result of a configuration change with timely processing of Automated Shore Interface configuration and logistic data.

(22) Report up-line CSMP maintenance transactions and command's equipment file corrections at least once a week.

(23) Maintain outstanding copies of message work candidates and Supplemental OPNAV 4790/2L, paper or electronic.

(24) If desired, assign a command 3-M Assistant (3MA). The 3MA will be qualified PQS 305 or 306. The command 3MC will assign the 3MA duties as necessary to fulfill the commands 3-M functions. The 3MA will report to the command's 3-M Coordinator.

i. Command Maintenance Availability Coordinator. The Command Maintenance Availability Coordinator shall be responsible for the coordination of all Fleet Maintenance Activity (FMA) repairs and coordinate closely with the 3MC. The Maintenance Availability Coordinator will also provide a single working level point of contact and coordinate the command's requirements with the requirements of the FMA. These duties include:

(1) Technical review of work requests submitted for FMA accomplishment.

(a) Ensure readability and technical correctness.

(b) Prevent duplication of work requests for Ship Alterations, Unrestricted Operation and other Master Job Catalog originated deferrals.

(c) Ensure corrective maintenance described in Maintenance Action Form OPNAV 4790/2K Block 35 (Remarks) includes reference to the associated Maintenance Standard when applicable.

(d) Collect Supplemental OPNAV 4790/2L requests for routine work (i.e., lagging, painting, label plates, tiling, etc.) from all WCs and prepare an integrated priority list for each type of routine work to maximize the FMA's effectiveness.

(2) Ensuring command preparations for an FMA availability are conducted per Volume II, Part I, Chapter 4 of this manual.

(3) Meeting daily during an availability with the assigned Ship Superintendent to discuss the status of all active jobs.

(4) Attending all FMA production, night work and management meetings.

(5) Providing a daily FMA job status to each DH, DIVO and leading petty officer (LPO).

(6) Prior to Work Package Execution Review, conducting a joint meeting with the Performance Monitoring Team (PMT), TYCOM 3-M Representative and ISIC (typically at A-40) to review current K-MRC status, ensure the ship's records match that of PMT and develop a K-MRC execution plan.

(7) Establishment of a Planning Board for Maintenance (PB4M).

j.   Department Head. The DH is responsible to the XO for the operation and execution of the 3-M System within the department. Duties and responsibilities assigned to the DH are not be delegated. The DH will:

   (1)   Designate departmental 3-M personnel.

   (2)   Ensure maintenance is prioritized to facilitate accomplishment.

   (3)   Review and approve all department PMS schedules and revisions.

   (4)   Review maintenance action annotations.

   (5)   Acknowledge weekly alerts if no DIVO is assigned to the WC.

   (6)   Implement a Self-Assessment Program within the department to validate properly accomplished and reported maintenance.

   (7)   Take corrective action on all "Unsatisfactory" PMS Spot Checks and report to the XO via the 3MC as part of weekly PMS reporting.

   (8)   Ensure all material deficiencies are documented and promptly reported.

   (9)   Review and verify the content and validity of all FBRs, digitally sign FBRs within five days of origination.

   (10)   Ensure the Configuration Management Database accurately reflects equipment changes whether the action is performed by command personnel or outside activities.

   (11)   Authorize placement of equipment into an Inactive Equipment Maintenance (IEM) status, ensure PMS scheduling is annotated accordingly.

   (12)   The review and approval of all department work candidates within four days of creation; ensure completeness, accuracy, and the correct assignment of priority.

   (13)   Review all work candidates in the departmental CSMP every 90 days.

   (14)   Ensure that no classified data or Navy Nuclear Propulsion Information is reflected on 3-M documents designated for off hull distribution.

   (15)   Conduct quarterly meetings with DIVOs, LCPOs and WCSs; provide status of departmental 3-M System to the XO.

k.   Department Leading Chief Petty Officer. The department LCPO is responsible for the proper operation of the 3-M System within their department. The department LCPO will:

   (1)   Provide 3-M System guidance and training to DIVOs and division LCPOs within their department.

   (2)   Participate in quarterly Self-Assessments.

l.   Division Officer. The DIVO is responsible to the DH for the execution of maintenance within the division. As submarine division officers rotate frequently, it is imperative that DIVOs aggressively gain the requisite 3-M Qualifications and proficiency required to effectively perform 3-M functions. The DIVO will review

and approve all PMS and MDS documents within their division. This includes all SKED, OMMS-NG, and Propulsion-Organizational Maintenance Management System (P-OMMS) submissions to ensure all required 3-M system documents are submitted to the DH. The DIVO will:

(1)   Ensure all PMS scheduling changes have been properly annotated and applied prior to DH review and finalization.

(2)   Review the 13-Week Accountability Log at the beginning of the PMS week and sign at the end of the week, if not using electronic accountability in SKED or when SKED is not available.

(3)   Review and verify the content and validity of PMS FBRs within three days of origination.

(4)   Ensure 3-M documents generated within the division are complete, accurate and promptly submitted to the DH.

(5)   Conduct 3-M Self-Assessments as directed by the command's policy.

(6)   Provide weekly updates to the DH concerning the status of the 3-M System within the division.

(7)   Incorporate 3-M System training into the Divisional Training Plan.

(8)   Review divisional work candidates and the CSMP for validity and accuracy.

(9)   Conduct monthly briefings for the DH on the status of all work candidates.

(10)   Acknowledge PMS Alerts.

m.   Division Leading Chief Petty Officer. The division LCPO is responsible for the proper operation of the 3-M System within their division. The division LCPO will:

(1)   Supervise WCSs in the execution of daily maintenance.

(2)   Ensure WCSs are properly trained, equipped and are knowledgeable of all WC divisional equipment maintenance requirements.

(3)   Ensure divisional personnel are properly trained and qualified to conduct maintenance.

(4)   Verify all divisional WC equipment is covered by PMS.

(5)   Ensure PMS is properly scheduled and conducted, including all underway and special evolution situational "R" checks.

(6)   Review WC PMS records (e.g., FRs, Advanced Change Notices (ACNs) and PMS FBRs and Responses), approve all lineouts and additions on the LOEP, MIP, and PMS schedules prior to DIVO and DH reviews. Ensure proper justification is noted on each lineout.

(7)   Review and approve non-applicable procedural steps lined-out on MRCs.

(8)   Review and sign the 13-Week Accountability Log at the end of the PMS week and ensure checks added that week are hand-written into the blank

accountability log, if not using electronic accountability in SKED or when SKED is not available.

(9)   Review the PMS Scheduling Forecasting Report to ensure that all Tools, Parts, Material and Test Equipment (TPMTE) are available to support upcoming maintenance actions.

(10)   Provide the DIVO a weekly status of the division's Self-Assessment Program, CSMP and PMS.

(11)   Ensure the Configuration Management Database reflects the ship's current configuration.

(12)   Ensure FBRs are submitted requesting LOEP changes to reflect system, equipment and component installs or removals.

(13)   Review and verify the content and validity of PMS FBRs within two days of origination.

(14)   Ensure the divisional CSMP accurately reflects material conditions.

(15)   Review and approve work candidates, act as the second point of contact for work candidates and provide the DIVO a weekly brief on the status of all work candidates in the CSMP.

(16)   Ensure proper testing and inspection of work done by outside activities prior to job acceptance.

(17)   Coordinate repair activities within the division.

(18)   Review all quarterly Self-Assessments and promptly correct discrepancies found within the division.

(19)   Review, approve and close out weekly schedules. This closeout of the previous week's schedules must occur on the first day of the following week (i.e., Monday).

(20)   Review Check Notes for required and updated information.

(21)   Write PMS Alert details to include why planning allowed loss of periodicity and the plan to complete PMS.

n.   Work Center Supervisor. The WCS will be a senior petty officer assigned to the WC and qualified per reference (d). The WCS will:

(1)   Record all equipment deficiencies within their WC, utilizing OMMS-NG and P-OMMS to ensure all required 3-M System documents are submitted to the division LCPO.

(2)   Ensure WC personnel have completed 3-M PQS training commensurate with position held.

(3)   Ensure PMS covers all maintenance worthy equipment in the WC.

(4)   Maintain an accurate and current LOEP.

    (5)   Ensure 3-M System WC files and publications are complete, current, and available to WC personnel.

    (6)   Ensure WC initiated 3-M documentation is correct, legible, promptly prepared and submitted.

    (7)   Maintain a 13-Week Accountability Log containing the current and previous 13-Week Log, if not using electronic accountability in SKED or when SKED is not available.

    (8)   Prepare weekly WC schedule, obtain required approval, assign maintenance personnel, and update schedule to reflect status.

    (9)   Ensure equipment changes, adds and removals are reflected in the Configuration Management Database and, if not, report via Configuration Change Form 4790/CK to the Configuration Data Manager.

    (10)   Ensure FBRs are submitted whenever:

        (a)   Maintenance requirements are not fully understood.

        (b)   Errors are believed to exist.

        (c)   Entries in the TPMTE block are wrong or inadequate.

        (d)   Additional coverage is needed.

        (e)   Performance of the maintenance requirement would cause a hazardous condition to exist.

    (11)   Ensure prompt reporting of all material deficiencies and completed maintenance actions.

    (12)   Ensure Periodic Maintenance Requirements scheduled for command accomplishment are completed and reported as required.

    (13)   Ensure test and measurement equipment or other portable support equipment is delivered for test or calibration as scheduled.

    (14)   Ensure the DIVO and division LCPO or LPO are advised of all 3-M System activity within the WC.

    (15)   Review the PMS Scheduling Forecasting Report to ensure that all TPMTE is available to support upcoming maintenance actions.

    (16)   Ensure all WC weekly schedules are updated daily.

    (17)   Use the Edit Equipment Details function of SKED to the maximum extent possible to associate maintenance items to the Configuration Data Managers Database - Open Architecture database embedded in SKED 3.2 for configuration items. The association should be made to the highest level (piece) of the applicable equipment being maintained (i.e., #1 Torpedo Tube vice the Slide Valve).

o.   Damage Control Petty Officer and Safety Petty Officer. The Damage Control Petty Officer and Safety Petty Officer will be a warfare qualified petty officer 3rd class or

above and responsible for the accomplishment of damage control and safety related PMS.

p.   Maintenance Personnel. Maintenance personnel will perform all PMS as assigned utilizing PMS documents in SKED and ensure Check Notes contain amplifying information and tagout identifiers as required. Maintenance personnel will:

(1)   Perform assigned maintenance.

(2)   Notify the WCS when:

(a)   An MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

(b)   There are issues with the TPMTE block of the MRC.

(c)   The technician has doubts concerning his or her ability to perform the maintenance.

(d)   Equipment deficiencies or casualties are discovered.

(e)   Factors exist which would make performance of the maintenance unwise or dangerous.

(3)   Initiate FBRs when discrepancies are discovered during the performance of an MRC.

(4)   Inform the WCS when planned maintenance requirements are complete.

(5)   Annotate the PMS schedule to reflect accomplishment of maintenance.

(6)   Sign 13-Week Accountability Log (if not using electronic accountability in SKED or when SKED is not available).

19-5.3 QUALIFICATIONS. All personnel assigned to billets associated with the 3-M system must be 3-M PQS qualified for the assigned billet per reference (d). Evidence of qualification in support of 3-M requirements must be maintained by the command in an auditable fashion. In addition to 3-M PQS qualifications, all personnel assigned to accomplish 3-M related maintenance on systems listed in Volume V, Part 1, Chapter 2 Paragraph 2.2.1 of this manual, must be qualified per reference (e). Table 19-5-1 reflects the PQS qualifications required to fill SUBFOR 3-M billets.

Table 19-5-1 - Required PQS Qualifications	
3-M Coordinator	PQS-307
3-M Assistant	PQS-306
Department Head	PQS-306
Department LCPO	PQS-305
Division Officer	PQS-304
Division LCPO	PQS-304
Work Center Supervisor	PQS-303
Repair Parts Petty Officer	PQS-302 or RPPO Continuing Training and Qualifications Software
Maintenance Personnel	PQS-301

19-5.4 <u>PLANNED MAINTENANCE</u>.

19-5.4.1 <u>Minimum Standards</u>. MRC accomplishment is critical for maintaining equipment in a ready state and achieving expected service life. The maintenance tasks directed by MRCs are the minimum standards for organizational shipboard planned maintenance and therefore equipment degradation can be assumed if maintenance is deferred. The following provisions are provided to maximize on time performance of PMS and provide increased Fleet latitude in maintaining equipment.

a. 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. The MRC will be accomplished in sequential order, adhering to all Warnings, Cautions and Notes. Routine sub-steps (e.g., fastener removal, steps to don and remove Personnel Protective Equipment, 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.

b. Per Naval Sea Systems Command (NAVSEA), procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. 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:

(1) 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.

    (2)   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.)

    (3)   Specify every possible action of the maintainer.

c.   Leadership will 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, not necessarily step-by-step performance.

d.   If a step is missing that is necessary to complete the task, and that step is not obvious to the Maintenance Person (MP), a FBR should be submitted.

e.   MRC completion status is dependent on the accomplishment of all procedural steps on all the equipment listed on the MRC or its accompanying Equipment Guide List or Location Guide List.

f.   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 such as cleaning up or containing spilled fluids or dirt.

g.   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. Substitution requirements are provided by reference (b) and other technical documents.

19-5.4.2 <u>Functional Components</u>.

a.   PMS Master File. The Master File, maintained by the units 3MC, contains information relative to PMS requirements that are specific to equipment for which the command is responsible. The Master File provides for duplicate issue of missing MIPs and MRCs, contains supplementary information provided by Naval Sea Logistics Center (NSLC) Detachments Norfolk or San Diego and serves as a repository for changes received between FR distributions, which must be retained on file until the changes are reflected in a subsequent FR. Master File content is delineated in Appendix B section I-B, Command Level Effectiveness Review (CLER).

b.   Work Center PMS File. The WC File provides a ready reference of planned maintenance requirements and information to be retained in the working area for use by the WCS and maintenance personnel. The WC File contains only the documents and information applicable to a specific WC. The content of the WC File is

delineated in Appendix B Section I-A, Scheduling and Execution Effectiveness Review (SEER).

c.   PMS Administrative Requirements. In lieu of a WC or Master File the following should be retained:

    (1)   Work Center

        (a)   Current classified MRCs.

        (b)   Recently completed K-MRC data sheets.

        (c)   Current Tailored Force Revision (TFR) reports.

    (2)   3-M Coordinator

        (a)   SKED 3.2 Help file.

        (b)   Split MIP Tracking Log (updated to current FR).

        (c)   Applicable 3-M Instructions (Ship, ISIC, and TYCOM).

        (d)   Current 3-M messages and guidance.

        (e)   Current 3MC TFR Reports.

        (f)   Master classified MRCs.

        (g)   Current SKED Database back-up files on DVD or CD-ROM and an Excel spread sheet from the SKED report Checks and Maintenance Outlook Report of all WCs, for the current and next future quarter.

        (h)   3-M Program short and long range training plan approved by the XO.

    (3)   The following post-quarter SKED reports will be generated on a ship-wide basis by the 3MC and forwarded to the ISIC by the 3rd Monday of the quarter (as conditions permit). These reports will be analyzed and electronically routed through the applicable DH to the XO. These reports will be retained as objective quality evidence, by the 3MC for four quarters.

        (a)   PMS Analysis Spreadsheet

        (b)   Calibration H Report (last completion)

        (c)   Spot Checks – Passed & Failed Reports

        (d)   Checks – K-MRCs (Active) Report

        (e)   Tailored Force Data (.tfd file)

d.   Performance Monitoring Requirements. MRCs that are K coded require PMT data collection. As the submission of the data sheet(s) to the PMT is a procedural step of the MRC, the MRC cannot be considered completed until the data sheet(s) is submitted to the 3MC or the local PMT field office by the most expeditious means or format. Electronic is preferred. WCs will maintain a copy of the most recent performance data sheet(s). Data sheets are maintained until maintenance action is

documented complete in the Submarine Maintenance Monitoring Information System and reflected in the monitoring period planning and tracking report.

    (1)   K-MRC in-periodicity completion percentage must be a minimum of 90 percent.

    (2)   3MC will provide the Checks – K-MRCs Active Report (Excel Format) at the end of each quarter to the PMT for reconciliation. The ship will coordinate with the PMT to correct schedule disparities.

    (3)   LCPOs will keep the PMT apprised of all K-MRC IEM beginning and ending dates.

    (4)   The CO will review and provide a quarterly summary report of K-MRC accomplishment using Appendix C of this chapter or naval message to the ISIC by the 3rd Monday of the quarter.

e.   Interim MRC Procedures. The ship may develop interim MRC procedures based on experience and applicable technical manuals in support of equipment or systems without PMS coverage until formal documentation is received. Before scheduling preliminary MIP requirements, the WCS and the DH must verify their applicability to installed equipment.

f.   Weekly Status Report. The weekly PMS monitoring status reports will be retained, electronically if desired, by the 3MC for the current and previous quarter. These reports from the 3MC to the XO will contain, as a minimum, the information cited in paragraphs 19-5.4.2.f.(1) through (6) of this chapter.

    (1)   Completed Spot-Check and Monitored MRC results.

    (2)   Completed WC audits and results.

    (3)   The number of FBRs over seven days old that have not been reviewed by the Chain Of Command (CoC).

    (4)   Abatement and corrective actions completed as a result of a monitoring program finding.

    (5)   IEM Details Summary Report.

    (6)   Overdue (Alerting) MRCs and plan of corrective action.

g.   Change Service Accountability Log. The Change Service Accountability Log (CSAL) (Figure 19-5-1) provides a definitive record of all changes to a command's 3-M Program. Whenever a change to a command's 3-M Program is directed (be it from an FR, FBR, ISIC direction, etc.), the change will be routed to the concerned WCS(s) via a memorandum. Whenever such a memorandum is issued, it must be recorded in the CSAL. Once the WCS reports the directed change has been completed, the 3MC will file the WCS's response and annotate in the CSAL that the action is complete.

    (1)   The CSAL is comprised of the actual log sheet, a copy of all memos routed to the WCS and the memo from the WCS to the 3MC indicating completion.

    (2)   The importance of the CSAL cannot be overstated. Basically, it provides for a day-to-day, year-to-year record of changes to a command's planned

maintenance program. It is also a turnover document at deployment sites, allowing a current command to quickly identify all changes from a previous command. Finally, it will be inspected during all command 3-M assessments and inspections, providing visibility as to how well a command manages 3-M from one inspection to another.

Figure 19-5-1 - Change Service Accountability Log						
FR Change Number or Authority	Date RCVD	Cognizant Dept. or WC	Date Cover Sheet Issued	Date Cover Sheet Returned	Date Master File Updated or Item Closed	Summary of Change

19-5.4.3 <u>Submarine Safety, Scope of Certification, Flight Critical Components and Survivability and Escape</u>.

    a.   Submarine Safety. MRCs that direct work or entry within the Submarine Safety (SUBSAFE) Certification Boundary require Re-Entry Control (REC) to be invoked. SUBSAFE MRCs are annotated on the MIP with either an "RS" (re-entry control required) or "XS" (no re-entry control required) in the "OTHER" column.

    b.   Scope of Certification. MRCs that direct work or entry within the Scope of Certification (SOC) Boundary also require REC to be invoked. SOC documentation is applicable and governing to Dry Deck Shelter (DDS) host platforms and must be loaded to WC WK02 for those platforms. SOC MRCs are annotated on the MIP with either an "RD" (re-entry control required) or an "XD" (no REC required) in the

"OTHER" column. Non-DDS platforms need not establish WK02 nor are they governed by SOC directives.

c.   Submarine Flight Critical Component. MRCs which work within the Submarine Flight Critical Component Boundary where REC documentation is required are annotated on the MIP with an "RF" in the "OTHER" column.

d.   Survivability and Escape Equipment. Survivability and Escape Equipment and supporting maintenance has come under increased scrutiny since the loss of the Russian submarine KURSK. All MIPs and associated MRCs dealing with Survivability and Escape Equipment are to be loaded to WCs per table 19-5-2.

Table 19-5-2 - Load-out of Survivability and Escape Related MIPs		
MIP	SYSTEM	REQUIRED WC
5940/908	Submarine Escape and Immersion Equipment (SEIE), Escape Trunk	EA01 (SSN 688 Class)
5940/906	Submarine Escape and Immersion Equipment (SEIE), Escape Trunk	EA01 (SSBN and SSGN 726 Class)
5940/905	Submarine Escape and Immersion Equipment (SEIE), Escape Trunk	EA01 and WK02 (SSN 774 Class, SOF)
5940/904	Submarine Escape and Immersion Equipment (SEIE), Escape Trunk	EA01 (SSN 774 Class, non-SOF)
5940/901	Submarine Escape and Immersion Equipment (SEIE), Escape Trunk	EA01 (SSN 21 Class)
5940/007	Backup Oxygen Redistribution System	EA01 (SSBN/SSGN 726 Class)
5940/006	Submarine Survivability Life Support Systems ExtendAir	EA01 (SSN 774 Class only)
5940/005	Submarine Escape, Rescue, and Survival Equipment SEIE and Crash Bags	WK01 (WF01 for SSN 774 Class)
5940/003	Manual Reverse Osmosis Desalinator (MROD)	RL01 (SSBN and SSGN 726 Class and 21 Class only)
5940/002	Atmospheric Sampling, Submarine Survivability Life Support Systems	NE01
5940/001	Lithium Hydroxide (LiOH) Curtain Kits,	EA01
4413/015	Submarine Emergency Position Indicating Radio Beacon (SEPIRB)	OC01
5882/021	Helicopter Transfer Kit,(Submarine)	WK01 (WQ01 for SSN 774 Class)

19-5.4.4 Related Maintenance. Related maintenance, so designated by the ISEA or Technical Warrant Holder, is determined from the MIP. The "RELATED MAINT" column of the MIP

reflects related maintenance requirements. Related requirements are positioned on the MIP to line up directly across from the MRC to which they are related. Related maintenance requirements are also identified in the TPMTE section of the MRC under "MISCELLANEOUS".

    a.   Related Maintenance Categories.

        (1)   Mandatory Related. Mandatory related maintenance requirement(s) are those maintenance actions that must be accomplished concurrently with another maintenance requirement. The mandatory relationship is indicated with the use of the # sign. If the mandatory related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity#" (e.g., M-3#). If the related maintenance resides on another MIP, it will be reflected as "MIP:periodicity#" (e.g., IC-013/033:M-4#). Mandatory related maintenance requirements are automatically scheduled by SKED.

NOTE: **MANDATORY RELATED REQUIREMENTS MUST BE LINKED IN SKED TO BE AUTOMATICALLY SCHEDULED.**

        (2)   Convenience Related. Convenience related maintenance requirement(s) are those maintenance actions that can be accomplished concurrently with another maintenance requirement to save time (preliminary steps and tag-outs already accomplished) or for work force considerations. If the convenience related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity" (e.g., M-5). If the related maintenance resides on another MIP, it will be reflected as "MIP:periodicity" (e.g., EL-010/001:M-4)). In both cases, the # symbol is omitted. The WCS manually schedules convenience related requirements.

        (3)   Conditional Related. Conditional related maintenance requirement(s) are those maintenance actions that are performed when specific conditions are present or specified parameters are not met on the referencing MRC. Conditional related maintenance will appear on the MIP in the same manner as convenience related maintenance. The WCS manually schedules conditional related requirements.

        (4)   None. No related maintenance is reflected as "None" in the "RELATED MAINT" column.

    b.   Work Center Supervisors Actions. WCSs are encouraged to review their schedules on a regular basis for opportunities to perform other PMS when an equipment or system has maintenance actions scheduled. Rescheduling of PMS to take advantage of other system maintenance that may be convenience related is highly recommended.

        (1)   If an MRC has related maintenance from another MIP, review the related MIP and MRC and determine if it requires assistance from another WC.

        (2)   If the related MIP and MRC does not require assistance from another WC and is not on the lead WC LOEP, submit an FBR to have it added to the LOEP.

        (3)   If the related MIP and MRC requires assistance or completion by another WC and is mandatory, convenience or conditional related then it should also be on

the lead WC LOEP. If it is not on the lead WC LOEP, submit an FBR to have it added to the LOEP. If the related MRC requires technical assistance, a special NEC, or another rating, that is not part of the lead WC, then the person with the technical training, special NEC or required rating should be temporarily added to the lead WC "Crew List" and assigned the related maintenance in either an assist or performance role. All WCSs involved will collaboratively plan the required maintenance and may adjust schedules based upon individual workload. When the maintenance is completed, the lead WCS will mark the MRC as completed.

19-5.4.5 Inactive Equipment Maintenance.

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

      (1) Status I. Equipment that will:

         (a) Remain onboard,

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

         (c) Will be inactive during extended shutdown periods and maintenance availabilities as determined by the DH.

      Example: Submarine CO_2 Removal Plant in wet or dry lay-up.

   NOTE: **PERFORM A "WET LAY-UP", SUCH AS THE CO_2 REMOVAL PLANT FILLED WITH DISTILLED OR 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_2 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_2 REMOVAL PLANT FLUID IS EXPECTED.**

      (2) Status II. Equipment that is inactive and:

         (a) Subject to corrective maintenance, overhaul, or removal for safe storage,

         (b) Temporarily transferred to another activity for maintenance responsibility for extended shutdown periods as determined by the DH,

            Example: Submarine Refrigeration Compressor removed for depot level overhaul.

         (c) When system(s) components are scheduled for replacement.

   b. Implementation and Responsibility. While inactive, minimum maintenance is performed to ensure the success of the reactivation. The IEM section of the MIP will cover this maintenance. However, consideration should also be given to active PMS

maintenance checks that can be manually added and performed during this period of inactivity.

(1)   The ship will develop an IEM plan for all inactive equipment during availabilities lasting 21 days or longer. The plan will include reason for inactivation, duration, impact to division maintenance schedule and reflect integration with the Lead Maintenance Activity (LMA) work schedule and operational recovery. DH approval of this plan will be documented in the SKED IEM remarks. Use Appendix D.

(2)   In accordance with the appropriate SWLIN 044 and using the applicable Preventive Maintenance Manual, submarines in CNO availabilities will negotiate operational control requirements with the maintenance activity at the arrival conference, to define responsibility for IEM. IEM periodic maintenance requirements and any applicable active PMS maintenance checks must be added manually at the appropriate frequency.

(3)   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 or Ship's Force personnel will conduct PMS during an inactive period. MIPs in each WC will be reviewed to determine if equipment has IEM coverage (e.g., Lay-Up (LU), Periodic Maintenance (PM), Start-Up (SU) and Operational Test (OT)), if the coverage is adequate, and what procedures to follow if there is no IEM coverage on the MIP or provided coverage appears inadequate. The DH is responsible for determining equipment IEM status. When placing a system or equipment in IEM status, the DH 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 that would have been scheduled during the IEM period should be reviewed for applicability, with applicable maintenance accomplished prior to operating equipment.

(4)   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 IEM Section of the MIP. When IEM procedures are inadequate, submit an FBR. The unit or 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.

(5)   The lack of IEM requirements on a MIP does not prohibit placing that system or equipment into an inactive state. Additionally, certain locations require

precautions and maintenance not required force-wide. The unit or ship should consider all factors that affect equipment deterioration and take necessary precautionary measures. The WCS or LCPO is responsible for identifying factors that are inadequate and may require additional preparation and maintenance of the inactive equipment while reporting same to the DH for approval. Factors may include environmental conditions, equipment location or susceptibility to damage. For those actions that are recurring in nature, the WCS should submit an FBR for possible MRC development.

c.   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 following 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 or scheduled ten days to the right and will not go into "alert" until after the tenth day. This allows the MP or 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 or Ship's Force. LU checks will automatically be added to the schedule at the beginning of IEM by SKED and may be marked "NA" if the LU check did not support the equipment being removed from the ship or 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, 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) ten days to the right and will not go into "alert" until after

the tenth day. This allows the MP or WCS scheduling flexibility within the plus side of the date range of the MRC.

19-5.4.6 <u>Scheduling</u>. PMS is a portion of the command's 3-M Program that provides, in one authoritative system, the scheduling information and technical procedures governing planned maintenance. PMS provides a simple method for scheduling and documenting the execution of planned maintenance procedures. Fleet policy and scope are provided in chapter 19 of this volume.

NOTE: **WHERE THE GOAL OF 100% ACCOMPLISHMENT CANNOT BE REACHED, THE UNIT'S COC MUST BE KEPT INFORMED OF THE CIRCUMSTANCES THAT PREVENT ACCOMPLISHMENT OF SCHEDULED MAINTENANCE.**

    a. Situational maintenance scheduling will be managed utilizing the tools provided by the computer based PMS scheduling software employed by the activity. All event driven situational requirements will be "triggered" when required and performed per reference (b).

    b. The creation and use of generic crewmembers such as "Torpedoman of the Watch" and "Engineering Laboratory Technician" is not authorized. For those instances where the watchstander performs the MRC, the senior watchstander's name will be indicated in SKED.

    c. The MP will be assigned prior to commencing the week and must complete the maintenance as directed. If a different person is required, the WCS will reassign the PMS accordingly.

    d. Systems with many multiple components (greater than 30) can use general spaces (Crew's Mess, Turbine Generator Lube Oil, Locker#) for terms to designate maintenance items (drain funnels, Emergency Air Breathing masks, photo luminescent marking and battle lanterns).

    e. "H" coded MRCs, having calibration maintenance items listed in tables, will be listed as individual SKED equipment maintenance items. The instrument serial number must match the Calibration Requirements List system designator (i.e., AHP-100-GA-001). All "H" coded MRCs will be considered overdue based on the due date annotated on the calibration label regardless of MRC date ranges allowed by reference (b) and reflected in Table 19-5-3.

    f. Check Notes are required in SKED under the following circumstances.

        (1) When PMS is marked as "lost".

        (2) When PMS is marked as not-applicable.

        (3) When PMS is marked with the '¢' symbol, "satisfied by Higher Level Maintenance."

        (4) When PMS requires a tag-out, the tag-out program of record identifier will be entered.

    g. Alert Notes will be in the format of paragraph 19-5.4.10 of this chapter.

h.   After the FR is approved, the 3MC will conduct quarter archival to maintain one completed quarter, one current quarter, and at least four future quarters. This permits the ability to review past records and forecasting of upcoming maintenance actions.

19-5.4.7 <u>SKED</u>. The use of SKED version 3.2 or subsequent versions for PMS scheduling constitutes full compliance with all administrative provisions of the 3-M Manual.

a.   Guidance for use of SKED is provided via the SKED users guide with help menus, and wizards associated with SKED functionality.

b.   The Navy PMS DVD or CD-ROM is used to update the command or unit's SKED PMS data.

c.   The SKED program uses days to schedule and keep track of calendar periodicities. MRCs are displayed as out of periodicity when they fall outside the established date ranges in the SKED program. These date ranges are as reflected in Table 19-5-3.

Table 19-5-3 - SKED Periodicity – Date Ranges	
Periodicity	Date Range
Daily	None
2D	None
3D	None
Weekly	None
2W	9 - 19 days
3W	14 - 28 days
Monthly	21 - 41 days
2M	41 - 83 days
Quarterly	61 - 121 days
4M	83 - 165 days
Semi-Annually	121 - 243 days
8M	165 - 331 days
9M	+ or - 90 days from scheduled date
Annual	+ or - 90 days from scheduled date
Multi-month after annual	+ or - 90 days from scheduled date

19-5.4.8 <u>SKED Server Failure</u>. In the event of a SKED server failure, operation of PMS performance and tracking is as follows:

a.   Retrieve Maintenance Outlook Report that was created following approval of current FR.

b.   The WCS or LCPO will maintain the assignment of PMS with the Maintenance Outlook Report until server is restored.

    c.   Print assigned MRCs from the PMS viewer program that is located on the FR DVD.

    d.   Document and retain accomplished maintenance on printed blank 13-Week Reports that are in the documents folder on the FR DVD.

    e.   When the server is restored, update SKED based on accomplished maintenance documented on 13-Week Reports.

19-5.4.9 <u>Accomplishing PMS</u>. Maintenance personnel use MRCs to accomplish assigned planned maintenance as described here:

    a.   From SKED "My Task" view, review the 13-Week Report.

    b.   Determine maintenance task(s) assigned.

    c.   Determine when the maintenance task(s) are due.

    d.   Determine what tools, parts, material, test equipment or supplies are needed. For MRCs that contain inspections and then maintenance actions based upon the inspection findings, the TPMTE needed to perform the follow-on maintenance caused by the inspection findings does not need to be obtained prior to performing the MRC but rather, may be obtained as needed.

    e.   Perform the maintenance on schedule.

    f.   Notify the WCS immediately whenever one or more of the following conditions exist:

        (1)   Anything on an MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

        (2)   TPMTE prescribed by the MRC is not available, is not correct or questions about substitutions arise.

        (3)   Any doubt exists about your capability, training, or experience to properly perform the maintenance requirement as prescribed.

        (4)   Factors exist which would make performance of the maintenance requirement unwise or dangerous, for example, disassembly of equipment needed for operations, radiation when prohibited, situations causing safety hazard to exist, etc.

        (5)   Equipment deficiencies or casualties are discovered.

        (6)   Any provisions or requirements on the MRC cannot be accomplished as prescribed. See para. 19-5.4.1 of this chapter for clarification

    g.   If an MRC can be completed step by step as written, then the maintenance action can be signed off as completed. Report completed planned maintenance actions to the WCS, update the PMS schedule to reflect the completed maintenance, annotate and sign the 13-Week Report (if used). If multiple maintenance personnel are assigned to a single maintenance action, the most senior person assigned must update the PMS schedule, annotate, and sign the 13-Week Report or Check Note if using SKED 3.2 electronic accountability.

    h.   Maintenance actions not fully completed will be reported to the WCS. However, if material deficiencies or casualties which are unrelated to that MR are discovered, the

MR can be checked off provided the MR was fully completed, but the discrepancy must be reported via MDS.

19-5.4.10 <u>Non-Accomplished PMS Categories</u>. The WCS or LCPO will add a brief description for each Alert Note for non-accomplished categories using subparagraphs 19-5.4.10.a through 19-5.4.10.g of this chapter.

    a.   System or Equipment Failure. System or equipment is not operational or in a reduced operational status thus preventing maintenance from being accomplished. CSMP Job Sequence Number (JSN) required in additional text description.

    b.   Inadequate Maintenance Procedures. MRC procedure or steps cannot be accomplished to a point where the maintenance can be considered accomplished. FBR number required in additional text description.

    c.   Ship Operational Requirements. Operations prevent the maintenance from being accomplished. Requires additional text description.

    d.   System or Equipment Operational Requirements. Required operation of system or equipment prevents maintenance from being accomplished. Requires additional text description.

    e.   Lack of Hazardous Material. Correct hazardous material (HAZMAT) not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

    f.   Missing or Incorrect TPMTE. Correct or calibrated TPMTE was not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

    g.   Other. Requires additional text description.

19-5.4.11 <u>Accountability</u>. The credibility of the Navy PMS program relies heavily on the individual accomplishing the maintenance. The required dedication and integrity of that individual cannot be overstressed.

    a.   To maintain accountability, personnel are required to sign for the completion of assigned maintenance in an Accountability Log (if used). The WCS is required to review and sign the Accountability Log weekly to verify the accuracy and completeness of entries. Accountability sheets will be maintained in the WC PMS File for a period of not less than 13 weeks.

    b.   Electronic accountability will be utilized by ships employing SKED 3.2. When an individual updates the disposition of a check, this is the same as signing and dating a check completion on a 13-Week Accountability Sheet. The disposition of a check will become permanent when the weekly closeout is performed. All PMS maintenance assigned to a MP is presented to them immediately upon SKED 3.2 log-on. The CoC review can be tracked on the Weekly Closeout Signature Sheet. Therefore, there is no need to print and sign the 13-Week Accountability Form.

19-5.4.12 <u>Force Revision Implementation</u>. In addition to the requirements of reference (b), the following steps ensure the most efficient and thorough implementation of an FR:

    a.   MRC deletions on MIPs will be marked to indicate the reason for deletion:

        (1)   Scheduling aids (SA). Indicate applicable scheduling aid.

        (2)   Split MIP. Indicate responsible WC if the MRC is applicable to the ship, the responsible WC designation will be used versus a scheduling aid.

        (3)   "Other" includes approved responses to FBRs, ACNs, Message Date-Time-Group, dual periodicity. Indicate guiding notation for deletion: "SA-1" or "Note 1", configuration change number.

    b.   The FR will be completed on or before the first Monday of the new calendar quarter. When operational schedules do not provide adequate time to implement the revision prior to the start of the quarter, the XO may direct an alternate implementation date. This deferred FR will be reported to the ISIC unless deployed. If two or more FRs were not available while the unit was deployed, only the most recent FR will be installed and implemented.

    c.   It is advisable to complete the FR process through DH approval before conducting quarterly audits by a chief or more senior.

    d.   The 3MC will:

        (1)   Update PMS and TFR data into SKED prior to routing the change documentation to WC.

        (2)   Route the FR to WCS for implementation. (See Figures 19-5-2 and 19-5-3 of this chapter for an example of a routing memorandum and an FR implementation checklist, respectively.)

        (3)   Delete SKED FBRs after reflection within the FR.

        (4)   When the FR is approved, the 3MC will generate and forward the ship's Tailored Force Revision Data (.tfd) file to the TYCOM 3-M Rep by the 3rd Monday of the quarter. The 3MC will provide the SKED TFD file to the TYCOM 3-M REP immediately following completion of FR in all WC.

    e.   The WCS, upon receipt of the change document from the 3MC, will:

        (1)   Apply changes to the WC PMS schedule utilizing SKED Revision Editor.

        (2)   Route revision changes to division LCPO for review and concurrence.

    f.   The division LCPO will:

        (1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

        (2)   Submit PMS schedule to the DIVO for review and concurrence.

    g.   The DIVO will:

        (1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2) Submit PMS schedule to DH for review and approval.

h. The DH will:

(1) Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2) Review and approve WC PMS schedules.

i. The WCS makes final entries in the WC Record of Change Log, completes the PMS Change Documentation Routing Memorandum, and returns it to the 3MC.

j. The 3MC updates the CSAL and notifies the XO that the FR has been installed after receiving all FR PMS Change Documentation Routing Memorandums from the WCs.

Figure 19-5-2 - Force Revision Routing Memorandum

MEMORANDUM

From: 3-M Coordinator

To: _____ Work Center Supervisor

Subj: FORCE REVISION PACKAGE X-XX

Encl: (1) Force Revision Implementation Checklist

(2) List of Effective Pages (LOEP)

1. Force Revision Serial: X-XX has arrived from NSLC.

2. The SKED Force Revision (FR) update is complete. Begin your work center FR implementation using Enclosures (1) and (2); complete through your Department Head no later than Day/Month/Year.

3. Corrections, including those to LOEP, MIP and MRC, should be made immediately. Make certain ACNs and FBR responses are reflected in the FR. If not, maintain the copies and changes to your MIP(s) and MRC(s) until reflected in a subsequent FR.

4. MRCs with procedural line-outs previously approved by the LCPO must again be reviewed by the LCPO to confirm they continue to meet the requirements of Volume VI, Chapter 19 of this manual. Specifically, in the procedure block, Work Center Supervisors may line-out the non-applicable line items that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are work center and maintenance item specific, submission of an FBR is not required.

R/

3MC

Figure 19-5-3 - Force Revision Implementation Checklist

MEMORANDUM

From _____ Work Center Supervisor

To: 3-M Coordinator

Subj: FORCE REVISION IMPLEMENTATION CHECKLIST COMPLETION

1. The following actions have been accomplished in SKED to implement Force Revision X-XX.

Task Description	Initial
Verified all equipment is listed under each MIP.	
Verified new or changed MRCs (green or yellow) are added to the correct Maintenance Item (equipment).	
Verified all applicable MRCs for each piece of equipment are active.	
Verified all MRC's have associated "Related Maintenance" attached.	
Verified that Safety of Ship is toggled to "YES" if applicable.	
Verified that all MIP lineout's have a technical reason documented for deletion. (Select the "Pencil" Icon on top row)	
Verify Maintenance Item Serials & Locations are correct.	
Upon completion of implementation Marked Complete for digital approval by: LCPO, Division Officer and Department Head.	LCPO
	DIVO
	DH

2. After DH approval:

LCPO run SKED report PMS Documents and Customized MRCs – Line-outs. Verify each procedural lineout meets JFMM volume VI chapter 19, paragraph 19.6.11 requirements.	
WCS create an excel spread sheet from the Maintenance Outlook Report as a minimum electronic backup forecasting as many quarters in advance as available and store it on your hard drive (not a LAN drive) in the event of the LAN crashing.	
WCS select "Work Center" from the upper menu and "Update Unassigned Slots." Initially, any MRC without ownership will be assigned to the WCS. Reassignment by the WCS or LCPO will follow.	

3. Printing requirements for MRCs are determined by individual command policy. Printed MRCs must come from "PMS Documents" (not PMS Viewer).

4. The only required documents in the WC PMS File are:

   a. Classified MRCs.

   b. MRCs required by the command.

   c. MRCs with pen & ink changes authorized by ACNs or answered FBRs.

   d. K-MRC performance data (if no digital record).

5. Approval Signatures:

Position	Signature
LCPO	
DIVO	
DH	
3MC	

19-5.4.13 Planned Maintenance System Feedback Reports. PMS FBRs are used to identify problems with PMS documentation or to request the addition or deletion of PMS coverage. Issues with the periodicity, rates, man-hours, TPMTE and procedure may all be reported via an FBR. An FBR is also used to request copies of classified MRCs, request the addition or deletion of an MRC (maintenance requirement) to or from a MIP, splitting a MIP between WCs, shifting of maintenance responsibility or to request PMS coverage for newly installed systems or equipment. Paragraphs 19-5.4.13.a through 19-5.4.13.j of this manual provide amplifying information dealing with the issues that may prompt the submission of an FBR.

    a.   Periodicity. An FBR can be used to request the increase or decrease in the frequency of a maintenance action, i.e., an MRC. However, the originator needs to keep in mind that the ship or unit has the prerogative to increase the frequency because of harsh weather, unusual operating conditions or corrective maintenance and associated testing requirements. A 726 Class submarine submitted an FBR requesting the frequency of cleaning a specific electronics cabinet filter be increased from quarterly to monthly. Research revealed this MRC was applicable to all 726 Class units and no other ship had submitted a similar request. In fact, two other units had requested the frequency be decreased to semi-annual. It was determined that the submitting unit was in an extended upkeep period and increased foot traffic by shipyard personnel near the electronic cabinet was the most likely cause of the filter becoming clogged. The ship was authorized to increase the frequency to support the extended upkeep period and the periodicity of the MRC was not changed.

    b.   Rates. The Rates block on the MRC represents the developer's recommendation of the skill level (rate and rank) best suited to accomplish the maintenance action. The key word is recommendation. Qualified personnel other than the rate and ranking specified may be assigned. When an NEC is assigned or Damage Control Petty Officer or Safety Petty Officer, substitution of other personnel is not allowed other than those exceptions as noted in reference (b). An FBR requesting the rate on an MRC be changed from an ET2 to an FT2 will probably not pass TYCOM screening, yet an FBR requesting the addition or deletion of personnel will generally pass to the cognizant technical activity for review.

    c.   Man-hours. The MRC reflects the average time per equipment, per person. It does not reflect or account for gathering and putting away tools, tag-outs or time removing and replacing interferences. From a maintainer's perspective, this is not an accurate

representation of the time required to accomplish the maintenance action. The Future of PMS initiative will attempt to do a better job of accounting for this additional time but until then, FBRs should be submitted only when the allotted time per equipment is significantly out of synch with the actual time required. For example, an MRC calls out 0.5 man-hours per equipment, but it takes 1.0 man-hours.

d.   Tools, Parts, Material and Test Equipment. TPMTE FBRs should be submitted when the procedure calls for an item not listed in the TPMTE block or when the TPMTE block lists an item not called out in the procedure. Updating the MRC to reflect common hand tools, administrative or office supplies and basic housekeeping items is addressed in paragraph 19-5.4.13.k.(1) of this chapter.

e.   Procedure. Procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. MRCs exist to provide standardized proven procedures, specify consistent acceptance criteria and to communicate warnings and cautions relative to the specific maintenance action. They are not intended to specify every possible action of the maintainer. There may be instances where an obvious typographical error exists on the MRC. For example turn switch to "ON". However, the switch may already be "ON" and the intent of the step is to turn unit off. The card should read "Turn switch to OFF". This type of error should not prevent the scheduling or performance of maintenance. However, in this situation, the accomplishment of the MRC is not possible until the WCS reviews the error and concurs that it is safe to proceed. A temporary notation including the reason for the correction must be made on the MRC, initialed by the WCS and an FBR submitted. Extreme caution will be taken when reviewing MRCs for this type of error. Errors must be obvious typographical errors and a PMS FBR must be submitted immediately upon discovered. Do not permanently alter the MRC until authorized by the applicable Systems Command, ISEA or NSLC Detachment. If a step is missing that is necessary to complete the task, and that step is not obvious to the MP, submit an FBR to have it added. An FBR submitted to request procedural changes should include the originators contact information and supporting rationale or justification. If, however, a step is missing that is clearly obvious, an FBR only serves to overload a process that should be focused on more technical issues.

f.   Duplicate MRCs. Unclassified MIPs and MRCs are now available from the DVD. Copies of classified MRCs still require an FBR request due to handling requirements.

g.   Addition or Deletion of an MRC. During the life cycle of a system, equipment, or component it may become necessary to add a maintenance action to prevent an age related functional failure or to delete a maintenance action due to inherent reliability not foreseen during maintenance development. An FBR submitted to request the addition or deletion of an MRC should include the originator's contact information and supporting rationale or justification.

h.   Newly Installed or Removed Equipment. While an FBR request for PMS coverage will provide initial maintenance coverage or deletion of MIP(s) because of equipment removal, submission of a Configuration Change Form OPNAV 4790/CK is still required to initiate the rest of the logistic support change process. This point cannot

be overstressed; the submission of the FBR does not relieve the ship or unit from initiating a Configuration Change Form OPNAV 4790/CK. The Configuration Change Form OPNAV 4790/CK initiates supply support, CDMD-OA changes, ship selected record drawing updates and class maintenance plan updates.

i.   Splitting a MIP. There are instances in which a MIP includes MRCs for more than one WC to perform. When this occurs, a decision is required by the command as to whether the MIP will be split or will be scheduled singly by one WC. Only the XO can authorize the splitting of a MIP if an MRC requires another WC to perform the entire maintenance action. If the decision is made not to split the MIP, then the MRs will be accomplished through the coordination of WCSs.

    (1)   If the MIP is split, the following procedures apply:

        (a)   Submit to the XO a Non-Technical PMS FBR requesting approval to split the maintenance responsibility.

        (b)   Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR stating, "XO concurs with splitting MIP maintenance responsibility".

    (2)   Upon receipt of the FBR approval:

        (a)   Utilizing the SKED Revision Editor, delete the MRC from the MIP and show the reason for deletion as the designation of the WC assuming responsibility.

        (b)   If the WC assuming responsibility does not reflect the MIP and maintenance items, utilize the SKED Revision Editor to add them. Schedule only the MRC(s) that pertain to the WC. Reflect remaining as deleted with the reason for deletion the designation of the parent WC.

    (3)   If the situation occurs where a WC removes a split MIP, the following procedures apply:

        (a)   Submit an XO approved, non-technical PMS FBR reporting the decision to remove the split maintenance responsibility. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with removing split MIP maintenance responsibility".

        (b)   Upon receipt of FBR approval, utilize the SKED Revision Editor, remove the MIP, MRC(s) and maintenance item(s) from the WC no longer involved. Ensure that the lead WC assumes full responsibility for the MIP and MRC(s) and annotates their schedules accordingly.

j.   Shift of Maintenance Responsibility. Individual ships or units sometimes consider it necessary to shift maintenance responsibility from one WC to another, to combine two or more existing WCs or to split an existing WC. These requests for changes of PMS maintenance responsibility require XO concurrence and may require final approval by the applicable TYCOM. Due to the considerable administrative burden,

requests to accommodate a temporary situation such as short-term assignment of two WCs to one supervisor should not be submitted.

(1)   The following factors should be carefully considered before submitting such requests:

    (a)   Composition of WCs by size and ratings.

    (b)   Scope of maintenance responsibilities.

    (c)   WC workload.

    (d)   Ease of administration of a WC as a cohesive maintenance group.

    (e)   Importance of WC grouping to equipment maintenance responsibilities, PMS scheduling, MDS reporting and CSMP listings.

(2)   When changes in maintenance responsibility are considered necessary, the following procedures apply:

    (a)   Submit a PMS FBR (non-technical). Indicate from which WC(s) equipment is to be deleted and to which it is to be transferred. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with the shift of maintenance responsibility."

    (b)   WC or equipment changes will also be reported in the OMMS system via a Configuration Change Form OPNAV 4790/CK through the CSMP up-line reporting process.

(3)   Upon receipt of the FBR approval, perform the following actions:

    (a)   The PMS Master File is updated to reflect deletion of the MIP from one WC and addition to the WC receiving the responsibility. The originating FBR serial number is annotated on the affected line item on the LOEP for both WCs. The PMS Master File must contain a record of deleted equipment until the change is reflected in a future FR.

    (b)   Utilizing the SKED Revision Editor, load the affected MIP(s) and MRC(s) to the WC receiving maintenance responsibility. Delete the MIP(s) and MRC(s) from WC shifting responsibility.

    (c)   Utilizing SKED, perform a revision to move the equipment from the original WC's current schedule to the WC receiving the maintenance responsibility. Data is exported from one and imported to the other maintaining equipment history.

k.   MRC Changes Not Requiring Feedback Reports. The only MRC modifications shipboard or unit personnel may make without submitting a PMS feedback report are as listed in subparagraphs 19-5.4.13.k.(1) and (2) of this chapter.

(1)   TPMTE Block.

(a)   Common hand tools, administrative or office supplies and basic housekeeping items may be substituted or added by the WCS. The WCS may add notes to the MRC to reflect these substitutions. In the case where specific common tools are called out by description, substitutions are not authorized. For example, substitutions such as using synthetic fiber brushes in place of animal hairbrushes or rags and paper towels in place of lint free cloths are not allowed.

(b)   Approved parts, materials and miscellaneous item substituted from the supply system, technical manual, or Military Specification, etc., which meet or exceed the requirements may be used. Ensure that substitutions satisfy both the basic maintenance and safety requirements of the MRC. If there is any doubt, a PMS FBR should be submitted specifying substitution desired and reason.

(c)   Test equipment or certified tools, which meet or exceed the Sub-Category code requirement, may be used.

(d)   When an MRC pertains to multiple configurations of equipment and the TPMTE block contains tools, parts, test equipment and materials for each unique configuration, the TPMTE block may be tailored for the unit's specific configuration by lining out the items that do not pertain to equipment held.

(e)   Exception to TPMTE block change: If an item listed in the TPMTE block is not called for in the procedure block, submit an FBR explaining the circumstances. Conversely, if a tool, piece of test equipment, part or material is called for in the procedure block and is not listed in the TPMTE block an FBR should be submitted.

(2)   In the procedure block, WCSs may line-out the non-applicable line items (alternate procedures) that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of an FBR is not required. If a step or steps in the procedure block have been lined-out and tools, parts, material, or test equipment in the TPMTE block pertain only to that step or steps, then they will be lined-out as well with a reference to the step or steps lined-out and approved by the division LCPO. Warnings, cautions, and notes associated with the lined-out step or steps will also be lined-out.

l.   Types of Feedback Reports. There are two types of FBRs, Technical and Non-Technical.

(1)   Technical. These FBRs are used to report technical discrepancies inhibiting PMS performance. Technical feedbacks normally adjudicated by an ISEA responsible for the system or equipment covered by the PMS documentation require all the supporting information the originator can provide. The originator should identify the issue, providing as much supporting technical

information, such as Allowance Parts List, Reparable Identity Code, and drawing or Hierarchical Structure Code as available and a proposed response or solution if known. Most importantly, provide point of contact information, including name and phone number so that the ISEA can contact the originator should they have questions. The FBR must be accurate and complete to "stand alone", that is, the FBR will be understood without additional explanation. The better the FBR describes the problem, the more likely the originator will receive a timely response. There are two sub-categories of technical FBRs:

(a)   Routine. An FBR will be considered routine when it relates to the technical requirements of PMS. It is used to report technical discrepancies or request clarification of procedures.

(b)   Urgent FBR. An FBR will be considered urgent when it relates to the technical requirements of PMS and involves safety of personnel, safety of ship or the potential for equipment damage. Urgent FBRs will be forwarded by naval message containing a PMS FBR serial number, to both NSLC Detachments Norfolk and San Diego, with info to the cognizant Systems Command, TYCOM and the Naval Safety Center. The message must describe the unsafe procedure(s) or condition(s), must identify the MIP and MRC involved and reflect the serial number of the FBR generated in SKED or Planned Maintenance System - Management Information System. Once the message has been sent, include the date-time-group of the message in the FBR and submit.

(2)   Non-technical. These FBRs are intended to support PMS requests that do not require technical review, including WC changes. Non-technical FBRs are submitted to request classified or other PMS documentation which cannot be obtained locally or to request clarification of issues not of a technical nature.

m.   Feedback Report Submission.

(1)   All SKED users will submit FBRs via SKED using the Feedback Report Wizard. Non-SKED users may submit FBRs via the PMSMIS web site at https://pmsmis.navy.mil/ by selecting the Feedback Tab and Feedback Report Wizard from the drop-down tab. Non-SKED users accessing this web site 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 confirming your account and providing access to the main screen. The Anchor Desk web site can also be used to submit FBRs.

(2)   Submarines transmit FBRs to their homeport TYCOM 3-M Representative as a text file attachment via email. 3MCs will change the default SEAJAX e-mail address that is programmed into SKED to the 3MC@ email alias address of their command.

n.   Feedback Report Screening (Shipboard or Activity).

(1)   Initial screening is accomplished by the originator or WCS who is responsible for ensuring all data is accurate and complete.

(2)   The division LCPO or DIVO accomplishes the second level screening and verifies the content and validity of the FBR within three days of origination.

(3)   The DH, next to screen the FBR, is responsible for verifying the content and validity of the FBR and digitally signing FBRs within five days of origination.

(4)   The 3MC is responsible for screening, serializing, and forwarding FBRs within seven days of origination. The 3MC will also:

(a)   Maintain accountability for all PMS FBRs submitted and actions taken until updated PMS documentation is received.

(b)   Ensure that the originator and all applicable WCs are kept apprised of action taken and ensure the originating and other applicable WCSs implement the changes or corrections when received.

o.   Feedback Report Screening (External to Hull or Activity).

(1)   FBRs are next processed by the TYCOM. The TYCOM will verify the content and validity of the FBR and either return the document to the originator or pass it on for further processing and resolution. Submarine Force FBRs are screened by Submarine Maintenance, Engineering, Planning and Procurement (SUBMEPP) Activity.

(2)   SUBMEPP will return an FBR to the originator under the following conditions:

(a)   An answer currently recorded in the Submarine Technical Feedback Report History Tracking Program satisfies the proposed FBR. The FBR will be returned with authorization to implement the previously received response or rationale is provided justifying the non-concurrence.

(b)   A similar request has already been submitted and submission of another duplicate request will add no value to the process.

(c)   The FBR requests actions contrary to the direction of this manual or reference (b).

(d)   The request does not adequately address or identify the problem. In cases of this nature, the FBR is returned to the originator for amplifying information. This will be a last resort for submarine force units, as SUBMEPP will attempt to contact the originator to better define the issue.

p.   Feedback Processing Activities.

(1)   The central control points for processing FBRs are the Planned Maintenance System Coordinating Activities (PMSCA). Depending on the type of FBR and level of technical authority necessary to answer the FBR, the PMSCA will

either respond to the originator with a resolution or forward the FBR to the appropriate technical authority for action.

(2)   ISEAs are those activities designated by NAVSEA as the technical experts for specific systems or equipment. Naval Surface Warfare Center, Philadelphia Detachment is the ISEA for the majority of non-nuclear hull, mechanical and electrical equipment installed on most ships. ISEAs under the direction of the NAVSEA Technical Warrant Holder adjudicate the FBR request and forward the response to the PMSCAs. The PMSCA provides the final response to the originator and updates the PMS database to reflect ISEA changes. PMS changes are issued with the next available FR.

q.   Feedback Processing. FBRs are processed per NAVSEA policy:

(1)   Urgent FBRs.

(a)   The PMSCA will provide a message response to all urgent FBRs within one working day of receipt. If the FBR is forwarded to a Design Activity or ISEA for resolution, then the Design Activity or ISEA will provide a message response informing the originator of specific actions or required changes because of the adjudication of the FBR within one working day of receipt. This message response must be addressed to the originator and 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.

(b)   The PMSCA will distribute revised PMS documentation to all affected users within 30 calendar days of receipt of the FBR, via special issue or Advance Change Notice (ACN).

(2)   Routine FBRs.

(a)   The PMSCA will perform technical review, research, and provide a response to routine FBRs where resolution does not require technical authority action.

(b)   FBRs that the PMSCA cannot resolve will be sent to the cognizant Design Activity or ISEA. The cognizant Design Activity or ISEA will provide the response to the appropriate PMSCA describing the action taken. The PMSCA will provide the response to the originator by electronic means.

(c)   Distribution of the revised MRC to the originator and other affected users will be accomplished via ACN or the next available FR.

(d)   Reference (b) calls for technical review activities and ISEAs to provide FBR responses in less than 21 working days from time of receipt. In addition, NAVSEA has established a goal of providing answers to FBRs in one day. While some FBRs will require extensive research and days, weeks or in some cases months to resolve, the vast majority of FBRs can and should be answered much sooner. One day

may be overly optimistic, but the intent is to put the emphasis back on the timely resolution of FBRs.

(e) If no revision to PMS documentation is required, pertinent comments will be provided in the response to the PMSCA. When not concurring with the feedback report, the rationale for the non-concurrence must be provided to the PMSCA.

NOTE: **IT IS POSSIBLE AN FBR RESPONSE MAY NOT MAKE A SPECIFIC FR BASED ON THE DATE THE RESPONSE WAS RECEIVED BY NSLC. PROCESSING TIME AND HANDLING MAY CAUSE THE REVISED DOCUMENTATION TO MISS AN FR CUTOFF DATE. HOWEVER, SINCE ALL FRS ARE NOW RECEIVED QUARTERLY, IF A REVISION MISSES THE CURRENT FR CUTOFF WINDOW, THE REVISED DOCUMENTATION WILL BE AVAILABLE WITHIN THE NEXT THREE MONTHS.**

r. Feedback Response Implementation. Units will implement responses to FBRs based on the category and content as determined by the unit's 3MC.

(1) Urgent FBR. Within 24 hours of receipt of FBR response.

(2) Urgent FBR with an ACN. Within 24 hours of receipt, the ship will implement an administrative change to incorporate the new PMS documentation. These revised documents will be utilized to conduct maintenance until the revised PMS documentation is incorporated into the next FR.

(3) Routine FBR:

(a) Technical. The response deals with content such as a revision to technical specifications, tolerances, test equipment, materials, acceptance criteria or the sequence of procedural steps. These changes need to be implemented within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window.

(b) Administrative. The response deals with issues that do not affect the technical content or procedural steps. Administrative changes might be added steps to provide a better degree of clarity, formatting revisions to tables or figures that do not change technical content, or updating of Notes, Warnings or Cautions that do not impact the performance of the MRC. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required before the next scheduled accomplishment date of the MRC.

(4) Routine FBR with an ACN:

(a) Technical. These changes need to be implemented via an administrative change within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should

that date fall within the two-week window. These revised documents will be utilized to conduct maintenance until the revised PMS documentation is incorporated into the next FR.

    (b)   Administrative. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required via an administrative change before the next scheduled accomplishment date of the MRC.

19-5.4.14 <u>Transferring Dry Deck Shelter</u>. Transferring of DDS PMS from Logistics Support Unit (LOGSU) to the host submarine.

    a.   SSGNs operating SKED in dual Unit Identification Code mode will take the shelter WC out of IEM and update maintenance item MRC due dates. Track PMS in shipboard SKED and provide DH reviewed End of Quarter (EOQ) Reports to LOGSU.

    b.   All other units receiving a LOGSU maintained asset operating incompatible SKED database will:

    (1)   When the DDS is transferred to the host submarine the Seal Delivery Vehicle Team that is transferring custody will transfer the DDS division SKED program on a laptop, a paper copy of the current quarter List View, 13-Week Accountability Sheets and WC Space Manual to the receiving command 3MC. Any time the DDS is transferred between commands, a Scheduling and Execution Effectiveness Review (SEER) will be conducted on the WC by both commands.

    (2)   The ship will maintain the DDS WCs under the cognizance of the Special Operations Force (SOF) Division using the DDS SKED Laptop.

    (3)   All FRs, administrative changes and PMS performed will be documented on the DDS laptop by the WCS and approved by the weapons officer. All records of audits and reviews will be retained between ship's 3-M Inspections.

    (4)   Backups of the DDS SKED Laptop will be performed monthly and stored on media external to the DDS SKED Laptop hard drive. At a minimum, the external media will be labeled with DDS WC, host ship's hull number, and date of backup.

19-5.4.15 <u>Planning Board for Maintenance</u>. Ships will develop a maintenance plan encompassing the entire Pre-Overseas Movement and Patrol Cycle timeline to include the first post deployment CMAV or Post Patrol Refit for the PB4M schedule. For submarines homeported in Guam this maintenance plan will cover the next two scheduled CMAV periods. This plan will be forwarded to the squadron 3MO by the end of post deployment stand down, crew turnover for SSBN and SSGN and prior to A-90 for submarines homeported in Guam. The squadron 3MO will review and forward this plan to the Squadron Engineer and Squadron Material Officer, PMT, FMA and TYCOM N4. Ships will review and update their plans upon the completion of each CMAV or Refit and forward this update prior to A-60 of the next CMAV.

To successfully plan and execute all maintenance during the submarine maintenance cycle each ship will utilize the following maintenance planning tools:

    a. SKED Forecasting

    b. K-MRC Active Report

    c. OMMS-NG

    d. P-OMMS

    e. Calibration Requirements List

    f. METBENCH Calibration Management System Report

    g. PMR Periodic Maintenance Requirements schedule and inventories

    h. Unrestricted Operations listing

    i. PMT Submarine Maintenance Monitoring Information System list

    j. Type Commander Alteration Management Systems Report

    k. Production Status Report or equivalent status report provided by LMA.

19-5.4.16   Assessment Procedure MRCs. Assessment Procedure (AP) MRCs need not be scheduled within SKED, but they will be maintained "active" through the FR and TFR process. AP MRCs need only be printed on an "as needed" basis for use by assessment personnel or Ship's Force. The record of completed AP MRCs by off-ship personnel is recorded on the work candidate and Ship's Force participation is recorded in their completion remarks of that work candidate. There is no need for recording Ship's Force participation in an assessment event on their PMS schedule within SKED. FBRs submitted requesting deletion of a MIP that only contains AP MRCs will be disapproved and returned to the originator.

19-5.5 MAINTENANCE AND MATERIAL MANAGEMENT AFLOAT AND ASHORE EVALUATION CRITERIA.

19-5.5.1 Self-Assessments. The ability of an activity to perform critical self-assessments is instrumental to the success of the command's PMS program. The PMS Self-Assessment Program needs to address all aspects of 3-M.

    a. TYCOM Policy. Each activity must perform a complete 3-M Self-Assessment at the mid-point of the 3-M inspection cycle and retain results until the next 3-M Inspection. The 3-M checklists contained in Appendix B will be utilized and retained until the next formal 3-M Inspection. Utilization of TYCOM, ISIC and 3-M Representative personnel to assist the command is encouraged and should be requested. As the Self-Assessment senior member, the XO will ensure that personnel performing the audits have adequate knowledge of 3-M practices and procedures to ensure a thorough review. The CO will receive a formal briefing of the findings of the Self-Assessment and intended corrective actions. The ship's mid-term 3-M Self-Assessment and Abatement Program will include all aspects of reference (b) utilizing all the

inspection sheets of Appendix B. 3MCs will retain the command's mid-term Self-Assessment Report until the next 3MI.

b.   Self-Assessment Elements. The major program elements of a Self-Assessment include an evaluation of the PMS Performance Rate (PPR) and CSMP Validity, monitoring MRC performance, and conducting PMS Spot-Checks, WC audits, and deficiency abatement. 3MCs will retain monitored PMS results, Spot Checks and WC audits from the last completed quarter in either hard copy or digital format for review supporting the Self-Assessment.

(1)   Monitored MRC. Supervisory personnel must periodically monitor the performance of PMS to provide feedback and training to maintenance personnel and to enforce command maintenance standards. Personnel charged with monitoring must be a System Matter Expert for the system, equipment, or component for which the MRC applies. LCPOs, LPOs or personnel with similar system knowledge are appropriate. Monitored checks can be used for on the job training to teach the "right way" to conduct maintenance. These monitored MRCs will be documented as a monitored evolution and findings will be provided to the WC's CoC for inclusion into training and deficiency abatement. The value of monitor maintenance cannot be overstated, and commands are encouraged to establish a robust monitored maintenance program.

(2)   PMS Spot Check. PMS Spot Checks are utilized to validate that previously scheduled and accomplished MRCs were performed and the degree to which they were performed. The checklist contained in Appendix B section II, is the tool supervisory personnel utilize to determine the accomplishment status of a completed MRC. Deficiencies noted and the final grade will be provided to the WC's CoC for abatement. The WCS will record the Spot Check grade into SKED to generate the Spot Check Accomplishment Rating (SCAR) for the quarterly PMS Performance Report. Spot Checks will involve all elements of the CoC to include the CO, Chief Of The Boat, Command Master Chief, XO, 3MC, department CPOs, DHs, DIVOs, divisional CPOs, and First-Class Petty Officers. By following the checklist, the inspector can determine if the sailor is competent, if the maintenance was accomplished, if required TPMTE was available and used, and were safety precautions followed. The focus of a spot check should be directed more to the material condition of the gear and less on the administrative issues related to the maintenance requirement.

(a)   Avoid Spot-Checks of MRCs with insufficient complexity. Performing a Spot-Check on a 3 or 5 step MRC does not provide the CoC an accurate picture of the health of the command's maintenance program. Selected MRCs should be of sufficient content to provide the auditor with evidence of satisfactory performance (e.g., tag-outs, QA packages, parts required, off-hull reporting, test equipment, safety equipment, etc.).

(b)   Spot-Checks evaluated as "below standards" will require immediate training and re-performance as determined by the XO. Any re-accomplishment of the MRC must be monitored by the LCPO to ensure noted deficiencies are not repeated.

(c)   The minimum number of Spot Checks or Monitored evolutions conducted per quarter will be based on Tables 19-5-4 and 19-5-5 of this chapter. WCS Spot Checks or Monitors, E-5 & above, may be used to meet these requirements only when no LCPO or DIVO is available. The number of spot and monitored checks for ships in CNO availabilities will be determined at the command's discretion.

(d)   The spot-checker or monitor will ensure that the Spot-Check or monitored data is immediately entered into SKED. When applicable, a brief synopsis of any deficiencies resulting from the Spot-Check will be indicated within the Spot Check.

(e)   The minimum number of Spot-Checks and Monitored Maintenance actions required for Submarine Force surface ships, auxiliary and shore commands (AS, ARDM, URC Class ships) are based on number of MIPs in the WC, Table 19-5-6 refers.

Table 19-5-4 - Submarine Spot Checks and Monitoring per Quarter							
DIVISION	NUMBER		DIVISION	NUMBER		DIVISION	NUMBER
DS01*	3/1		DS02*	3/1		DS03*	3/1
DS04*	3/1		DS05*	3/1		DS06*	3/1
DV01	2/1		EA01	9/3		EDC1	6/2
EE01	9/3		EM01	9/3		MA01	2/1
ME01	2/1		MH01	2/1		MN01	2/1
MV01	2/1		MV02	2/1		NE01	6/2
OC01	6/2		OC02	3/1		OC03	3/1
RC01	2/1		RC01 (774CL)	4/1		RL01	2/1
SS02	1/1		WF01	5/1		WF02	2/1
WI01	8/2		WK01	6/2		WK02	3/1
WM01	2/1		WQ01	8/2			
* Only when shelters are installed on host units greater than 30 days.							

Table 19-5-5 - Submarine Force Surface Ships and Shore Commands Spot Checks and Monitoring		
# of MIPs in Work Center	Minimum # of Spot Checks	Minimum # Monitoring
2	1	1
3-4	2	1
5-7	3	1
8-9	4	1
10-11	5	1
12	6	2
13	7	2
14	8	2
>15	9	3

(3) Work Center Audits. Each WC must receive an audit once per quarter by a supervisory individual, (CPO) or above. Deficiencies noted from this audit will be reported to the WC's CoC for abatement. The 3MC will report recurring deficiencies to the XO for further investigation and corrective action.

(4) Deficiency Abatement. The status of discovered deficiencies will be kept current within the monitoring program. Recurring deficiencies must be reported to the XO for further investigation and corrective action. Deficiencies that have been reported as corrected will be subject to follow up monitoring to ensure corrective action was effective and results of the follow up monitoring will be reported to the XO. The ship's 3-M Abatement Program will include the previous quarter's audits, Spot-Checks, monitored evolutions and CSMP validity audits noting trends and corrective actions.

19-5.5.2 Inspections. The goal of the 3MI is to evaluate the effectiveness of the ship's 3-M Program. It is critical that the inspection be conducted in a similar fashion in every homeport and across the force. Inspections will be completed once commenced. Early below-standards indications will not be used to change an inspection into an assistance visit. The current sheets are available on the COMSUBPAC Secret Internet Protocol Router Network webpage at https://cffo.fleetforces.navy.smil.mil/csp-nf/N4/N43 -> 3M -> 3M Inspection PMS-MDS Forms.

a. Frequency of Inspections. The TYCOM or ISIC command exercising administrative control will conduct a complete inspection of each command under their cognizance as follows:

(1) Every Fleet Response Training Plan preferably within Pre-Overseas Movement 1 or Optimize Report Plan cycle.

(2) SSBNs and SSGNs will execute 3MIs within 24 months with Kings Bay crews receiving independent inspections.

(3) Forward Deployed Naval Forces will execute 3MIs every 24 months.

(4) When deemed necessary by the TYCOM, ISIC or the unit's CO.

(5) SUBFOR ships undergoing a CNO availability will have their 3MI deferred six months following sea trials.

(6) SUBFOR shore commands will execute 3MIs every 24 months.

(7) The ISIC will submit a 3MI periodicity extension request via the TYCOM 3-M REP to the TYCOM 3-M Office if a 3MI will exceed the Fleet Response Training Plan or Optimize Report Plan cycle or 24 months has elapsed since the last inspection. The TYCOM, when replying to the request for extension, will include Commander, United States Fleet Forces Command N43 or Commander Pacific Fleet N43, as applicable, as information addressees. Only the TYCOM can authorize such an extension.

b. Inspection Team Composition.

(1) Senior Member. The senior member will be a deputy from the squadron staff.

(2) Team Leader. The inspection team leader will be the TYCOM 3-M Representative who will concur with the assignment of inspection team members. The team leader will ensure inspection attributes are evaluated in a manner consistent with current guidance and directives provided by Commander Submarine Forces and provide guidance to the inspection team members to ensure a common process.

(3) Team Members. Team members will consist of squadron staff and support staff personnel who are adequately trained in the area to which they are assigned to assess. They will report findings to the team leader. PMT personnel may also report findings to the PMT Officer In Charge as they pertain to PMT data collection subsequent to PMS.

c. Method for Assignment of Numerical Evaluations. The minimum performance requirements are as identified below:

(1) Formula Acronyms:

 (a) CLER = Command Level Effectiveness Review

 (b) CTS = Command Total Score

 (c) CVF = CSMP Validity Factor

 (d) DTS = Department Total Score

 (e) MAR = Maintenance Accomplishment Rate

 (f) MDS = Maintenance Data System

 (g) MPR = MDS Performance Rate

 (h) PAR = Periodic Accomplishment Rate

 (i) PPR = PMS Performance Rate

 (j) SAR = Situational Accomplishment Rate

 (k) SEER = Scheduling and Execution Effectiveness Review

 (l) SCAR = Spot Check Accomplishment Rating

(2) CTS must 80 percent or higher.

(3) Each department is required to meet the DTS minimum of 80 percent.

(4) Any CTS or Work Center Score evaluated below 80 percent will be re-evaluated within six months of receiving the signed letter from the inspecting activity.

(5) CTS Formula:

  CTS = DTS x .8 + CLER x .2

  DTS = Work Center Score x Weight Factor

  Work Center Score (80% of CTS) = PPR x .75 + MPR x .15 +SEER x .05 +AAR x .05

PPR = MAR x .8 + SCAR x .2

MAR = PAR x .6 + SAR x .4

SCAR = (3MI Spot Check x .5) + (% of Self-Assessment Spot and Monitored Checks Completed x .5)

MPR = MDS + CVF

(6)   Ranking Standards.

(a)   Commands and WCs will be evaluated as "Above Standards" overall in 3-M if the unit's total score is 90% or higher.

(b)   Commands and WCs will be evaluated as "At Standards" overall in 3-M if the unit's total score is between 80% and 89.99%.

(c)   Commands and WCs will be evaluated as "Below Standards" overall in 3-M if the unit's total score is less than 80%.

(d)   All calculations will be rounded to two decimal places.

(7)   Table 19-5-6 will be used to determine divisional weighting factor for submarine commands. Non-submarine commands will use scheduled maintenance from the last 13 weeks to determine divisional weighting factor.

Work Center	688	21-22	23	774	SSBN	SSGN
DV01	1	1	1	1	0	1
EA01	13	13	12	13	14	13
EDC1	4	4	4	4	4	4
EE01	13	13	12	9	12	12
EM01	13	13	12	13	11	11
MA01	0	0	2	0	0	0
ME01	0	0	2	0	0	0
MH01	1	1	1	1	2	2
MN01	0	0	1	0	0	0
MV01	0	0	1	0	0	0
MV02	0	0	3	0	0	0
NE01	8	8	8	8	6	6
OC01	6	7	8	6	3	3
OC02	8	8	7	8	9	8
OC03	4	4	3	4	3	3
RC01	1	0	0	5	2	2
RL01	2	1	2	2	3	3
SS02	0	0	0	0	1	0
WF01	4	4	3	4	4	3
WF02	0	0	0	0	0	2
WM01	0	0	0	0	3	3
WI01	11	12	9	11	10	10
WK01	3	3	2	0	5	5
WK02	0	0	0	3	0	1
WQ01	8	8	7	8	8	8
Total	100	100	100	100	100	100

Table 19-5-6 - Divisional Weighting Factors

d.   Inspection Procedures. Appendix B provides a standard means for evaluating the 3-M Program aboard ship and shore commands. These procedures, centered on a set of core attributes applicable to all, are used to conduct 3-M Inspections. Inspection procedures are divided into five major areas:

(1)   Section I - Work Center and Command Effectiveness Reviews.

(a)   Scheduling and Execution Effectiveness Review.

(b)   Command Level Effectiveness Review.

(2)   Section II – Spot Check Accomplishment Rating.

(3)   Section III - Assessment of Maintenance Accomplishment Rate.

(4)   Section IV - Maintenance Data System.

(5)   Section V - 3-M Inspection Command Total Score.

e.   Inspection Reporting. Significant deficiencies and numerical assessments are reported to the assessed unit's CO, ISIC and TYCOM using the format shown in Appendix A of this chapter. Reporting may be accomplished on the entire unit or on a departmental basis.(1) All correspondence pertaining to the 3MI will be routed via the squadron commander and a copy provided to TYCOM N4 for trend analysis.

(2)   Significant deficiencies require a report of corrective actions taken by the unit to be forwarded to the TYCOM via the ISIC within 30 days following the inspection.

(3)   3-M performance graded as "Below Standards" will be re-inspected following the completion of corrective actions. Subsequent repeat "Below Standards" will include a CO summary discussing the inadequacy of applied corrective action in correcting the deficient area.

(4)   Each TYCOM will report the findings of the previous year's inspections to Commander, United States Fleet Forces Command N43 or Commander Pacific Fleet N43 (as applicable) at the end of the calendar year.

f.   Inspection Data Retention. COMSUBLANT and COMSUBPAC are to maintain an inspection data file for each unit. As each command is evaluated, the individual evaluation standards and calculated values identified will be recorded in the data file with a copy of the inspection report provided to the inspected command. Sections I through V of Appendix B provide specific criteria to be used in the assessment of each command.

APPENDIX A

FORMAT FOR REPORTING 3-M INSPECTIONS

4790
Ser
Date

From: Accomplishing Activity
To: Commanding Officer (Command Name and Hull Number (if applicable.)

Subj: REPORT OF 3-M INSPECTION OF

Ref: (a)   NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual

          (b)   COMUSFLTFORCOMINST 4790.3 - Joint Fleet Maintenance Manual, Volume VI, Chapter 19

Encl: (1) (as required)

1. Per references (a) and (b), a 3-M Inspection of (_____) was conducted during the period (Date) to (Date).

2. During this inspection, the following significant deficiencies were discovered:

    a.   (List)

Specific department and WC deficiencies are provided in enclosure(s) (1) through ( ).

3. The following overall ship or department numerical assessments are assigned:

    a.   3-M Total Score   _____

    b.   3-M Inspection   _____
                                             (Above, At or Below Standards)

Copy to:
Immediate Superior In Command (with enclosures)
Type Commander (with enclosures)

APPENDIX B
INSPECTION CRITERIA

APPENDIX B

SECTION I-A

SCHEDULING AND EXECUTION EFFECTIVENESS REVIEW (SEER)

Complete the SEER checklist below for each WC. Enter a numeric evaluation of each inspection attribute and provide amplifying information to describe the deficiencies driving point deductions on the "Remarks" page provided. Significant deficiencies will be reported via the final inspection report.

Command		Department	Division	Work Center	Date	
General Attributes					Value	Points
1.		Do MIPs and MRCs accurately reflect equipment configuration, are nonapplicable MRCs correctly lined-out and are applicable MRCs active? (May be MIP standardization violations)			10	
2.	*	Does the WC retain an auditable record of personnel PMS qualifications?			5	
3.		Are K-MRC data sheets maintained; last completed?			10	
Maintenance Requirement Card (MRC) Deck						
4.		Is the WC deck of printed MRCs, ACNs, and Preliminary MRCs complete and current?			2	
5.		Are classified MRCs complete and current?			2	
6.		Are blanks requiring Ship's Force data filled in prior to use?			3	
Chain of Command SKED Administration						
7.	.	Is the FR approved by DH? (Verify using journal tab.)			3	
Equipment Configuration						
8.	a.*	Do LGLs contain required information (e.g., equipment name, equipment location, and either an equipment serial number or unique identifier)?			3	
	b.*	Are maintenance items in SKED associated to existing equipment configuration?			3	
	c.	Are H-coded calibration items listed as individual SKED equipment maintenance items?			3	
	d.	Are calibration items associated to the correct MRC?			3	

		Situational Requirements		
9.		Are all situational events being scheduled and executed in SKED? Document omitted situational checks in Block 16.		
	a.*	All applicable Local States.	4	
	b.*	All applicable Triggers.	3	
	c.*	All Metered Events.	3	
		PMS Execution and Accountability		
10.		Are Check Note entries accurate, valid, and complete?	3	
11.		Was maintenance assigned only to qualified maintenance personnel?	4	
12.		Was currently scheduled, previously completed, and unscheduled maintenance entered in SKED? Document omitted periodicities in Block 16.	10	
13.		Is a tagout identifier recorded in "Check Notes" for maintenance actions marked as complete that required Tag-outs?	10	
14.		Have the minimum number of Spot and Monitored Checks been accomplished?	8	
15.		Is K-MRC completion rate within periodicity at 90% or above?	15	
16.		Record number of omitted checks: Periodic_____ Situational _____		
		FBR File		
17.		Are FBRs accurate and processed timely in SKED; "Action Taken" block updated by WCS?	2	
18.		Are feedback responses with an ACN processed timely in SKED: "Response" block and MRC Customization" updated by WCS?	**3**	
		Inactive Equipment Maintenance (IEM)		
19.		Is the start of an inactive period (CAT I & II) correctly annotated and approved by Department Head?	3	
20.		Are IEM requirements properly scheduled? (CAT I only)	5	

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21.		Is IEM for maintenance periods greater than 21 days approved in writing by DH?	2	
22.		Is the completion of the inactive period correctly annotated?	3	

* Electronic Versions Acceptable

Totals (Attributes evaluated as NA are not calculated)	Total Points Available: **125**	Total Points Awarded _____

☐ SAT   ☐ UNSAT

At Standard = 80 percent

(Partial Credit of attributes based upon Inspector's evaluation)

SEER REMARKS

Provide amplifying information describing the deficiencies and associated point deductions. Significant deficiencies will be reported via the final inspection report.

Attribute #	Amplifying Information

Print Name: _____ Signature: _____

Command: _____ Date: _____

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SECTION I-B

COMMAND LEVEL EFFECTIVENESS REVIEW (CLER)

Using the attributes and grading criteria described below, conduct the CLER for the ship.
Provide amplifying information for deficiencies causing point reduction on the remarks page.

Command			Date	
PMS Attributes			**Value**	**Points**
1.		Does the 3MC:		
a.		Maintain an external Change Accountability Log?	6	
b.	*	Maintain a log tracking the assignment of MRCs from split MIPs to ensure all applicable MRCs are assigned and updated with current FR?	3	
c.	*	Maintain all classified MRCs?	2	
d.	*	Maintain a current PMS (and where applicable TFR) DVD or downloaded file?	3	
e.		Maintain SKED Default Permissions, CoC and user roles per TYCOM guidance?	4	
f.	*	Have an approved master copy of 3-M PQS specifically tailored for the command?	3	
g.	*	Provide weekly status reports to the 3-M Manager?	3	
h.		Provide End of Quarter (EOQ) Summaries to the 3-M Manager and ensure the summaries are reviewed by DHs and deficiencies abated?	3	
i.		Generate ship-wide EOQ reports and forward to the ISIC by the 3rd Monday of the quarter?	4	
j.	*	Generate ship-wide post-quarter SKED reports and forward to the ISIC by the 3rd Monday of the quarter?	4	
k.		Generate and forward the ships Tailored Force Revision Data file (.tfd) to the TYCOM 3-M Rep by the 3rd Monday of the quarter?	5	
l.	*	Have an effective system in place to track, route and explain externally provided PMS changes?	3	

m.		Conduct end of quarter archives to maintain one completed quarter, one current quarter, and at least four future quarters?	2	
n.		Maintain the status of command FBRs, responses and follow up actions taken in SKED?	3	
o.		Maintain the status of command FBRs with ACNs responses and follow up actions taken in SKED? PMS documents retained until FR update?	4	
p		Capture Global Triggers and States?	15	
q.		Ensure all 3-M databases are being routinely maintained? (Use the RAF computation sheet)	8	
2.		Is a complete back up of the SKED Database Recovery Files and Maintenance Outlook Report created on removable media (DVD or CD-ROM) following completion of the FR?	8	
3.		Is there an effective system in use (Spot Check Program) for supervisory personnel to monitor PMS performance periodically and routinely?	10	
4.		Have CSMP reconciliations been conducted quarterly?	5	
5.	*	Does the command conduct quarterly SEER internal audits of all WCs? (Retain latest copies of deficiencies, corrections, and abatement for current & previous quarter)	10	
6.	*	Does the command maintain an auditable record of PMS PQS?	3	
7.	*	Does the command conduct 3-M Program training PER TYCOM, ISIC and command directives?	10	
8.		Was maintenance completed with all Safety Precautions accomplished?	10	
9.		Did the command conduct a mid-term 3-M Self-Assessment? (ISIC or command to include actions and abatements)	10	
10.		Does the command track K-MRCs and verify completion (reconciliation) with the local agency quarterly?	10	
11.		Does the CO provide a quarterly K-MRC summary report to the ISIC?	5	

* Electronic Version Acceptable

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Totals (**Attributes evaluated as NA are not calculated**)	
Total Points Available:__156_____	Total Points Awarded:_____
☐ SAT	☐ UNSAT

At Standard = 80 percent

(Partial Credit of attributes based upon Inspector's evaluation)

CLER REMARKS

Provide amplifying information describing the deficiencies and associated point
deductions. Significant deficiencies will be reported via the final inspection report.

Attribute #	Amplifying Information

Print Name: _____ Signature: _____

Command: _____ Date: _____

APPENDIX B

SECTION II-A

SPOT CHECK ACCOMPLISHMENT RATING (SCAR)

Using the basic definitions and guidelines described, determine the PMS Spot Check Accomplishment Rating (SCAR) for each WC. Enter the values determined on the SCAR Check Sheet, section II-A of this appendix. The SCAR for each WC will be made up of two parts. Fifty percent of the grade will be based on the results of the 3MI spot checks and fifty percent of the grade will be based on the percentage of completed self-assessment spot and monitored checks. At a minimum, the last completed quarter of self-assessment spot and monitored checks will be reviewed.

SCAR =

(3MI SC x .5) + (% of Self-Assessment Spot and Monitored Checks Completed x.5)

The number of Spot Checks has been established at:

Division	Number		Division	Number		Division	Number
DDS	2		DV01	2		EA01	4
EDC1	3		EE01	4		EM01	4
MA01	2		ME01	2		MH01	2
MN01	2		MV01	2		MV02	2
NE01	3		OC01	3		OC02	3
OC03	2		RC01	2		RC01(774CL)	3
RL01	2		SS02	2		WF01	2
WF02	2		WI01	4		WK01	2
WK02	3		WM01	2		WQ01	3

Specifically: Periodic and situational for all completed maintenance (including Daily, Weekly, and bi-weekly) from the last 13 weeks. If a WC did not perform any maintenance in the last 13 weeks, the SCAR portion will be NA.

1. Complete an MRC evaluation, SCAR Check Sheet, Section II-A of this appendix, for each MRC selected. Based on the results, evaluate the overall effectiveness of the accomplishment of each MR selected. Enter a numeric evaluation of each assessment attribute and provide amplifying information describing the deficiencies driving associated point deductions. Significant deficiencies will be reported via the final inspection report.

2. The SCAR Check Sheet reflects a series of questions to be asked to determine the accomplishment status of an MRC previously reported as accomplished. Although the sheet may be used as a reference for conducting a real time monitored MRC evaluation, for the purposes of conducting a 3MI, all spot checks will be conducted on accomplished (historic) MRCs.

3. Due to the nature of MRC completion, supporting programs such as Tag-Outs and HAZMAT are encountered. Care should be taken to avoid expanding the spot check to a review of the processes of those programs thereby preventing the assessor from determining the accomplishment status of the MRC under review.

4. The following is expanded guidance for completion of the SCAR Check Sheet. Best practices or other policies not supported by source documentation will not be included in evaluating compliance:

    a. (1.a). Determine if the MP is qualified to perform the maintenance task. PQS 301 is required for all MRCs but attention should also be paid to other qualifications required such as Quality Maintenance (see volume V, Part I, Chapter 3, paragraph 3.4 of this manual) or graduation from a required school such as gage calibration technician.

    b. (1.b). Determine if the correct TPMTE were used during the performance of the MRC. If the MP did not have the required TPMTE, it is unlikely that he or she would have been able to complete all the procedural steps of the MRC as required. If an item of TPMTE was required to perform a conditional step and that step was not required to be accomplished, it is not considered deficient. If the required test equipment required calibration, ensure that the calibration is within date and the equipment is of sufficient scale to accomplish the MRC.

    c. (1.c). Determine if the MP maintained the correct equipment.

    d. (1.d). Examine the MRC to determine that any locally applied changes are authorized by procedural notes, external correspondence, or allowed by reference (b).

    e. (1.e). Determine applicability of the MRC to the component that the MP signed for completion.

NOTE: **IF A PROCEDURAL STEP WAS NOT COMPLETED, THE MRC SHOULD NOT HAVE BEEN REPORTED AS COMPLETE AND THEREFORE THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.**

    f. (2.a). From a variety of potential techniques, determine if the MP performed all the required steps of the MRC. This may be accomplished via re-enactment, a discussion regarding the steps or re-performance. The inspector should come away with a clear impression that all the steps of the MRC were either fully accomplished or not.

NOTE: **IF A REQUIRED TAG-OUT WAS NOT CONDUCTED IN SUPPORT OF ACCOMPLISHING THE MRC, THE MRC SHOULD NOT HAVE BEEN CONDUCTED AND REPRESENTS A SERIOUS SAFETY VIOLATION. THEREFORE, THE ATTRIBUTE GRADE SHOULD BE ZERO AND ALL SUBSEQUENT ATTRIBUTES SHOULD ALSO BE ZERO EFFECTIVELY "FAILING" THE SPOT CHECK.**

    g. (2.b). If required by the MRC, verify that a tag-out was hung before the maintenance was performed. Ensure the isolation boundaries were appropriately identified and correctly positioned to ensure complete isolation of the maintained equipment. If no tag-out was required, write NA on the sheet.

NOTE: **FAILURE TO ADHERE TO A SAFETY PRECAUTION PROVIDED ON THE MRC CONSTITUTES A SERIOUS SAFETY VIOLATION AND THE FAILURE TO PERFORM THE MRC AS WRITTEN. THE ATTRIBUTE**

GRADE WILL BE ZERO AND ALL SUBSEQUENT ATTRIBUTES WILL ALSO BE ZERO, EFFECTIVELY "FAILING" THE SPOT CHECK.

h. (2.c). Determine compliance with all specific safety precautions listed on the MRC. If no safety requirements were invoked, write NA on the sheet.

i. (3.a). By physical examination of the maintained equipment, determine if maintenance of the nature required by the MRC had been performed. Take note of fasteners that would have had to be disturbed, dirt in filters, fresh oil, etc. to make a judgment as to whether the maintenance has been performed.

NOTE: **DUE TO THE POTENTIAL LIABILITY INCURRED BY IMPROPER USE AND DISPOSAL OF HAZMAT, SOME WCS HAVE ASSIGNED SPECIALLY TRAINED PERSONNEL TO PROVIDE HAZMAT AND DISPOSAL SERVICES FOR SURPLUS MATERIAL INSTEAD OF THE MP. THIS IS ACCEPTABLE PROVIDED THE INSPECTOR CAN DETERMINE FULL COMPLIANCE.**

j. (3.b). Determine through questioning and record verification that HAZMAT was properly used and disposed of as a means of determining whether the MRC was accomplished. Once the inspector has determined that the HAZMAT was used and disposed of correctly, this attribute is considered fulfilled. If no HAZMAT was required to be utilized, write NA on the sheet.

k. (3.c). Determine if the MP could have performed the MRC from a standpoint of being trained and proficient in the tasks called out for by the procedure.

l. (4.a). Determine if the MP filled out the 13-Week Accountability Log or annotated proper disposition of maintenance in SKED correctly for the accomplished MRC with the appropriate accomplishment date. Ensure that if a tag-out isolation was used, the tag serial number is recorded in the space allowed or as a check note in SKED. Ensure that the printed name and legal signature of the MP who performed the maintenance is recorded or, in case of group performed PMS, the MP in charge of the group.

m. (4.b). From reviewing the discussions and findings during the spot check, determine if an FBR had been submitted if required. If no FBR was required, write NA on the sheet.

n. (4.c). Determine if a material deficiency was noted during the PMS; if so, examine the CSMP to ensure the deficiency was documented. If no material deficiency was noted, write NA on the sheet. If material discrepancies are properly documented in the CSMP attribute graded as a two. Material discrepancies which are not documented in the CSMP will receive an automatic grade of zero.

5. When a Spot Check is determined to be below standards, the command undergoing inspection is likely to have numerous questions. To facilitate root cause analysis and the formulation of an effective corrective action plan, care should be taken to clearly identify factors contributing to deficiencies that led to the conclusion that the MRC was not conducted as written or not conducted at all.

APPENDIX B

SECTION II-B

SPOT CHECK ACCOMPLISHMENT RATING (SCAR) CHECK SHEET

Planned Maintenance System (PMS) 3-M Spot Check Form						
COMMAND	**DEPARTMENT**	**EQUIPMENT**	**WORK CENTER**	**DATE PERFORMED**	**MIP EVALUATED**	**MRC EVALUATED**

Maintenance Person:	**Spot Check Date:**	

NOTES:

1. If an attribute marked with an "*" is evaluated as unsatisfactory, all subsequent attributes will be graded as "0".

2. Attribute marked with a pound sign "#" – Due to the potential liability incurred by improper use and disposal of HAZMAT, some WCs have assigned specially trained personnel to provide HAZMAT and disposal services for surplus material instead of the MP. This is acceptable provided the inspector can determine full compliance.

Inspection Attribute			Value	Grade	Notes
Contact the MP assigned responsibility for the accomplishment of the MRC, have the individual deliver MRC, and determine the following by questions, personal observation, or both.					
1.	a.*	Is the MP qualified (PQS) to perform the MR?	2		
	b.	Did the MP present the correct tools, Personal Protective Equipment (Personnel Protective Equipment), parts (NSN), material (Military Specification) and calibrated test equipment?	3		
	c.	Did the MP properly identify the equipment (location, equipment validation)?	4		
	d.	Are there unauthorized changes or corrections to the MRC?	3		
	e.	Is the MRC correct for the equipment maintained?	3		
Demonstrated all steps of MR including all Notes, Warnings and Cautions according to the MRC.					
2.	a.*	Followed all steps of the MRC.	5		
	b.*	Correctly performed equipment Tag-Out.	5		
	c.*	Followed all safety precautions.	5		

		Does the equipment condition reflect accomplishment of the MRC?			
3.	a.	Is it apparent that maintenance was performed recently?	10		
	b.#	Correctly demonstrated use and disposal of Hazardous Material.	3		
	c.	Was the MRC within the capability of the assigned individual?	5		
		PMS Reporting			
4.	a.	MP reported status of MR to the WCS if Completed or Not Fully Accomplished and made appropriate updates in SKED.	2		
	b.	WC generated FBR for any problem with MRC.	2		
	c.	Material deficiencies detected by the PMS action were recorded in MDS.	2		

Attributes Evaluated as NA are not Calculated

Total Points Available:_____ Total Points Awarded:_____

Spot Check (SCAR) (Grade = Points Awarded ÷Points Available): SCAR =_____

Above Standards (90% or greater)   At Standards (80-89.99%)   Below Standards (less than 80%)

Above Standards   [ ]   At Standards   [ ]   Below Standards   [ ]

Below Standard grade requires immediate accomplishment (if XO determines re-performance is required) monitored by a Chief Petty Officer

Additional Remarks:

Print Name: _____   Signature: _____

Command: _____   Date: _____

APPENDIX B

SECTION III

MAINTENANCE ACCOMPLISHMENT RATE (MAR)

1. The Maintenance Performance formula has been redefined to more effectively capture maintenance that was not scheduled.

2. The PAR and SAR reports are automatically generated by SKED.

3. The MAR grade will be determined utilizing the formula reflected and a date range consisting of the previous 13 weeks of maintenance.

$$\textbf{MAR = (PAR.6 + SAR.4)}$$

$$\textbf{PAR = Comp} \div \textbf{(Comp + Lost + Alerts + Omitted)}$$

$$\textbf{SAR = Comp} \div \textbf{(Comp + Lost + Omitted)}$$

4. "Omitted" is defined as any maintenance action that should have been performed on any and every maintenance item and no matter the reason did not get scheduled. For example:

   a. Situational or state maintenance that did not get scheduled when the situation dictated.

   b. Improperly lined-out periodic checks.

   c. Non-accomplished IEM checks.

   d. Non-accomplished maintenance added via ACN, FBR, Preliminary PMS, etc.

APPENDIX B

SECTION IV-A1

CURRENT SHIP'S MAINTENANCE PROJECT VALIDITY FACTOR (CVF) CHECKLIST

CURRENT SHIP'S MAINTENANCE PROJECT VALIDITY FACTOR (CVF) CHECKLIST						
COMMAND:_____Date:_____Work Center:_____						
		E A 0 1				
CSMP Validity (Raw Data)	Value					
1. Number of TA-1 Work Candidates						
2. Number of TA-2 Work Candidates						
3. Number of TA-3 Work Candidates						
4. Number of TA-4 Work Candidates						
5. Total Work Candidates (Sum 1,2,3,4)						
6. Number of TA-2 Work Candidates over 180 days old						
7. Number of TA-4 Work Candidates over 180 days old						
8. Aged Work Candidates (WCO): (Sum of 6 and 7)						
9. Ship's Force Material Correction Rate: WCO/3 (Aged TA4) (#7÷3)÷#4						
10. CSMP Validity review results from CVF Sheet.						
11. Number of Ship's Force (TA-4) Work Candidates greater than seven days old requiring parts and the parts are not yet ordered.						
12. Total Work Candidate Deficiencies (WCD): #11÷#4						
13. Work Candidate Multiple Average: #9, #10						

14.	Number of material deficiencies noted on ship spot-checks not documented in CSMP or number of jobs in the CSMP that require controlled system marking (SS, FBW, SOC) that are not appropriately marked.					
15.	Spot-check Deductions #14÷#5					
16.	CSMP Validity Average #13 & #15					
		SAT/UNSAT				

APPENDIX B

SECTION IV-A2

CURRENT SHIP'S MAINTENANCE PROJECT VALIDITY FACTOR (CVF) WORK CANDIDATE WORKSHEET

CSMP VALIDITY FACTOR (CVF) WORK CANDIDATE WORKSHEET												
COMMAND:_____ DATE:_____												
DEPARTMENT:_____ WORK CENTER:_____												
JCN	CSMP Summary	MNO*	1	2	3	4	5	6	7	8	9	CVF
												100.00
CVF												

CSMP entry was reviewed with the following results: Jobs Reviewed:_____ MNO*_____		**Minus Points**
1. Was the work candidate written against the correct configuration item?	#1 Qty:	**20**
2. Problem Description and Recommended Solution inadequate. [PARTIAL CREDIT]	#2 Qty:	**20**
3. Deferral Reason correct.	#3 Qty:	**5**
4. Current Status not updated on TA-4 JSNs.	#4 Qty:	**10**
5. Write up does not reflect maintenance level assigned. [PARTIAL CREDIT]	#5 Qty:	**10**
6. Incorrect CSMP Summary.	#6 Qty:	**10**
7. Priority code incorrect. [PARTIAL CREDIT]	#7 Qty:	**5**
8. Does the Work Candidate equipment status code match problem description?	#8 Qty:	**10**
9. When required, was the correct special purpose or safety block selected?	#9 Qty:	**10**

*Enter N if parts needed but not ordered.

**NOTE: ENTER ONLY NUMERIC PORTION OF JSN AFTER ENSURING THAT
DEPARTMENT AND WC HEADER IS FILLED IN**.

1. One hundred percent of CSMP jobs for review not to exceed 25 jobs.

2. WCs (EA01, EM01, NE01, OC01, OC03, WI01, WK02, WM01 & WQ01) having
SUBSAFE, Fly-by-Wire (FBW) or Scope of Certification (SOC) controlled systems: Scan,
top-down, 100% of CSMP for any system having "SS," "FBW" & "SOC" boundaries.

APPENDIX B

SECTION IV-B

REPORTING AND AUTOMATED SHORE INTERFACE **PROCESSING CONFIDENCE FACTOR (RAF) REVIEW**

COMMAND:	DATE:		
OMMS-NG AND P-OMMS-NG SYSTEM MAINTENANCE REVIEW:			
		Points	Score
1. Is the import correction queue empty?		4	
2. Have Inactive and Archive been run in the last 15 days (30 days for P-OMMS)?		4	
3. Does the Review and Approval queue have Work Candidates older than 7 days?		10	
4. Does the 3MC have a tracking system for up-line reporting?		4	
5. Is there an effective process in place that deletes users as they transfer from the command?		4	
6. Are copies of the ".uru" and ".pts" files maintained on file for one year?		4	
CONFIGURATION MANAGEMENT			
7. Monthly follow-up action had been initiated with the Configuration Manager for "CKs" 10 awaiting response more than 180 days.		Data	
Total Points Available:		40	
Total Points Awarded:			
RAF		120	
Inspector Notes:			
Print Name: _____ Signature: _____			
Command: _____ Date: _____			

APPENDIX B

SECTION V

COMMAND TOTAL SCORE (CTS)

1. The FINAL GRADE consists of two parts and weighted as follows:

    a. Department Total Score accounts for 80% of the final grade.

    b. CLER accounts for 20% of the final grade.

2. OVERALL GRADE is computed as:

    CTS = DTS.8 + CLER.2

    DTS = Work Center Score x Weight Factor

    Work Center Score (80% of CTS) = PPR.75 + MPR.15 + SEER.05 +AAR.05

    PPR = MAR.8 + SCAR.2

    MAR = PAR.6 + SAR.4

    SCAR = (3MI Spot Check x.5) + (% of Self-Assessment Spot and Monitored Checks Completed x.5)

    A minimum grade point of 80 is required for a passing score.

APPENDIX C

FORMAT FOR REPORTING K-MRC END-OF-QUARTER RESOLUTION

4790
Ser Date

From: Commanding Officer (Commands Name and Hull Number)
To: Commander (Commands ISIC)

Subj: REPORT OF OUT OF PERIODICITY K-MRC FOR THE QUARTER ENDED (Date)

Ref: (a) NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M)
             Manual

Per reference (a), the ship reports the following K-MRCs are out of periodicity at the end of the
previous quarter and will be adjudicated as follows:

Work Center	MIP	MRC	Component	Last Accomplishment	Root Cause and Projected Accomplishment Date
EA01					
EE01					
EM01					
NE01					
OC01					
WF01					
WI01					
WQ01					

/s/

Commanding Officer

VI-19-5-C-1

APPENDIX D

DIVISION IEM PLAN FOR FLEET AND CNO AVAILABILITIES

From: Division Leading Chief Petty Officer, USS SUBMARINE (SSN XXX)
To: Department Head, USS SUBMARINE (SSN XXX)

Subj: Division Inactive Equipment Maintenance (IEM) Plan for Fleet or CNO Availability

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

Encl: (1) Inactive Equipment Maintenance Plan Matrix

1. Per reference (a), the following systems or equipment will be placed in an IEM status in SKED while the command conducts Fleet or CNO Availability.

2. Enclosure (1) lists all Systems and Equipment that this division will place in IEM for the upcoming maintenance period. This list was checked for accuracy and linked to the appropriate system or equipment restoration and key event. The IEM Plan is considered a living document; reviews will occur when key events timelines change.

3. A current copy of this plan will be provided to the command 3MC and be made available to the LMA, CTE, and Project Superintendent.

//SIGNATURE//
I.M. CHIEF

4. I concur with placing the Systems or Equipment identified in Encl (1) in an IEM Status.

// SIGNATURE//
Department Head

VI-19-5-D-1

INACTIVE EQUIPMENT MAINTENANCE PLAN MATRIX

System or Equipment	MIP	CAT 1 / 2	LU	PM	SU and OT	Due MRs	Restoration Key Event	Estimated Restoration Date
#1 Burner	5151/902	1	LU-3 LU-4	PM-1 PM-2	SU-2 SU-3 OT-1	A-8	43 Ventilation Restore	12/25/16

VOLUME VI

CHAPTER 19-6

NAVAL SURFACE FORCES

REFERENCES.

<table>
<tr><td>(a)</td><td>OPNAVINST 4790.4 - Ship's Maintenance and Material Management System Policy</td></tr>
<tr><td>(b)</td><td>NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual</td></tr>
<tr><td>(c)</td><td>COMNAVSURFPAC/COMNAVSURFLANTINST 3502.3 - Surface Force Readiness Manual</td></tr>
<tr><td>(d)</td><td>NAVEDTRA 43241 - Personnel Qualification Standard for Ship's Maintenance and Material Management (3-M) System</td></tr>
<tr><td>(e)</td><td>NAVEDTRA 43119 - Personnel Qualification Standard for Damage Control (DC) Watches</td></tr>
<tr><td>(f)</td><td>NAVEDTRA 43523 - Personnel Qualification Standard for Quality Maintenance Program</td></tr>
<tr><td>(g)</td><td>NAVSEA S0400-AD-URM-010/TUM - Tag-Out Users Manual</td></tr>
<tr><td>(h)</td><td>COMNAVSURFPAC/COMNAVSURFLANTINST 3502.7 - Surface Force Readiness and Training Manual (SFTRM)</td></tr>
</table>

19-6.1 APPLICABILITY. All content of the Commander Naval Surface Force Pacific Fleet (COMNAVSURFPAC) and Commander Naval Surface Force Atlantic Fleet (COMNAVSURFLANT) 3-M Instruction has been incorporated into this chapter to provide easier access to 3-M guidance and requirements.

19-6.2 PURPOSE. To issue Maintenance and Material Management (3-M) program requirements within COMNAVSURFPAC and COMNAVSURFLANT. The 3-M program is executed per references (a) through (h) and as clarified by this instruction. The goal is to maintain an effective unit maintenance program that will ensure a high state of material readiness.

19-6.3 ROLES AND RESPONSIBILITIES.

a.   Type Commander. The Type Commander (TYCOM) exercises primary responsibility for the effective operation and support of the 3-M System. Areas of responsibility include but are not limited to the following:

(1)   Ensure each unit has authorized programs:

(a)   Maintenance Data System (MDS) system installed.

(b)   Planned Maintenance System (PMS) Scheduling (SKED software).

(2)   Ensure ships and units are manned with Navy Enlisted Classification (NEC) qualified Maintenance and Material Management Coordinators (3MC).

(3)   Be the certifying authority of all 3-M certifications.

(4)   Oversee surface Force 3-M representatives, including periodically observing 3-M representatives conducting 3-M Virtual Assessments (VA) and training

events.

(5)   Review and approve curriculum content for Maintenance University and Surface Force Representative 3-M Training.

b.   Immediate Superior In Command. The Immediate Superior in Command (ISIC) is responsible but are not limited to reviewing the status of assigned unit's 3-M pillars from detailed reports provided from Surface Force 3-M Representatives assigned to units.

c.   Afloat Training Group. Afloat Training Group will fill the role as the Surface Force 3-M Representatives and areas of responsibility include but are not limited to the following:

(1)   Monitor the assigned unit's Maintenance Accomplishment Rate (MAR) utilizing the 3-M 365 Virtual Snap-Shot Report weekly.

(2)   Monitor the assigned unit's Spot Check Program utilizing the 3-M 365 Virtual Snap-Shot Report weekly.

(3)   Monitor the assigned unit's Current Ships Maintenance Project (CSMP) management utilizing the 3-M 365 CSMP Self-Sufficiency Report monthly at a minimum.

(4)   Monitor the assigned unit's Knowledge, Skills, and Experience (KSE) utilizing the 3-M 365 KSE Analysis Report quarterly at a minimum.

(5)   Train assigned units on conducting CSMP Reconciliation and aligning the CSMP in the MDS.

(6)   Conduct command level training for all assigned Work Center Supervisors, Leading Chief Petty Officers, Division Officers and Department Heads as required to maintain the KSE.

(7)   Conduct Command Level Effectiveness Reviews (CLERs) for all subordinate commands quarterly per 3-M 365 Surface Force Representative standard operating procedure.

(8)   Schedule and participate in Program Validations for unit's failing to meet 3-M 365 Pillar of Performance standards.

(9)   Assist assigned units with preparing to enter or exit a Chief of Naval Operations Availability as defined in Volume II, Part I, Chapter 3 of this manual.

(10)   Submit a bi-weekly report to TYCOM containing all assigned unit performance metrics.

(11)   Submit training muster sheets to TYCOM as required.

d.   Commanding Officer or Officer in Charge. The Commanding Officer (CO) or Officer In Charge (OIC) is responsible for maintaining an effective 3-M program. The CO or OIC will:

(1)   Designate a 3MC in writing.

(2)   Conduct rigorous 3-M self-assessments.

(3)   Chair the Planning Board for Maintenance (PB4M).

(4)   Ensure material deficiencies are properly documented in the CSMP and tracked to resolution.

(5)   Conduct Spot Check the Spot Checker assessments to perform a Quality Assurance evaluation of the command's Spot Check Program.

(6)   Assault Craft Unit, Beach Master Unit, Naval Beach Unit and Amphibious Construction Battalion may designate the detachment OIC to perform Department Head (DH) 3-M functions. All designations must be in writing and signed by the CO.

(7)   *Ticonderoga* and *Arleigh Burke* Class COs may designate in writing the Weapons Officer to perform DH 3-M functions for the following Work Centers (WC): CA01, CA02, CG01, CG02, CG03, CG04, CM01, CM02, and CM03 only.

(8)   Surface Force ships may have a billeted Plans and Tactics Officer. Plans and Tactics (PT) department will be an MDS only department. The PT department will NOT have responsibility for maintenance, PMS, or configuration management.

e.   Executive Officer. The Executive Officer (XO) is the command's 3-M System Manager responsible to the CO for the overall management of the 3-M Program. The XO will:

(1)   Chair quarterly 3-M System meetings with DH and the 3MC.

(2)   Brief the CO on the status of 3-M. The brief will include results from the Virtual Snap-Shot, CSMP Reconciliation, CSMP Self-Sufficiency, and KSE Reports.

(3)   Serve as the CO's principal assistant for management of all on-ship (TA 4) maintenance.

(4)   Maintain an aggressive 3-M spot check program involving all levels of the Chain of Command (CoC) from the First Class Petty Officer (FCPO) to the CO.

(5)   Conduct Spot Check the Spot Checker assessments to perform a Quality Assurance evaluation of the command's Spot Check Program.

(6)   Authorize shifts of maintenance responsibility between departments.

(7)   Maintain a command Zone Inspection program.

f.   Command Master Chief. The Command Master Chief will:

(1)   Attend the XO's quarterly 3-M System meetings providing senior enlisted feedback.

(2)   Conduct Spot Check the Spot Checker assessments to perform a Quality

Assurance evaluation of the command's Spot Check Program.

g.   Command 3-M Coordinator. The 3MC will:

(1)   Serve as the key 3-M System assistant to the XO.

(2)   Maintain current directives, policies, and instructions.

(3)   Send Virtual Snap Shot, CSMP Reconciliation, CSMP Self Sufficiency results to the Surface Force 3-M Representative. A Plan of Actions and Milestones will be submitted for all scores from Virtual Snap-Shot and CSMP Self Sufficiency in "Red" (below standards) and discrepancies identified from the CSMP Reconciliation report.

(4)   Monitor the Ship's 3-M Personnel Qualification Standards (PQS) Program and maintain an auditable record of personnel qualified in 3-M PQS. In ships R-Admin, ASM or any other installed program that tracks PQS and training, develop following training items for capture of TYCOM training as below:

(a)   3-M TYCOM Office direct.

(b)   3-M Advance SKED ANTECH.

(c)   3-M Advance MDS from COMNAVSURFPAC N41.

(d)   3-M TYCOM Representative training for Work Center Supervisor (WCS), Lead Chief Petty Officers (LCPO), DIVO and DH.

(e)   Maintain command Change Service Accountability Log (CSAL).

(f)   Develop and maintain the master split Maintenance Index Page (MIP) tracker and ensure applicable split MIPs are appropriately assigned to affected WCs.

(g)   Ensure the Technical Librarian is maintaining the Naval Sea Systems Command (NAVSEA) Advanced Technical Information Support (ATIS) and WebATIS program are operational.

(h)   Develop and administer the ship or unit's PMS Spot Check Program.

(i)   Ensure a complete back up of the SKED system is made on removable media (e.g. Digital Video Disk (DVD) or Compact Disk (CD)) following completion of the FR update and retain as part of the PMS Master File. If the 3MC is able to access locally stored report if network is down, then not required to save to external source.

(j)   Ensure command's 26-week maintenance outlook report is electronically saved on removable media (e.g. DVD or CD) after all WCs have closed out weekly from SKED. If the 3MC is able to access locally stored report if network is down, then not required to save to external source.

(k)   Notify Surface Force 3-M Representative anytime Naval Tactical Command Support System (NTCSS), Maintenance Figure of Merit, Automated Work Notification (AWN), ATIS or SKED are

unavailable.

    (l)   Maintain an effective MDS program.

    (m)   Maintain an effective PMS program.

    (n)   Request authorization to delay implementation of the Force Revision to TYCOM Force 3MC via the Surface Force 3-M Representative.

    (o)   Maintain access to the following programs:

        1   RADWEB

        2   PMS-MIS

        3   WEBATIS

        4   MCMS

        5   ATM (Ashore AWN for AWN Platforms only)

        6   COMNAVSURFPAC 3-M SharePoint

h.   Ship's Maintenance and Material Officer. The Ship's Maintenance and Material Officer (SMMO) has cognizance of the material condition of the ship. In that capacity, the SMMO will:

    (1)   Coordinate the execution of PB4M.

    (2)   Serve as the CO's principal assistant for management of all off-ship (TA 1, TA 2 and TA 3) brokered maintenance.

    (3)   Conduct monthly command CSMP to shore Validation Screening and Brokering (VSB) file reconciliation.

    (4)   Develop and provide Ship's Force work package to the executing activity and assist in coordinating Ship's Force work with the executing activity during availabilities.

    (5)   Review all work candidates for WC ES01 monthly. Ensure TA 1, 2 and 3 jobs are planned for upcoming availabilities. Ensure all TA 4 jobs are sent to correct work centers and are rewritten under the work center with reference to ES01 job. Once a new job is written to correct material deficiency, close the original ES01 job.

    (6)   Conduct the DH review for WC ES01.

    (7)   Ensure the ship's initial conditions are established for work prior to start by outside activities.

    (8)   Responsible for all PMS conducted by outside activities and documented utilizing the Personal Identification Number (PIN) feature in SKED.

    (9)   Maintain access to VSB.

i.   Training Officer

    (1)   Implement a short-range and long-range training plan per reference (a).

(2) Update the Training and Operational Readiness Information Services - Training Figure of Merit for 3-M 365. Repetitive Exercise (RE) RE-01-RE-03 report monthly and RE-04-RE-05 report quarterly.

j. Department Head. The DH is responsible to the XO for the operation and execution of the 3-M System within the department. Duties and responsibilities assigned to the DH are not to be delegated. The DH will:

(1) Designate and assign the departmental 3-M Assistant (3MA) and WCS.

(2) Ensure maintenance is prioritized to facilitate accomplishment.

(3) Review and approve all department PMS schedules and revisions.

(4) Responsible for all on-ship TA 4 Work Candidates within the department.

(5) Review maintenance action annotations.

(6) Review and acknowledge weekly check notes and PMS alerts.

(7) Take corrective action on all unsatisfactory PMS spot checks and report to the 3MC as part of weekly PMS reporting.

(8) Ensure all material deficiencies are documented and promptly reported.

(9) Review and verify the content and validity of all Feedback Reports (FBR), digitally sign FBRs within four days of origination.

(10) Authorize placement of equipment into an Inactive Equipment Maintenance (IEM) status, ensure PMS scheduling is annotated accordingly.

(11) The review and approval of all department work candidates within four days of creation; ensure completeness, accuracy and the correct assignment of priority.

(12) Conduct quarterly meetings with Division Officers (DIVO), LCPO and WCS and provide status of departmental 3-M System to the XO.

k. Departmental 3MA. The Departmental 3MA is responsible to the DH for the operation and execution of the 3-M System within the department. The departmental 3MA will:

(1) Assist the 3MC in the proper execution of the 3-M Program within the department.

(2) Serve as the department's 3-M Program technical expert and advisor.

(3) Supervise and coordinate the 3-M Self-Assessments for the department.

(4) Assist 3MC with command 3-M Training.

(5) Assist 3MC in executing quality command spot check program (spot check the spot checker).

l. Division Officer. The DIVO is responsible to the DH for the execution of maintenance within the division. The DIVO will:

(1) Ensure all PMS scheduling changes have been properly annotated and applied

prior to DH review and finalization.

(2)   Review, approve, and close out weekly schedules.

(3)   Review maintenance to ensure it is level loaded from week to week and among assigned maintenance personnel to not overload particular weeks or personnel.

(4)   Review and verify the content and validity of PMS FBRs within three days of origination.

(5)   Ensure 3-M documents generated within the division are complete, accurate and promptly submitted to the DH.

(6)   Conduct 3-M Self-Assessments as directed by the command's policy.

(7)   Provide weekly updates to the DH concerning the status of the 3-M System within the division.

(8)   Incorporate 3-M System training into the divisional training plan.

(9)   Review with LCPO all divisional work candidates and the CSMP for validity and accuracy prior to approval.

(10)   Conduct space walkthroughs of all divisional spaces at least weekly and ensure all equipment and material discrepancies discovered are documented in the CSMP.

m.   Division Leading Chief Petty Officer. The division LCPO is responsible for the proper operation of the 3-M System within their division. The division LCPOs will:

(1)   Ensure quality maintenance is performed on all equipment in their WCs and divisions per procedural documentation.

(2)   Supervise WCs in the execution of daily maintenance.

(3)   Ensure WCs are properly trained, equipped and are knowledgeable of all WC divisional equipment maintenance requirements.

(4)   Ensure PMS is properly scheduled and conducted, including all underway or special evolution situational "R" checks.

(5)   Ensure that when equipment fails PMS, due to material deficiency or equipment discrepancy(s), the failure is properly entered into the CSMP.

(6)   Implement Force Revision reviews.

(7)   Review and electronically approve non-applicable procedural steps lined-out on Maintenance Requirement Cards (MRC).

(8)   Review the PMS Scheduling Forecasting Report to ensure that all Tools, Parts, Material and Test Equipment (TPMTE) are available to support upcoming maintenance actions.

(9)   Review and verify the content and validity of PMS FBRs within two days of origination and implement response as required.

(10) Review and approve work candidates, and serve as the second point of contact on all work candidates. Brief the DIVO weekly on the status of all work candidates in the CSMP.

(11) Ensure proper testing and inspection of work done by outside activities prior to job acceptance.

(12) Review check notes for required and updated information.

(13) Write PMS alert details to include plan of action to accomplish maintenance.

(14) Conduct space walkthroughs of all divisional spaces at least weekly and ensure all equipment and material discrepancies discovered are documented in the CSMP.

(15) In the absence of the DIVO, complete weekly close out of maintenance in SKED.

n. Work Center Supervisor. The WCS must be a senior petty officer assigned to the WC and qualified per reference (d). The WCS will:

(1) Maintain a detailed working knowledge of all equipment deficiencies within the WC.

(2) Ensure WC personnel have completed 3-M PQS qualifications and training commensurate with position held.

(3) Maintain an accurate and current List Of Effective Pages (LOEP).

(4) Ensure 3-M system WC files and publications are complete, current and available to WC personnel.

(5) Maintain a 13-Week Accountability Log containing the current and previous 13-Week Log (if not using electronic accountability in SKED or when SKED is not available).

(6) Ensure equipment changes, adds, removals are reflected in the Configuration Management Database and, if not, report to the 3MC.

(7) Ensure FBRs are submitted whenever:

(a) Maintenance requirements are not fully understood.

(b) Errors are believed to exist.

(c) Entries in the TPMTE block are wrong or inadequate.

(d) Additional coverage is needed.

(e) Performance of the maintenance requirement would cause a hazardous condition to exist.

(8) Ensure prompt reporting of all material deficiencies and completed maintenance actions.

(9) Ensure the DIVO and LCPO or Lead Petty Officer (LPO) are advised of all 3-M system activity within the WC.

(10) Ensure Equipment Verification and Validations are submitted for equipment prior to CSMP entry.

(11) Ensure all SKED schedules are updated daily.

(12) Ensure WC personnel make necessary preparations and ensure presenters and spaces are ready for zone inspection.

o. Damage Control Assistant. The Damage Control Assistant will be the principal advisor to the XO for all matters pertaining to damage control maintenance including scheduling, performance and the technical aspects of planned maintenance for all damage control equipment. The Damage Control Assistant will:

(1) Provide a comprehensive weekly training and qualification program for Damage Control Petty Officers.

(2) Schedule and control the performance of planned and corrective maintenance of damage control equipment requiring outside or off hull assistance.

(3) Advise DHs of scheduled dates for maintenance actions requiring coordination between departments or throughout the ship for Damage Control systems.

(4) Coordinate PMS on damage control gear not assigned to a WC, division, or department.

p. Maintainer. Maintenance personnel will perform all PMS as assigned utilizing PMS documents in SKED and ensure check notes contain amplifying information and tag-out identifiers as required. Maintenance personnel will:

(1) Review PMS assignments, perform quality maintenance per procedural documentation, and properly document completion.

(2) Notify WCS when:

(a) MRC is not fully understood, appears to be incorrect or cannot be accomplished as written. (If a need to deviate from documented procedures is perceived, "stop." Inform the WCS, LPO and LCPO. Do not proceed until the CoC has resolved the apparent discrepancies and provided guidance.)

(b) There are issues with the TPMTE block of the MRC.

(c) The technician has doubts concerning his or her ability to perform the maintenance.

(d) Equipment deficiencies or casualties are discovered.

(e) Factors exist which would make performance of the maintenance unwise or dangerous.

(3) Initiate FBRs when discrepancies are discovered during the performance of an MRC.

19-6.4 SHIPBOARD MAINTENANCE

19-6.4.1 Preventative Maintenance System. PMS constitutes the scheduling and accomplishment of all periodic and situational maintenance conducted on shipboard equipment. All PMS is scheduled and completion reported via the SKED program.

a. Qualifications and Accountability. The key to a successful 3-M Program is having highly-trained, knowledgeable, and qualified maintenance personnel accomplishing the maintenance. All personnel must complete the corresponding Personnel Qualification Standards (PQS) for their assigned billet associated to the 3-M program per references (c), (d) and (e).

b. SKED guidance and utilization.

(1) Guidance for use of SKED is provided via the SKED users guide with help menus, and wizards associated with SKED functionality.

(2) The Navy PMS DVD or CD-ROM is used to update the command or unit's SKED PMS data. Electronic backup of the command or unit's SKED database will be used to restore SKED databases.

(3) The SKED program uses days to schedule and keep track of calendar periodicities. MRCs are displayed as out of periodicity when they fall outside the established date ranges in the SKED program. These date ranges are as reflected in Table 19-6-1 of this chapter.

19-6.4.2 SKED Program Failure And Restoration. SKED Program failure. In the event of a SKED failure, operation of PMS performance and tracking is as follows:

a. The 3MC will notify CoC and TYCOM immediately upon loss of system, or if planned outage will last longer than seven days and report status of backups.

b   The 3MC will utilize electronically saved copy of 26-week outlook report, situational requirements page, MIPs, MRCs available on Tailored Force Revision (TFR) DVD and distribute to WCs.

c. Work Center Supervisors will utilize paper 13-week accountability logs (available on FR DVD) and will manually fill out maintenance required within their WCs and sign for completed maintenance.

d. Work Center Supervisors will verify situational requirements page to ensure they do not miss scheduling situational checks.

e. Work Center Supervisors will ensure MPs annotate tag-out number in the required block. Work Center Supervisors will identify checks that have mandatory related maintenance, and ensure there is an alphanumeric code assigned to parent check and all associated related checks.

f. LCPOs will review and sign the 13-Week Accountability Log at the end of the PMS week and ensure checks added that week are hand-written into the blank accountability log.

g. DIVOs will review sheets weekly to ensure 13-week accountability logs are complete.

h   Once SKED is confirmed back in operation, the 3MC will notify all hands. In the event of a SKED restoration, operation of PMS performance and tracking is as follows:

    (1)   Each WCS will have to manually arrange SKED to match 13-week accountability logs. Maintenance personnel will use SKED PIN as applicable to annotate completion of maintenance. Check notes and alert notes will be made per standard SKED entries as directed by sub-paragraph 19-6.4.9.f of this chapter

    (2)   Once SKED has been updated to the current week, normal accounting for maintenance will resume.

    (3)   If the 3MC turned off SKED PIN feature to ease the burden of catching the system back up, then paper 13-week accountability logs will have to be maintained for 13 weeks. They can be scanned and kept on the WC's electronic folder on the LAN, Intranet.

    (4)   If the 3MC did not turn SKED PIN feature off, once SKED matches the 13-week accountability logs exactly, then the paper reports can be disposed of. The WCS or LCPO will maintain the assignment of PMS with the Maintenance Outlook Report until SKED is restored.

    (5)   Re-enable SKED PIN feature if previously turned off.

19-6.4.3 <u>Minimum Standards</u>. MRC accomplishment is critical for maintaining equipment in a ready state and achieving expected service life. The maintenance tasks directed by MRCs are the minimum standards for organizational (shipboard) preventative maintenance and therefore equipment degradation can be assumed if maintenance is deferred. The following provisions are provided to maximize on time performance of PMS and provide increased fleet latitude in maintaining equipment.

a.   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. The MRC will be accomplished in sequential order, adhering to all Warnings, Cautions and Notes. Routine sub-steps (e.g., fastener removal, steps to don and remove Personnel Protective Equipment (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.

b.   Per NAVSEA, procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified and supervised by experienced leadership to execute the maintenance consistently and expertly. 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:

    (1)   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.

(2)   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.).

(3)   Specify every possible action of the maintainer.

c.   Leadership will 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 (not necessarily step-by-step) performance.

d.   If a step is missing that is necessary to complete the task and that step is not obvious to the Maintenance Person (MP), an FBR should be submitted.

e.   MRC completion status is dependent on the accomplishment of all procedural steps on all of the equipment listed on the MRC or its accompanying Location Guide List.

f.   The performance of additional rational actions during the accomplishment of a 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).

g.   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. Substitution requirements are provided by reference (a) and other technical documents.

19-6.4.4 <u>Functional Components</u>.

a.   PMS Master File. The Master File, maintained by the ship or unit's 3MC, contains information relative to PMS requirements that are specific to equipment for which the command is responsible. The Master File provides for duplicate issue of missing MIPs and MRCs, contains supplementary information provided by NAVSEA Logistics Center (NAVSEALOGCEN) Detachments Norfolk or San Diego and serves as a repository for changes received between FR distributions, which must be retained on file until the changes are reflected in a subsequent FR.

b.   PMS Administrative Requirements. In lieu of a WC or Master File the following should be retained:

(1)   Hard copy Change Service Accountability Log: The CSAL will now shift to only 3MC managing one CSAL electronically stored on Local Area Network (LAN), Intranet or SKED help tab etc. that all hands have access to view. This will hold all command changes (Force Revision (FR) dates, Advanced Change Notice (ACN), FBRs, Significant system down time, etc.) to the 3-M Program. The WC Journal Tab in SKED houses all the changes the WC has made to their individual program (revisions, lineouts, custom notes, weekly

closeouts, alert acknowledgements, check notes, alert notes, etc.).

(2)   Service Brief: Will be electronically stored on LAN, Intranet or SKED help tab etc. that all hands have access to view.

(3)   Qualifications, Designation letters and NECs: Will be stored electronically in each WC's folder stored on LAN or Intranet in a .pdf document that can be electronically signed by required personnel (DH, DIVO, and OIC etc.).

(4)   Feedback Report Log: The FBR Log will be maintained in each WC's folder located on LAN or Intranet. This will house all external feedback responses that apply to the WC. There will also be an FBR response memo that will be saved to this folder for each FBR when the WC implements the FBR into their WC MRCs. This will also match the 3MC's CSAL. Upon FBR implementation, a custom note on the affected MRC will be created that will house the FBR number; changes directed or can paste the entire FBR response. If ACNs are applicable to an MRC that replaces the existing MRC a custom note will be made on affected MRC that states the ACN number and statement: This MRC is superseded by ACN number and can be electronically found: (list where WC electronic folder is kept). The superseded MRC will be printed only if it contains the Location Guide List, and the ACN MRC will be printed and utilized. All internal FBRs are tracked in SKED FBR Tab. Ensure these are implemented the same as external FBRs noted above.

(5)   List Of Effective Pages PMS-5: The 3MC will keep all WC LOEPs as part of the Master File. The WC's LOEP will be verified by using the SKED LOEP Manager, all listed MIPs should say "normal", if "On WC not on LOEP" or "Not on WC on LOEP" is listed, and the FBR log should be reviewed for approved FBRs that added or removed the MIP from the WC.

(6)   Maintenance Index Page: Electronically stored in SKED. Lineouts are approved when LCPO or DIVO, and DH review and approve any revisions in SKED. If the lineout approval report in SKED is ran, it will only list the person who selected "Mark Complete", not who approved the lineouts. To ensure the required approval level is identified for lineout approval, the LCPO will select "Mark Complete" on any revision. If there is a FBR that is applied to a MIP to change Situational Reference numbers, ensure that the changed Scheduling Aid (SA) code references the FBR that approved the change. This will be verified against the FBR log or SKED FBR tab. If there was an ACN that updated the MIP, then ensure the .pdf copy is saved to the WC's folder and available for all maintenance personnel to utilize.

(7)   Maintenance Requirement Card deck: This will be electronically stored in SKED PMS Documents and will be printed out of PMS Documents each time maintenance is conducted unless you have portable laptops or hand held computers that have PMS documents and is available to the command. Custom notes must be utilized for any fill in data that is required on the MRC, any FBR changes that may apply, or any information that will assist the MP in

conducting the maintenance. Custom lineouts on the MRC are also allowed when the FBR directs or the MRC states if applicable on steps or note on MRC that directs WCS to line out steps that are not applicable. MRCs with either of these changes will have the LCPO approval with name documented on the MRC.

(8)   Forecasting Report: Will be electronically sent to Supply before the start of each quarter to ensure the WC has all the proper tools, parts and Hazardous Material (HAZMAT) required. There is no need to maintain these reports. If using these reports to verify tools, parts, etc. it can be generated within SKED.

(9)   Space Inspection Sheets: Sheets are electronic and are on the FR disc if command does not have electronic version. These will be updated to reflect space requirements and discrepancies noted as described in the MRC. These will be maintained in WC folder on LAN, Intranet per the MRC prescribed timeline.

(10)   All required instructions and references (OPNAV 5100.19, NSTM 670, NSTM 300, PPE Glove matrix, PPE Eye protection matrix, respirator matrix, etc.) will be electronically stored on LAN, Intranet or SKED help tab etc. that all hands have access to view. Individual WC tech manuals and other reference material will be kept electronically in their WC folder on the LAN, Intranet or on ATIS.

(11)   HAZMAT receipts can be electronically saved from Hazardous Inventory Control Systems for Windows (HICSWIN) program if applicable. Reports can be generated from HICSWIN for any period the WC will need.

19-6.4.5 <u>3-M Coordinator.</u>

a.   3MC will create electronic folders on the LAN, Intranet for each WC and for 3MC.

b.   3-M messages and notices: These will be kept in a central location on LAN, Intranet or SKED help tab etc. that all hands have access to view. Each WC will have their own 3-M folder that will house extra applicable messages, documentations, notices and equipment advisories that applies only to their individual WC.

c.   3MC will establish an electronic CSAL and ensure everyone has access to view it. The CSAL is vital to documenting any changes that occur within the commands program. (FBR number, date of change, date when entire command has fully implemented it across the command, any ACN, any external FBR, down time of SKED or MDS, etc.).

d.   3MC will utilize SKED for tracking all internal FBRs. 3MC will utilize electronic email to route all FBRs and to ensure WCs get the FBR installed and CoC are aware

when the FBR has been implemented (means of tracking). This will be saved electronically in 3MC FBR log folder and in the WC electronic folder.

e. 3MC will keep current electronic copy of PMS-22 report, compare, and reconcile all FBRs against SKED. Any FBR over 60 days need to be verified they are still valid and not corrected by FR.

f. 3MC will ensure command spot check matrix is accessible to crew and is current and updated weekly.

g. 3MC will ensure 3-M PQS is current, tailored, electronically kept and approved by the CO.

h 3MC will provide Training Officer with a short-range and long-range training plan.

i. 3MC will ensure an electronic event listing is available and updated weekly and maintain history of 13 weeks of events.

j. 3MC will ensure all designation letters are electronically generated and signed by required official and kept in 3MC electronic folder or respective WC folder. Multiple personnel can be listed on designation letters; one designation letter per individual is not required.

k. Weekly reports are not required from WCs or divisions and will not be generated by any WC or division. WCs will be reviewed daily and closed out weekly in SKED by WC CoC. DHs will acknowledge all alerts in SKED on the day the week is closed out and review status of departmental maintenance disposition.

l. 3MC will generate weekly Virtual Snap-Shot electronically and all required files will be saved electronically to weekly folders (folder per corresponding week). This location will be listed on the Virtual Snap-Shot report.

m. 3MC will route weekly Virtual Snap-Shot electronically to CoC and Surface Force 3-M Representative and will maintain for 13 weeks.

n. Interim MRC Procedures. The ship may develop interim MRC procedures based on experience and applicable technical manuals in support of equipment or systems without PMS coverage until formal documentation is received. Before scheduling preliminary MIP requirements, the WC CoC and the DH must verify their applicability to installed equipment and approved by the CO.

o. Change Service Accountability Log. The CSAL provides a definitive record of all changes to a command's 3-M program. Whenever a change to a command's 3-M program is directed (be it from a FR, FBR, etc.), the change will be routed to the concerned WC(s) via a memorandum. Whenever such a memorandum is issued, it must be recorded in the CSAL. Once the WC reports the directed change has been completed, the 3MC will file the WC's response and annotate the CSAL that the action is complete.

    (1) The CSAL is comprised of the actual log sheet, a copy of all memos routed to the WCs and the memo from the WC's CoC to the 3MC indicating completion.

(2)   The importance of the CSAL cannot be overstated. In essence, it provides for a day-to-day, year-to-year record of changes to a command's planned maintenance program. It is also a turnover document at deployment sites, allowing a current command to quickly identify all changes from a previous command. Finally, it will be inspected during all command 3-M assessments and inspections, providing visibility as to how well a command manages 3-M from one inspection to another.

19-6.4.6 <u>Related Maintenance</u>. Related maintenance, so designated by the In Service Engineering Activity (ISEA) or Technical Warrant Holder, is determined from the MIP. The RELATED MAINT column of the MIP reflects related maintenance requirements. Related requirements are positioned on the MIP to line up directly across from the MRC to which they are related. Related maintenance requirements are also identified in the TPMTE section of the MRC under MISCELLANEOUS.

NOTE: MANDATORY RELATED REQUIREMENTS MUST BE LINKED IN SKED TO BE AUTOMATICALLY SCHEDULED.

a.   Related Maintenance Categories.

(1)   Mandatory Related. Mandatory related maintenance requirements are those maintenance actions that must be accomplished concurrently with another maintenance requirement. The mandatory relationship is indicated with the use of the # sign. If the mandatory related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity#" (e.g., M-3#). If the related maintenance resides on another MIP, it will be reflected as "MIP: periodicity#" (e.g., IC-013/033: M-4#). Mandatory related maintenance requirements are automatically scheduled by SKED.

(2)   Convenience Related. Convenience related maintenance requirements are those maintenance actions that can be accomplished concurrently with another maintenance requirement in an effort to save time (preliminary steps and tag-outs already accomplished) or for work force considerations. If the convenience related maintenance resides on the same MIP, it will be reflected in the RELATED MAINT column as "periodicity" (e.g., M-5). If the related maintenance resides on another MIP, it will be reflected as "MIP: periodicity" (e.g., EL-010/001: M-4)). In both cases, the # symbol is omitted. The WCS manually schedules convenience related requirements.

(3)   Conditional Related. Conditional related maintenance requirements are those maintenance actions that are performed when specific conditions are present or specified parameters are not met on the referencing MRC. Conditional related maintenance will appear on the MIP in the same manner as convenience related maintenance. The WCS manually schedules conditional related maintenance.

(4)   None. No related maintenance is reflected as "None" in the RELATED MAINT column.

b.   Work Center Supervisor Actions. WCS will review their schedules on a regular basis for opportunities to perform other PMS when an equipment or system has maintenance actions scheduled. Rescheduling of PMS to take advantage of other system maintenance (convenience related) is highly recommended.

(1)   If an MRC has related maintenance from another MIP, review the related MIP and MRC and determine if it requires assistance from another WC.

(2)   If the related MIP and MRC does not require assistance from another WC and is not on the lead WC LOEP, submit an FBR to have it added to the LOEP.

(3)   If the related MIP and MRC requires assistance or completion by another WC and is mandatory, convenience or conditional related then it should also be on the lead WC LOEP. If it is not on the lead WC LOEP, submit an FBR to have it added to the LOEP. If the related MRC requires technical assistance, a special NEC, or another rating that is not part of the lead WC, then the person with the technical training, special NEC or required rating should be temporarily added to the lead WC "Crew List" and assigned the related maintenance in either an assist or performance role. All WCSs involved will collaboratively plan the required maintenance and may adjust schedules based upon individual workload. When the maintenance is completed, the lead WC will mark the MRC as completed.

19-6.4.7 Inactive Equipment Maintenance.

a.   Inactive Equipment. Equipment should only be placed into IEM when in an inactive or out of commission status of seven days or longer. Inactive status is defined as tagged out or removed from service regardless of the equipment having associated Lay Up (LU), Periodic Maintenance (PM), Operational Test (OT), or Start Up (SU) maintenance checks. Equipment maintained by multiple WCs will be placed into or removed from IEM using the same date.

(1)   Status I. Equipment that will:

(a)   Remain onboard.

(b)   Is not scheduled for corrective maintenance or overhaul.

(c)   Will be inactive during extended shutdown periods and maintenance availabilities as determined by the DH. (Example: Main lube oil cooler in freshwater lay-up.)

NOTE: **PERFORM A "FRESHWATER LAY-UP" (LUBE OIL COOLER FILLED WITH FRESHWATER) IF LUBE OIL COOLING IS NOT REQUIRED FOR SEVEN DAYS OR LONGER. THE SEAWATER SIDE OF THE MAIN PROPULSION LUBE OIL COOLER SHOULD BE FILLED WITH FRESHWATER AS SOON AS POSSIBLE TO MINIMIZE MARINE GROWTH AND FOULING.**

(2)   Status II. Equipment that is inactive and:

(a)   Subject to corrective maintenance, overhaul or removal for safe

storage.

(b)   Temporarily transferred to another activity for maintenance responsibility for extended shutdown periods as determined by the DH. Example: Refrigeration compressor removed for depot level overhaul.

(c)   When system(s) components are scheduled for replacement.

b.   Implementation and Responsibility. While inactive, minimum maintenance is performed 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 or Ship's Force personnel will conduct PMS during an inactive period. MIPs in each WC 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 to follow if there is no IEM coverage on the MIP in question or provided coverage appears inadequate. The DH is responsible for determining equipment IEM status. When placing a system or equipment in IEM status, the DH 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 SU and OT checks will be completed before taking the system or equipment out of IEM in SKED. 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 or 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 or equipment into an inactive state. Additionally, certain locations require precautions and maintenance not required force-wide. The unit or ship should consider all factors that affect equipment deterioration and take necessary precautionary measures. The LCPO is responsible for identifying factors that

are inadequate and may require additional preparation and maintenance of the inactive equipment while reporting it to the DH for approval. Factors may include environmental conditions, equipment location or susceptibility to damage. For those actions that are recurring in nature, the WC should submit a FBR for possible MRC development.

c.   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. The WCS will manually add PM checks to the schedule for the period of IEM following 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 10th day. This allows the 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 or Ship's Force. LU checks will automatically be added to the schedule at the beginning of IEM by SKED and may be marked "NA" if the LU check did not support the equipment being removed from the ship or unit or "Accomplished by Higher Authority" symbol if completed by the intermediate or depot level maintenance activity. PM checks may be required to be scheduled 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 10th day. This allows the WCS scheduling flexibility within the plus side of the date range of the MRC.

19-6.4.8 Assessment Procedure MRCs. Assessment Procedure (AP) MRCs are not required to

be scheduled in SKED, but they will be maintained "active" through the FR and TFR process. Assessment personnel or Ship's Force need only print AP MRCs on an "as needed" basis for use. The record of completed AP MRCs by off-ship personnel is recorded on the work candidate and Ship's Force participation is recorded in their completion remarks of that work candidate. There is no need for recording Ship's Force participation in an assessment event on their PMS schedule within SKED. FBRs submitted requesting deletion of a MIP that only contains AP MRCs would be disapproved and returned to the originator.

19-6.4.9 <u>Scheduling</u>. PMS is a portion of the command's 3-M Program that provides, in one authoritative system, the scheduling information and technical procedures governing planned maintenance. PMS provides a simple method for scheduling and documenting the execution of planned maintenance procedures.

NOTE: **WHERE THE GOAL OF 100% ACCOMPLISHMENT CANNOT BE REACHED, THE UNIT'S COC MUST BE KEPT INFORMED OF THE CIRCUMSTANCES THAT PREVENT ACCOMPLISHMENT OF SCHEDULED MAINTENANCE.**

a. Situational maintenance scheduling will be managed utilizing the tools provided by the computer-based PMS scheduling software employed by the activity. All event driven situational requirements will be "triggered" when required and performed per reference (a).

b. A plus sign (+) on the MIP to the right or under the MRC 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.

c. The MP will be assigned prior to commencing the week and must complete the maintenance as directed. If a different person is required, the WCS will reassign the PMS accordingly.

d. Pre-Deployment Global Triggers: Forward Deployed Naval Force ships are forward and continuously deployed with no clear definition of deployment. 3MCs will trigger the Pre-Deployment global trigger after successful completion of a TYCOM Light Off Assessment. For non-Forward Deployed Naval Force, a deployment is defined as any underway greater than 90 days.

e. H-coded MRCs will be listed as individual SKED equipment maintenance items. The instrument serial number must match the Calibration Requirements List system designator (i.e. AHP-100-GA-001). All "H" coded MRCs will be considered overdue based on the due date annotated on the calibration label regardless of MRC date ranges allowed by reference (b).

f. Standard entries will be utilized for all SKED 3.2 check note and alert note under the following circumstances.

(1) SKED 3.2 check note that defers maintenance will begin with out of periodicity, non-accomplished, lost, or Not Applicable (NA) for situational checks.

(a)   Each MRC completed with tag-out flag will have check note containing the tag out serial number or no tag-out required.

(b)   List the Petty Officer In Charge when more than one MP is assigned.

(c)   Cent sign (¢) entries will begin with "Performed by" followed by detailed information of the organization completing the maintenance, Job Sequence Number (JSN), work order, or applicable documentation. Proof of completion will be maintained in the WC PMS File. The SMMO will utilize PIN in SKED 3.2 to document the completion MRs by outside activities after reviewing the check note ensuring the LCPO has annotated satisfactory completion of the installation and update. These Cent sign (¢) checks can be spot checked to ensure proof of Quality Assurance documentation and all work was completed.

(d)   Check notes for completed checks can be used to document JSN if discrepancies noted or anything the command deems appropriate.

(e)   Check note entry is required when rescheduling a PMS check to a later week outside of the week originally scheduled.

(2)   SKED 3.2 alert note is required once a check is out of periodicity and will begin with out of periodicity and include a brief plan of action when the maintenance will be accomplished. This will be updated weekly until the maintenance is accomplished. The WCS or LCPO will add a brief description for each Alert Note for non-accomplished categories:

(a)   System or Equipment Failure. System or equipment is not operational or in a reduced operational status thus preventing maintenance from being accomplished. CSMP JSN required in additional text description.

(b)   Inadequate Maintenance Procedures. MRC procedure or steps cannot be accomplished to a point where the maintenance can be considered accomplished. FBR number required in additional text description.

(c)   Ship Operational Requirements. Operations prevent the maintenance from being accomplished. Requires additional text description.

(d)   System or Equipment Operational Requirements. Required operation of system or equipment prevents maintenance from being accomplished. Requires additional text description.

(e)   Lack of Hazardous Material. Correct HAZMAT not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

(f)   Missing or Incorrect TPMTE. Correct or calibrated TPMTE was not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

(g)   Other requires additional text description.

(3)   After the FR is approved, the 3MC will conduct "quarter" archival to maintain one completed quarter, one current quarter, and at least two future quarters. This permits the ability to review past records and forecasting of upcoming maintenance actions.

19-6.4.10 Accomplishing PMS. Maintenance personnel use MRCs to accomplish assigned planned maintenance as described below.

a.   From SKED "My Task" view, review the 13-Week Report.

b.   Determine maintenance task(s) assigned.

c.   Determine when the maintenance task(s) are due.

d.   Determine what TPMTE or supplies are needed. For MRCs that contain inspections and then maintenance actions based upon the inspection findings, the TPMTE needed to perform the follow-on maintenance caused by the inspection findings does not need to be obtained prior to performing the MRC but rather, may be obtained as needed.

e.   Perform the maintenance on schedule.

f.   Notify the WCS immediately whenever one or more of the following conditions exist:

(1)   Anything on an MRC is not fully understood, appears to be incorrect or cannot be accomplished as written.

(2)   TPMTE prescribed by the MRC is not available, is not correct or questions about substitutions arise.

(3)   Any doubt exists about your capability, training, or experience to properly perform the maintenance requirement as prescribed.

(4)   Factors exist which would make performance of the maintenance requirement unwise or dangerous (e.g., disassembly of equipment needed for operations, radiation when prohibited, situations causing safety hazard to exist, etc.).

(5)   Equipment deficiencies or casualties are discovered.

(6)   Any provisions or requirements on the MRC cannot be accomplished as prescribed.

g.   If an MRC can be completed step by step as written, then the maintenance action can be signed off as completed. Report completed planned maintenance actions to the WCS, update the PMS schedule to reflect the completed maintenance, annotate and sign the 13-Week Report (if applicable). If multiple personnel are assigned to a single maintenance action, the most senior knowledgeable person assigned must update the PMS schedule, annotate, and sign the 13-Week Report or check note if using SKED 3.2 electronic accountability.

h.   If inspection criteria or a threshold inspected by the MRC does not meet the intended criteria, then those maintenance actions cannot be signed off as completed until the discrepancies are corrected. The only allowable maintenance actions that can be signed off as complete are those discrepancies where the PMS documents (MRC or

MIP) have an actual statement that directs a CSMP entry(s) to be made if there are discrepancies. The statement to inform the WCS of discrepancies, by itself, is not sufficient to sign the maintenance action as complete when discrepancies exist. Maintenance actions not fully completed will be reported to the WCS. However, if material deficiencies or casualties, which are unrelated to that MR, are discovered, the MR can be checked off (provided the MR was fully completed) but the discrepancy must be reported via the MDS.

19-6.4.11 <u>Non-Accomplished Categories</u>. The WCS or LCPO will add a brief description for each check note or alert for non-accomplished categories using subparagraphs below.

    a.   System or Equipment Failure. System or equipment is not operational or in a reduced operational status thus preventing maintenance from being accomplished. CSMP JSN required in additional text description.

    b.   Inadequate Maintenance Procedures. MRC procedure or steps cannot be accomplished to a point where the maintenance can be considered accomplished. FBR number required in additional text description.

    c.   Ship or Unit Operational Requirements. Operations prevent the maintenance from being accomplished. Requires additional text description.

    d.   System or Equipment Operational Requirements. Required operation of system or equipment prevents maintenance from being accomplished. Requires additional text description.

    e.   Lack of Hazardous Material. Correct HAZMAT not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

    f.   Missing or Incorrect TPMTE. Correct or calibrated TPMTE was not available at the time maintenance was to be performed. CSMP JSN required in additional text description.

    g.   Other requires additional text description.

19-6.4.12 <u>Accountability</u>. The credibility of the Navy PMS program relies heavily on the individual accomplishing the maintenance. The required dedication and integrity of that individual cannot be overstressed.

    a.   To maintain accountability, personnel are required to sign for the completion of assigned maintenance in an Accountability Log (if applicable). The WCS is required to review and sign the Accountability Log weekly to verify the accuracy and completeness of entries. Accountability sheets will be maintained in the WC PMS File for a period of not less than 13 weeks.

    b.   When outside activity completes PMS, the SMMO will utilize the SKED PIN feature to sign for the check. Prior to acknowledging competition, the SMMO will review all required Quality Assurance documentation and verify maintenance was complete. A check note will be entered stating, "Check performed by" followed by the activity that completed the maintenance.

    c.   Ships employing SKED 3.2 will utilize electronic accountability. When an individual updates the disposition of a check, this is the same as signing and dating a check

completion on a 13-Week Accountability Sheet. The disposition of a check will become permanent when the weekly closeout is performed. All PMS maintenance assigned to a MP is presented to them immediately upon SKED 3.2 log-on and CoC review can be tracked on the Weekly Closeout Signature Sheet. Therefore, there is no need to print and sign the 13-Week Accountability Form.

19-6.4.13 <u>Force Revision Implementation</u>. In addition to the requirements of reference (a), the following steps ensure the most efficient and thorough implementation of an FR:

    a.   MRC deletions on MIPs must be marked to indicate the reason for deletion.

        (1)   Scheduling aids. Indicate applicable scheduling aid (e.g. SA-#).

        (2)   Split MIP. Indicate responsible WC (e.g. "EA01") if the MRC is applicable to the ship, the responsible WC designation must be used versus a scheduling aid.

        (3)   "Other" to include approved responses to FBRs, ACNs (e.g. "NSWORK CENTERLTR SER 4790.005."), Message Date Time Group (e.g. "NUWORK CENTER R124535Z AUG 05."). Indicate guiding notation for deletion: "SA-1" or "Note 1", configuration change number.

    b.   The FR will be completed on or before the first Monday of the new calendar quarter. Work centers no longer need to be approved on the same day, and can be approved once Department Head has reviewed work center's revision. When operational schedules do not provide adequate time to implement the revision prior to the start of the quarter, the XO may direct an alternate implementation date with TYCOM N43 Force 3MC (via email) approval. This deferred FR will be reported to the Surface Force 3-M Representative. If two or more FRs were not available while the unit was deployed, only the most recent FR will be installed and implemented.

    c.   It is advisable to complete the FR process through DH approval before conducting quarterly audits by a Chief or more senior.

    d.   The 3MC will:

        (1)   Maintain copies of the current FR NAVY PMS DVD, LOEP for every WC, changes issued between FRs in their original format and Classified Maintenance Requirement Cards (MRC). Digital copies are allowed unless there have been changes between FRs.

        (2)   Review the Service Brief.

        (3)   Enter the FR number from the Automatic Library issued Document in the CSAL.

        (4)   Update PMS and TFR data into SKED prior to routing the change documentation to WCs.

        (5)   Route the TFR Guide to WCs for implementation.

    e.   The WCS, upon receipt of the change document from the 3MC, will:

        (1)   Apply changes to the WC PMS schedule utilizing SKED Revision Editor.

(2)   Verify all MIPs are active in SKED by reviewing LOEP report.

(3)   Verify all FBRs have been updated, notify 3MC if issues are discovered.

(4)   Route revision changes to division LCPO for review and concurrence.

f.   The LCPO will:

(1)   Solely responsible for placing Work Center in Revision Mode.

(2)   Review applied LOEP for streamline implementation.

(3)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(4)   Review lineouts on MIPs and MRCs. Electronically approve such lineouts to indicate concurrence.

(5)   Review LOEP report and any MIPs listed "Not on LOEP, in WC" or "On LOEP, not in WC" needs to verify that FBRs have been submitted and approved for addition or removal from WC LOEP.

(6)   Submit PMS schedule to DIVO for review and concurrence.

g.   The DIVO will:

(1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Review LOEP report and any MIPs listed "Not on LOEP, in WC" or "On LOEP, not in WC" needs to verify that FBRs have been submitted and approved for addition or removal from WC LOEP.

(3)   Review lineouts on MIPs and MRCs.

(4)   Submit PMS schedule to DH for review and approval.

h.   The DH will:

(1)   Verify that all PMS changes have been properly applied to the WC schedule utilizing SKED Revision Editor.

(2)   Review LOEP report and any MIPs listed "Not on LOEP, in WC" or "On LOEP, not in WC" needs to verify that FBRs have been submitted and approved for addition or removal from WC LOEP.

(3)   Review and approve WC PMS Schedules.

i.   The WCS completes the PMS Change Documentation Routing Memorandum and returns it to the 3MC.

j.   The 3MC updates the CSAL and notifies the XO that the FR has been installed after receiving all FR PMS Change Documentation Routing Memorandums from the WCs.

19-6.4.14 <u>Planned Maintenance System Feedback Reports</u>. PMS FBRs are used to identify problems with PMS documentation or to request the addition or deletion of PMS coverage. Issues with the periodicity, rates, man-hours, TPMTE and procedure may all be reported via FBR. FBR is also used to request copies of classified MRCs, request the addition or deletion of

an MRC (maintenance requirement) to or from a MIP, splitting a MIP between WCs when MIP is not reflected in perspective WC, shifting of maintenance responsibility or to request PMS coverage for newly installed systems or equipment. The following paragraphs provide amplifying information dealing with the issues that may prompt the submission of an FBR.

    a.   Periodicity. FBRs can be used to request the increase or decrease in the frequency of a maintenance action, i.e., MRC. However, the originator needs to keep in mind that the ship or unit has the prerogative to increase the frequency because of harsh weather, unusual operating conditions or corrective maintenance and associated testing requirements. (Example: "A DDG flight II submitted a FBR requesting the frequency of cleaning a specific electronics cabinet filter be increased from quarterly to monthly. Research revealed this MRC was applicable to all DDG Class units and no other ship had submitted a similar request. In fact, two other units had requested the frequency be decreased to semi-annual. It was determined that the submitting unit was in an extended upkeep period and increased foot traffic by shipyard personnel near the electronic cabinet was the most likely cause of the filter becoming clogged. The ship was authorized to increase the frequency to support the extended upkeep period and the periodicity of the MRC was not changed.)"

    b.   Rates. The Rates block on the MRC represents the developer's recommendation of the skill level (rate and rank) best suited to accomplish the maintenance action. The key word is recommendation. Qualified personnel other than the rate and ranking specified may be assigned. When a Damage Control Petty Officer, Safety Petty Officer (SPO), or NEC is assigned, substitution of other personnel is not allowed other than those exceptions as noted in reference (a). An FBR requesting the rate on a MRC be changed from an ET2 to a FT2 will not pass TYCOM screening, yet a FBR requesting the addition or deletion of personnel will generally pass to the cognizant technical activity for review.

    c.   Man-hours. The MRC reflects the average time per equipment, per person. It does not reflect or account for gathering and putting away tools, tag-outs or time removing and replacing interferences. From a maintainer's perspective, this is not an accurate representation of the time required to accomplish the maintenance action. The Future of Sailor Maintenance (FoSM) initiative will attempt to do a better job of accounting for this additional time but until then, FBRs should be submitted only when the allotted time per equipment is significantly uncoordinated with the actual time required. (Example, an MRC calls out 0.5 man-hours per equipment, but it actually takes 1.0 man-hours.)

    d.   Tools, Parts, Material and Test Equipment. TPMTE FBRs should be submitted when the procedure calls for an item not listed in the TPMTE block or when the TPMTE block lists an item not called out in the procedure.

    e.   Procedure. Procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified, and supervised by experienced leadership to execute the maintenance consistently and expertly. MRCs exist to provide standardized proven procedures, specify consistent acceptance criteria and to communicate warnings and cautions relative to the specific maintenance action. They are not intended to specify every possible action of the maintainer. There may be

instances where an obvious typographical error exists on the MRC (example: Turn switch to ON; however, switch may already be ON and the intent of the step is to turn unit off, the card should read Turn switch to OFF). This type of error should not prevent the scheduling or performance of maintenance. However, in this situation, the accomplishment of the MRC is not possible until the DIVO or LCPO reviews the error and concurs that it is safe to proceed. A temporary notation including the reason for the correction must be made on the MRC, initialed by the LCPO and an FBR submitted. Extreme caution will be taken when reviewing MRCs for this type of error. Errors must be obvious typographical errors and a PMS FBR must be submitted immediately upon discovered. Do not permanently alter the MRC until authorized by the applicable System Command (SYSCOM), ISEA or NAVSEALOGCEN Detachment. If a step is missing that is necessary to complete the task, and that step is not obvious to the MP, submit an FBR to have it added. FBRs submitted to request procedural changes should include the originators contact information and supporting rationale or justification. If, however, a step is missing that is clearly common sense (a ladder was used to install a fixture but steps were not provided to put the ladder back in stowage) an FBR only serves to overload a process that should be focused on more technical issues.

f. Duplicate MRCs. Unclassified MIPs and MRCs are now available from the DVD. Copies of classified MRCs still require an FBR request due to handling requirements.

g. Addition or Deletion of an MRC. During the life cycle of a system, equipment, or component it may become necessary to add a maintenance action to prevent an age-related functional failure or to delete a maintenance action due to inherent reliability not foreseen during maintenance development. An FBR submitted to request the addition or deletion of an MRC should include the originator's contact information and supporting rationale or justification.

h. Newly Installed or Removed Equipment. While an FBR request for PMS, coverage will provide initial maintenance coverage or deletion of MIP(s) because of equipment removal, submission of an OPNAV 4790/CK is still required to initiate the rest of the logistic support change process. This point cannot be overstressed; the submission of the FBR does not relieve the ship or unit from initiating a CK. The CK initiates supply support, Configuration Data Managers Database – Open Architecture (CDMD-OA) changes; ship selected record drawing updates and class maintenance plan updates.

i. Splitting a MIP. There are instances in which a MIP includes MRCs for more than one WC to perform. When this occurs, a decision is required by the command as to whether the MIP will be split or will be scheduled singly by one WC. Only the XO can authorize the splitting of a MIP if an MRC requires another WC to perform the entire maintenance action. If the decision is made not to split the MIP, then the MRs will be accomplished through the coordination of WCs.

(1) If the MIP is split, the following procedures apply:

(a) Submit to the XO a non-technical PMS FBR requesting approval to split the maintenance responsibility.

(b)   Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR stating, "XO concurs with splitting MIP maintenance responsibility".

(c)   For LCS class ships, LCSRON N4 (vice the unit's XO) provides concurrence with the splitting of maintenance responsibility and the FBR must be so annotated.

(2)   Upon receipt of the FBR approval:

(a)   Utilizing the SKED Revision Editor, delete the MRC from the MIP and show the reason for deletion as the designation of the WC assuming responsibility (e.g., EE01).

(b)   If the WC assuming responsibility does not reflect the MIP and maintenance items, utilize the SKED Revision Editor to add them. Schedule only the MRC(s) that pertain to the WC reflecting remaining as deleted with reason for deletion the designation of the parent (lead) WC (e.g., EA01).

(3)   If the situation occurs where a WC removes a split MIP, the following procedures apply:

(a)   Submit an XO approved, non-technical PMS FBR reporting the decision to remove the split maintenance responsibility. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with removing split MIP maintenance responsibility". For LCS class ships, LCSRON N4 (vice the unit's XO) approves the removal of splitting maintenance responsibility and the FBR must be so annotated.

(b)   Upon receipt of FBR approval, utilize the SKED Revision Editor; remove the MIP, MRC(s) and maintenance item(s) from the WC no longer involved. Ensure that the lead WC assumes full responsibility for the MIP and MRC(s) and annotates their schedules accordingly.

j.   Shift of Maintenance Responsibility. Individual ships or units sometimes consider it necessary to shift maintenance responsibility from one WC to another, to combine two or more existing WCs or to split an existing WC. These requests for changes of PMS maintenance responsibility require XO concurrence and may require final approval by the applicable TYCOM. Due to the considerable administrative burden, requests for this type of change should not be submitted to accommodate a temporary situation such as short-term assignment of two WCs to one supervisor.

(1)   The following factors should be carefully considered before submitting such requests:

(a)   Composition of WCs by size and ratings.

(b)   Scope of maintenance responsibilities.

(c)   WC workload.

(d)   Ease of administration of a WC as a cohesive maintenance group.

(e)   Importance of WC grouping to equipment maintenance responsibilities, PMS scheduling, MDS reporting and CSMP listings.

(2)   When changes in maintenance responsibility are considered necessary, the following procedures apply:

(a)   Submit a PMS FBR (non-technical). Indicate from which WC(s) equipment is to be deleted and to which it is to be transferred. Upon receipt of the XO's concurrence, the 3MC will make an annotation in the remarks block of the FBR "XO concurs with the shift of maintenance responsibility." For LCS class ships, LCSRON N4 (vice the unit's XO) provides concurrence with the shifting of maintenance responsibility and the FBR must be so annotated.

(b)   WC or equipment changes will also be reported in the Organizational Maintenance Management System (OMMS) or AWN system via a configuration change request (4790/CK) through the CSMP up-line reporting process in OMMS or through Wrong in Model-Not in Model in AWN.

(3)   Upon receipt of the FBR approval, perform the following actions:

(a)   The PMS Master File is updated to reflect deletion of the MIP from one WC and addition to the WC receiving the responsibility. The originating FBR serial number is annotated on the affected line item on the LOEP for both WCs. The PMS Master File must contain a record of deleted equipment until the change is reflected in a future FR.

(b)   Utilizing the SKED Revision Editor, load the affected MIP(s) and MRC(s) to the WC receiving maintenance responsibility. Delete the MIP(s) and MRC(s) from WC shifting responsibility.

(c)   Utilizing SKED, perform a revision to move the equipment from the original WC's current schedule to the WC receiving the maintenance responsibility. Data is exported from one and imported to the other maintaining equipment history.

k.   MRC Changes Not Requiring Feedback Reports. The only MRC modifications shipboard or unit personnel may make without submitting a PMS feedback report are as listed in subparagraphs below.

(1)   TPMTE.

(a)   Common hand tools, administrative or office supplies and basic housekeeping items may be substituted or added by the WCS. The WCS may add notes to the MRC to reflect these substitutions. In the case where specific common tools are called out by description, substitutions are not authorized. For example, substitutions such as using synthetic fiber brushes in place of animal hairbrushes or rags and

paper towels in place of lint free cloths are not allowed.

(b) Approved parts, materials and miscellaneous item substituted from the supply system, technical manual, or Military Specification (MIL-SPEC), etc., which meet or exceed the requirements may be used. Ensure that substitutions satisfy both the basic maintenance and safety requirements of the MRC. If there is any doubt, a PMS FBR should be submitted specifying substitution desired and reason.

(c) Test equipment or certified tools, which meet or exceed the Sub-Category (SCAT) code requirement, may be used.

(d) When an MRC pertains to multiple configurations of equipment and the TPMTE block contains tools, parts, test equipment and materials for each unique configuration, the TPMTE block may be tailored for the unit's specific configuration by lining out the items that do not pertain to equipment held.

1 Exception to TPMTE block change: If an item listed in the TPMTE block is not called for in the procedures block, submit an FBR explaining the circumstances.

2 Conversely, if a tool, piece of test equipment, part or material is called for in the procedure block and is not listed in the TPMTE block an FBR should be submitted.

(2) In the procedure block, WCSs may lineout the non-applicable line items (alternate procedures) that do not pertain to current equipment or configuration when the step includes the words "if applicable" or a note identifies steps to be omitted. These items must be reviewed and approved by the division LCPO. As these changes are WC and maintenance item specific, submission of an FBR is not required. If a step or steps in the procedure block have been lined out and tools, parts, materials, or test equipment in the TPMTE block pertain only to that step or steps, then they will be lined out as well with a reference to the step or steps lined out and approved by the division LCPO. Warnings, Cautions and Notes associated with the lined out step or steps will also be lined out.

l. Delivery Methods for Feedback Reports. Feedback reports will be delivered to the ship in one of two methods:

(1) Internal. Feedback reports that originate from SKED. These feedback reports will be generated, tracked, and implemented within the SKED program within time limit set from 19-6.4.14.s. of this chapter.

(2) External. These feedback reports come from NAVSEALOGCEN for all MIP holders for review and implementation. The following steps are required upon receipt of an NAVSEALOGCEN feedback report:

(a) 3MC will review the validity (MIP/MRC) to the command.

(b) If applicable, 3MC will log TFBR serial number and origination into

the Command Feedback report tracker.

    (c)   3MC will notify affected Work Center.

    (d)   Work Center will implement Feedback report as directed within time limit set from 19-6.4.14.s. of this chapter.

    (e)   Command will generate TFBR implementation memo to 3MC.

    (f)   3MC records TFBR implementation date into the command Feedback report tracker and maintains feedback report memo until the SKED database reflects the update via a Force Revision.

m.   Types of Feedback Reports. There are two types of FBRs, technical and non-technical:

    (1)   Technical. These FBRs are used to report technical discrepancies inhibiting PMS performance. Technical feedbacks normally adjudicated by an ISEA responsible for the system or equipment covered by the PMS documentation require all the supporting information the originator can provide. The originator should identify the issue, providing as much supporting technical information (Allowance Parts List (APL), Reparable Identity Code (RIC), drawing or Hierarchical Structure Code (HSC)) as available and a proposed response or solution if known. Most importantly, provide point of contact information (Name and phone number) so that the ISEA can contact the originator should they have questions. Bottom line, the FBR must be accurate and complete to "stand alone", that is, the FBR will be understood without additional explanation. The better the FBR describes the problem, the more likely the originator will receive a timely response. There are two sub-categories of technical FBRs:

        (a)   Routine. An FBR will be considered routine when it relates to the technical requirements of PMS. It is used to report technical discrepancies or request clarification of procedures.

        (b)   Urgent FBR. An FBR will be considered urgent when it relates to the technical requirements of PMS and involves safety of personnel, safety of ship or the potential for equipment damage. Urgent FBRs will be forwarded by naval message containing a PMS Feedback Serial Number, to both NAVSEALOGCEN Detachments Norfolk and San Diego, with info to the cognizant SYSCOM, TYCOM and the Naval Safety Center. The message must describe the unsafe procedure(s) or condition(s), must identify the MIP and MRC involved and reflect the serial number of the FBR generated in SKED or Planned Maintenance System-Management Information System (PMS-MIS). Once the message has been sent, include the date time group of the message in the FBR and submit.

    (2)   Non-technical. These FBRs are intended to support PMS requests that do not require technical review, including WC changes (shift of maintenance responsibility). Non-technical FBRs are submitted to request classified or

other PMS documentation, which cannot be obtained locally, or to request clarification of issues not of a technical nature.

n.   Feedback Report Submission. All SKED users will submit FBRs via SKED using the Feedback Report Wizard. Non-SKED users may submit FBRs via the PMS-MIS web site at https://pmsmis.navy.mil by selecting the Feedback Tab and Feedback Report Wizard from the drop-down tab. Non-SKED users accessing this web site 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 confirming your account and providing access to the main screen. The Anchor Desk web site can also be used to submit FBRs.

o.   Feedback Report Screening (Shipboard or Activity).

    (1)   The originator accomplishes initial screening or WCS who is responsible for ensuring all data is accurate and complete.

    (2)   The division LCPO or DIVO accomplishes the second level screening and verifies the content and validity of the FBR within 3 days of origination.

    (3)   The DH, next to screen the FBR, is responsible for verifying the content and validity of the FBR and digitally signing FBRs within 4 days of origination.

    (4)   The 3MC is responsible for screening, serializing, and forwarding FBRs within 7 days of origination. The 3MC will also:

        (a)   Maintain accountability for all PMS FBRs submitted and actions taken until updated PMS documentation is received.

        (b)   Ensure that the originator and all applicable WCs are kept apprised of action taken and ensure the originating and other applicable WCs implement the changes or corrections when received.

        (c)   3MC will maintain a PMS-MIS account.

p.   Feedback Report Screening (External to Hull or Activity). FBRs are next processed by the TYCOM. The TYCOM will verify the content and validity of the FBR and either return the document to the originator or pass it on for further processing and resolution. Naval Surface Force FBRs are reviewed following TYCOM policy.

q.   Feedback Processing Activities:

    (1)   The central control points for processing FBRs are the Planned Maintenance System Coordinating Activities (PMSCA). Depending on the type of FBR and level of technical authority necessary to answer the FBR, the PMSCA will either respond to the originator with a resolution or forward the FBR to the appropriate technical authority for action.

    (2)   ISEAs are those activities designated by NAVSEA as the technical experts for specific systems or equipment. Naval Surface Warfare Center, Philadelphia Detachment (NAVSURFWARCEN-PD) is the ISEA for the majority of non-nuclear hull, mechanical and electrical equipment installed on most ships.

ISEAs under the direction of the NAVSEA Technical Warrant Holder adjudicate the FBR request and forward the response to the PMSCAs. The PMSCA provide the final response to the originator and update the PMS database to reflect ISEA changes. PMS changes are issued with the next available FR.

r. Feedback Processing. FBRs are processed per NAVSEA policy:

(1) Urgent FBRs.

    (a) The PMSCA will provide a message response to all urgent FBRs within 1 working day of receipt. If the FBR is forwarded to a Design Activity or ISEA for resolution, then the Design Activity or ISEA will provide a message response informing the originator of specific actions or required changes because of the adjudication of the FBR within 1 working day of receipt. This message response must be addressed to the originator and distributed to all TYCOMs and units holding the affected documentation.

    (b) The PMSCA will distribute revised PMS documentation to all affected users within 30 calendar days of receipt of the FBR, via special issue or ACN.

(2) Routine FBRs.

    (a) The PMSCA will perform technical review, research, and provide a response to routine FBRs where resolution does not require technical authority action.

    (b) FBRs that the PMSCA cannot resolve will be sent to the cognizant Design Activity or ISEA. The cognizant Design Activity or ISEA will provide the response to the appropriate PMSCA describing the action taken. The PMSCA will provide the response to the originator by electronic means.

    (c) Distribution of the revised MRC to the originator and other affected users will be accomplished via ACN or the next available FR.

    (d) NAVSEA's existing policy calls for technical review activities and ISEAs to provide FBR responses in less than 21 working days from time of receipt. In addition, NAVSEA has established a goal of providing answers to FBRs in one day. While some FBRs will require extensive research and days, weeks or in some cases months to resolve, the vast majority of FBRs can and should be answered much sooner. One day may be overly optimistic, but the intent is to put the emphasis back on the timely resolution of FBRs.

    (e) If no revision to PMS documentation is required, pertinent comments will be provided in the response to the PMSCA. When not concurring with the feedback report, the rationale for the non-concurrence must be provided to the PMSCA.

NOTE: **IT IS POSSIBLE AN FBR RESPONSE MAY NOT MAKE A SPECIFIC FR BASED ON THE DATE THE RESPONSE WAS RECEIVED BY PMSCA. PROCESSING TIME AND HANDLING MAY CAUSE THE REVISED DOCUMENTATION TO MISS AN FR CUTOFF DATE. HOWEVER, SINCE ALL FRS ARE NOW RECEIVED QUARTERLY, IF A REVISION MISSES THE CURRENT FR CUTOFF WINDOW, THE REVISED DOCUMENTATION WILL BE AVAILABLE WITHIN THE NEXT THREE MONTHS.**

s. Feedback Response Implementation. Work Center Supervisors will implement responses to FBRs based on the category and content as determined by the unit's 3MC. LCPOs will verify Feedback report implementation.

(1) Urgent FBR - within 24 hours of receipt of FBR response.

(2) Urgent FBR with an ACN - within 24 hours of receipt, the ship will implement an administrative change to incorporate the new PMS documentation. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(3) Routine FBR:

(a) Technical - The response deals with content such as a revision to technical specifications, tolerances, test equipment, materials, acceptance criteria or the sequence of procedural steps. These changes need to be implemented within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window.

(b) Administrative - The response deals with issues that do not affect the technical content or procedural steps. Administrative changes might be added steps to provide a better degree of clarity, formatting revisions to tables or figures that do not change technical content, or updating of Notes, Warnings or Cautions that do not influence the performance of the MRC. These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required before the next scheduled accomplishment date of the MRC.

(4) Routine FBR with an ACN:

(a) Technical - These changes need to be implemented via an administrative change within two weeks of receipt of the FBR response or prior to the next scheduled accomplishment date should that date fall within the two-week window. These revised documents will be utilized to conduct maintenance until the revised PMS document is incorporated into the next FR.

(b) Administrative - These changes do not need to be implemented prior to receipt of the next FR. If the next FR does not reflect the revised documentation, implementation is required via an administrative

change before the next scheduled accomplishment date of the MRC.

19-6.4.15 <u>PMS Spot Check Program</u>. Each unit is required to have an aggressive spot check program involving all levels of the chain of command from the LPO to the CO. Individual Maintenance Requirement (MR) will be spot checked periodically to determine the effectiveness of PMS accomplishment and to ensure the maintenance was completely and correctly performed. All CPO and above will conduct historical or monitored maintenance spot checks. All FCPO will only conduct monitored maintenance spot checks. Work Centers will only perform one Khaki and one FCPO spot check weekly, except ER09, which will have an additional historical spot check conducted by the 3MC and Command Master Chief. Detailed spot check criteria used to evaluate the completion of the MR is located at https://flankspeed.sharepoint-mil.us/sites/CPF-CNSP-HQ/engineering/3m.

a. Types of Spot Checks. There are three types of spot checks utilized by the Surface Fleet. While the standard operating procedure is that E-7 or above personnel will conduct Historical Spot Checks and E-6 and below will conduct Monitored maintenance, it is up to the 3MC to decide how to best run their program. (Example. If a 3MC decides to do more monitored checks when coming out of the shipyard to ensure maintenance is being done correctly, that is the command's decision.) The CO and XO will perform Spot Check Program effectiveness reviews by Spot Checking the Spot Checker defined below.

(1) Historical Spot Checks. This maintenance check has been accomplished and signed for in the 13-week accountability log. The spot checker will have the maintenance person walk through the check and ensure all steps were followed as per the intent of the step. The spot checker WILL NOT utilize a "verbatim compliance" methodology. Maintenance Cards were not written to cover every possible scenario.

(2) Monitored Maintenance Spot Checks. A real time evaluation of a maintenance check. A monitored maintenance spot check will always be graded at 100% as the spot checker is using the opportunity to train the Sailor while the check is being performed.

(3) Spot Check the Spot Checker. Conducting a spot check on a maintenance (historical or monitored maintenance) action that has previously been spot-checked. The purpose is to ensure the spot check program is effective at recognizing and correcting discrepancies identified during previously conducted spot checks. The primary focus of this inspection is the person that previously conducted the spot check, but the Sailor's performance will also be evaluated. Spot Check the Spot Checker forms cannot be documented in SKED. Paper copies will be retained for 13 weeks.

b. Spot Check Program Execution. The 3MC will generate weekly PMS spot check assignment matrix for Officers, CPOs, and FCPOs using the guidance listed in Table 19-6-2 and Table 19-6-3 of this chapter for work centers with maintenance completion. The spot check assignments can be assigned so that personnel are conducting spot checks within their respective departments, divisions, or cross

departmentally. Cross-departmental spot checks are valuable in training maintenance personnel in the performance of a spot check by personnel they are not familiar with.

(1)   LCS and DDG 1000 class Spot Check Guidance. Each unit is required to have an aggressive spot check program involving all levels of the CoC from the FCPO to the CO. Individual maintenance requirements will be spot checked periodically to determine the effectiveness of PMS accomplishment and to ensure the maintenance was completely and correctly performed. All CPO and above will conduct historical or maintenance validation spot checks. All FCPO will conduct monitored maintenance spot checks. WCs will only perform one Khaki and one FCPO spot check weekly. This requirement will be based on each command's manning, at no time will Khaki or FCPOs be doubled up on weekly spot checks. If a command does not have enough Khaki or FCPOs to cover each WC weekly, then those WCs will not have a spot check for that particular week. The intent of this is to have quality spot checks being performed, not quantity. Detailed spot check criteria used to evaluate the completion of the maintenance requirement is located at: https://flankspeed.sharepoint-mil.us/sites/CPF-CNSP-HQ/engineering/3m.

Periodicity	Date Range
Daily	None
2 Days	None
3 Days	None
Weekly	None
2 Weeks	9-19 Days
3 Weeks	14-28 Days
Monthly	21-41 Days
2 Months	41-83 Days
Quarterly	61-121 Days
4 Months	83-165 Days
Semi-Annually	121-243 Days
8 Months	165-331 Days
9 Months	+ or – 90 days from Scheduled Date
Annual	+ or – 90 days from Scheduled Date
Multi-Month after Annual	+ or – 90 days from Scheduled Date

Table 19-6-1

Management Level	# of Spot Checks	Spot Check Type
CO	One	Spot Check the Spot Checker
XO	One	Spot Check the Spot Checker

*CMC/SEA	One	Spot Check the Spot Checker
	One (ER09)	Historical
*3MC	One	Historical
	One (ER09)	Historical
E-7 and Above	One	Historical
E-6	One	Monitored
*CMC/SEA and 3MC will conduct a Spot Check the Spot Checker on one of the week's Spot Checks.		

Table 19-6-2 (Surface Force Spot Checks)

Management Level	# of Spot Checks	Interval	Spot Check Type
CO	One	Bi-Weekly	Spot Check the Spot Checker
XO	One	Bi-Weekly	Spot Check the Spot Checker
CMC or SEA	One	Bi-Weekly	Spot Check the Spot Checker
3MC	One	Weekly	Spot Check the Spot Checker
E-7 and Above	One	Weekly	Historical
E-6	One	Bi-Weekly	Monitored

Table 19-6-3 (DDG 1000 and LCS Spot Checks)

(2)   Spot Check Scheduling Guidance.

(a)   Utilize the Spot Check Randomizer located in the Weekly Virtual Snap-Shot Report. Use is mandated unless Sailor or equipment is unavailable in which 3MC will select another Spot Check to be conducted.

(b)   Do not schedule spot checks in advance.

(c)   Upon completion of spot checks document checks using the spot check function in SKED.

(d)   Paper copies are not required to be retained when completed spot checks are entered in SKED 3.2 with exception of Spot Check the Spot Checker.

(e)   Spot check discrepancies will be tracked to completion.

(f)   Only the assessor is to enter the completed spot check results.

(3)   Spot Check the Spot Checker Guidance.

(a)   Spot Checks will be selected utilizing SKED, Spot Check - All Report, or the Virtual Snap-Shot Report.

(b)   3MC will collect completed spot check results and compare to previously recorded spot checks.

        (c)   Discrepancies between the spot checks will be adjudicated at the command level.

        (d)   A spot check the spot checker that results in a failed spot check not previously documented will be reported to the CO and XO as an attachment in the weekly report.

        (e)   Spot check the spot checker results cannot be entered in SKED and must be retained for a period of 13 weeks.

c.   Spot Check Randomizer. The Spot Check Randomizer is the last section of the Virtual Snap-Shot Report. It produces a list of random spot checks based upon criteria such as periodicity, troubled systems, and when the check was accomplished. The program will reduce the number of times the same maintenance check is selected. The list of spot checks is for the next week. The program will choose a single check for each work center but will not assign a spot checker. 3MC will still create a list of spot checkers and assign the work center they are to inspect. The spot checker will then conduct a spot check on the maintenance action selected by the program. The 3MC will ensure that spot checkers are inspecting checks selected by the program.

d.   Failed Spot Checks. All failed spot checks will be reported to the Executive Officer and Commanding Officer via the Virtual Snap-Shot. The 3MC will report the maintenance deficiency and corrective action needed or taken. If it was determined during the course of a spot check that the intent of the maintenance check was not achieved, the maintenance check will be rescheduled at the earliest convenience of the command.

19-6.4.16 <u>Corrective Maintenance</u>.

a.   Maintenance Management Automated Information System (MMAIS) Management. As Navy MMAIS applications (MDS, AWN, Electronic Tag Out (eTagOut) and Electronic Shift Operations Management Solution programs) evolve into a connected group of systems, criteria for the management of unit, shipboard and ashore databases and a process for submitting account requests for these MMAIS systems is hereby established.

b.   Operating Policy for Unit or Shipboard Databases afloat.

        (1)   Will be managed locally by an assigned and designated administrator.

        (2)   Account structures and role or privileges will utilize the TYCOM approved Privilege Matrix which is maintained by the TYCOM.

        (3)   Systems settings will be set to local time not Zulu time for all processing.

        (4)   No outside activity will be allowed direct access to the databases. Database copies require prior written TYCOM N43 approval.

        (5)   All work candidate, job, JSN, pre-2K to 2K review and approvals along with sending of parts requests to supply will be conducted by the ships force, no outside activities will approve work candidate, job, JSN, pre-2K to 2K or shipboard parts. No outside activity will write work candidates directly into a ships force MDS system. All outside activity reporting or finding

discrepancies will produce the required "bulkload" per this manual.

c.   Operating Policy for Unit or Shipboard Databases ashore.

    (1)   All user access levels and accounts will be tracked by the activity creating the account.

    (2)   Every TYCOM will have at a minimum a primary and secondary account manager. Account manager names will be provided to the Navy Enterprise Service Desk (NESD).

    (3)   Users with accounts missing the required forms will be deactivated until the required documentation is presented to the NESD, and the account is approved by the TYCOM.

d.   Organizational Maintenance Management System - Next Generation (OMMS-NG). Organizational Maintenance Management System - Next Generation is the shipboard program used to document and track material deficiencies in the command. Only active jobs are maintained in the database and are tracked to completion. 3MC will upline a minimum of twice a week to VSB via the RADWEB service. While the OMMS database contains all active jobs for the ship, "L" and "Z" jobs will not display in the ships database. "L" jobs are work candidates the Port Engineer wrote for work to be completed on the ship. "Z" jobs are ICMP task to be accomplished by outside activities.

    (1)   Up-line Reporting. Up-line reporting via Revised Alternative Data Flow Website (RADWEB) is required at a minimum of twice per calendar week. Platforms on any other MDS, units will verify twice a week that automatic data transfer is occurring.

    (2)   Automated Shore Interface Processing. Automated Shore Interface (ASI) download and processing is required when the ASI record count in RADWEB is 3,000 records for Guided Missile Cruiser (CG), Guided-Missile Destroyer (DDG), Mine Countermeasure Ship, Littoral Combat Ship (LCS), Amphibious Transport Dock, Dock Landing Ship, Patrol Craft (PC), or shore facilities. For Amphibious Assault Ships, Landing Helicopter Dock and Amphibious Command Ships class ASI download and processing is required when the ASI record count in RADWEB is 10,000 records. ASI download and processing for all MDS, of all available ASI records in RADWEB is required when the unit is getting underway for a period of two weeks or longer, monthly at a minimum, and as directed by the TYCOM. Ship's ASIs available in RADWEB will be downloaded and processed into the ship's MDS within seven days of ASI creation.

    (3)   Bulkloads and Database Transfer. A bulkload is a CSMP load (work candidate(s) provided as an external file to be loaded into the ship's CSMP) by the 3MC produced by any outside activity (any person not ships force, no activity will leave a list of material discrepancies or tell the ship to write the work candidate/jobs.). Bulkload files are sent to the 3MC by TYCOM N43. COMNAVSURFPAC or COMNAVSURFLANT N43 3-M is the only

authorizing activity for bulkload reviews. Commands will not transfer, copy, or allow the direct access to or copying of the MDS and or supply database by any outside activity. COMNAVSURFPAC or COMNAVSURFLANT N43 3-M will direct via written permission for database copies. Upon completion of bulkload, the command must review all work candidates to ensure the recommended solution and type availability are accurate. If not accurate, the command should assign to the appropriate TA Code (1-Depot, 2-IMA, 3-Tech Assist) and update the recommended solution.

f. Automated Work Notification - AWN is the shipboard program used to document and track material deficiencies in the command. All active jobs and jobs closed within the last year are maintained in the database and are tracked to completion. Upline in AWN are not required as the program uplines automatically.

    (1) Verifying AWN health. To ensure automatic replication from ship to shore in AWN, utilize TYCOM provided AWN health process guide. AWN health should be verified daily, a minimum of twice weekly, in the shore AWN (ATM) program.

    (2) AWN Parts Approval for LCS Units. Although parts request, queue, and approval are conducted on the ship, parts will not be ordered until the Work Candidate is approved (changed from pre 2-Kilo to 2-Kilo) in the Shore ATM Database. Once the Work Candidate is made a 2-Kilo, material requisitions can be released to R-Supply Ashore.

    (3) Automated Shore Interface Processing. Ship's ASIs available in RADWEB will be downloaded and processed into the ship's AWN and R-Supply within seven days of ASI creation. For LCS unit, ASI will be processed into the ship's AWN, shore AWN (ATM), and R-Supply within 7 days of ASI creation.

    (4) AWN Bulkload process. TYCOM N43 will load Bulkload files directly to Ashore AWN (ATM). The uploaded jobs wills replicate to the AWN database upon completion. Ship's 3MC is to monitor the AWN database to ensure the bulkloaded files are received on the ship.

f. Validation Screening and Brokering. The master CSMP database for all US Navy ships. The program utilized by Port Engineers to screen and broker or refer work as required. VSB is updated by OMMS and provides status updates to the Open Architecture and Retrieval System (OARS). All jobs TA 1 - 4 are reported to VSB although only TA 1 - 3 will be screened by the Port Engineer. The status of all jobs in VSB are annotated by the "WN Status" field.

g. Open Architecture and Retrieval System (OARS). The 3-M history file for all US Navy ships and shore commands. All jobs written by the ship or outside activity will be maintained within the OARS database from the time the command is commissioned until decommissioning. A weekly report from OARS is generated and

disbursed to ship via a SPEAR file. The SPEAR file will contain a list of all active jobs and ICMP task assigned to the unit.

19-6.4.17 Life Cycle Of A Work Candidate. A Work candidate is created either on the ship by ship's force or by an outside maintenance activity. When a job is created by a maintenance activity or inspection team, they create a list of jobs and send them to TYCOM for review. After TYCOM review, the job will be sent to the ship via bulkload to update the ship's CSMP. A ship uploads the jobs to VSB via upline where the Port Engineer will screen and broker work to the maintenance activities during availabilities as shown in Figure 19-6-1 of this chapter.

19-6.4.18 Key Component Of A Work Candidate.

a. Maintenance and Modernization Business Unit (MMBU) Code. A MMBU code (also known as Job Originator Values) is used to identify the outside activity that originated the job. It is identified by the first character in the job sequence number. For example, Job CA01-L001 has a MMBU code of "L" which identifies the Port Engineer as the originator of the job. CA01-R001 has a MMBU code of "R" which identifies an INSURV inspection as being the originator of the job. A list of all MMBU code can be found in the NAVSEALOGCEN website https://oars.nslc.navy.mil/oars/docs/mmbureferencelisting.html.

b. Type Availability Code (TA Code).

(1) TA Code 1. Depot level work candidate. When a unit receives or initiates a TA 1 job, the ship is accountable for ensuring the job is screened and brokered. The Port Engineer is responsible for the action of screening and brokering but the ship will track all TA 1 jobs to ensure they are scheduled for the next convenient availability. The status of all TA 1 jobs for the ship are identified in the Virtual Snap-Shot Report for commands visibility.

(2) TA Code 2. IMA level work. When a unit receives or initiates a TA 2 job, the ship is accountable for ensuring the job is screened and brokered. The Port Engineer is responsible for the action of screening and brokering but the ship will track all TA 2 jobs to ensure they are scheduled for the next convenient availability. The status of all TA 2 jobs for the ship are identified in the Virtual Snap-Shot Report for commands visibility.

(3) TA Code 3. Technical Assistance jobs. When a unit receives or initiates a TA 3 job, the ship is accountable for ensuring the job is screened and referred. The Port Engineer is responsible for the action of screening and referred but the ship will track all TA 3 jobs to ensure the jobs are brokered to a maintenance activity so the requested technical assistance can be provided. The status of all TA 3 jobs for the ship are identified in the Virtual Snap-Shot Report for commands visibility.

(4) TA Code 4. CSMP work notifications that are within ship's force capability to complete. A TA 4 job can originate from on the ship or an outside inspection team such as an INSURV or Total Ship's Readiness Assessment. TA 4 jobs will be sent to VSB via CSMP upline but the Port Engineer may not have visibility of the jobs. Additionally, a job may have been written by the

ship as a TA 1 - 3 and the Port Engineer may screen the job as a TA 4. This will be reflected by the SPEAR Report or during the monthly CSMP Reconciliation Process. If a job is screened as a TA 4 the ship will change the TA Code of the job to 4. If the ship still desires an outside activity to perform the work, the Port Engineer should be notified.

c. Equipment Status Code (ESC) and Equipment Operational Code (EOC). The ESC and EOC will reflect the actual condition of the equipment at the time the Work Candidate is created. The ESC from OMMS-NG units is used to compute the EOC which is a major factor in determining the mission operational capabilities of the ship.

d. Safety Code. A safety Code will be added to all CSMP work candidates. If the job has no effect on the safety to personnel and/or equipment, a Safety Code of "0" will be utilized. The following safety codes are authorized for use:

(1) "X". Enter an "X" or applicable safety code if the maintenance action describes a problem or condition which has caused, or has the potential to cause serious injury to personnel or material. A brief explanation must be included in the Remarks/Description field (Block 35). 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 SYSTEM WHEN COMPRESSOR OPERATED UNDER LOAD. FIRE BADLY BURNED VALVE AHP-287, REQUIRING REPLACEMENT."

(2) "1". Critical safety or health deficiency. Correct Immediately.

(3) "2". Serious Safety or Health deficiency. Suspension of Equipment, System or Space use is required.

(4) "3". Moderate Safety or health deficiency. Waiver of Equipment, System or Space use is granted pending correction of the item.

(5) "4". Minor safety or health deficiency.

(6) "5". Negligible safety or health deficiency.

(7) "0". Maintenance action is not safety related.

e. Block 10. TYCOM directs units to utilize block 10 as an attribute for jobs that have one or more of the characteristics below. If a corrosion or environmental job is found during a zone inspection, the corrosion or environmental status takes precedence.

(1) "C". All Corrosion jobs will be annotated with a "C" in Block 10.

(2) "E". All jobs having an environmental impact will have a "E" in block 10.

(3) "Z". All jobs discovered during Zone Inspection will annotated with a "Z" in block 10.

f.   Availability ID Code. A four-digit Alpha numeric code used to identify the availability a particular job has been assigned to. If the Availability ID Code is blank, it means the job has not yet been screened to an availability.

19-6.4.19 NTCSS Failure And Recovery.

a.   NTCSS Failure. Report failure to Surface Force 3-M Representative and TYCOM 3MC.

b.   NTCSS Recovery. Conduct recovery process per NIWC directive and guidance.

c.   All ASIs and TYCOM bulkloads received during the outage will be installed per emailed files from TYCOM 3-M. If bulkloads cover a Total Ship's Readiness Assessment event, those must be loaded by daily sequence files.

19-6.4.20 Equipment Validations. The correct equipment configuration is the basis for all maintenance and supply support programs. Ship's Force is in the best position to identify and make corrections to inaccuracies in equipment records when compared to the actual installed equipment.

a.   Each WC will perform equipment validations per the following priority and guidance. Corrective Maintenance. Prior to writing a work candidate, WCS will verify when the equipment was last validated. If not validated in the past 36 months, MP will validate the equipment record using validation aid provided by WCS. Ships that are Pre-commission or in Service Life Extension Program will validate all equipment onboard to establish correct configuration until sail away for new construction or upon completion of Service Life Extension Program.

b.   Shipboard personnel will conduct validations by printing a hard copy validation aid from the installed MDS system unless full electronic devices are available. Validation aids contain information about the equipment including the WC owning the equipment for maintenance purposes, location, serial number, or Positional Reference Identification number. In addition, APL header data is included. These copies, if required, will be kept for 13 weeks or until electronic MDS system is verified correct.

c.   Paperless Equipment Validation process.

(1)   WCSs will print Equipment Validation Aid from OMMS-NG. (If command has portable laptops or hand-held computers then this can be disregarded.)

(2)   The MP will utilize the Equipment Validation Aid (if applicable) and conduct sight validation.

(a)   MP will locate equipment and verify APL Header data and Component Characteristics information (RIC information located on the left-hand side of validation aid). Any disparity will require a change in configuration request or Wrong in Model-Not in Model request to add the correct APL for equipment. If unable to verify due to missing label plate information, inaccessible, lagged over etc. equipment validation code will be sight validated without RIC and select correct reason why. If APL or characteristic data is correct, the equipment

record will be sight validated with RIC.

    (b)   MP will verify serial number is correct or annotate discrepancies. If serial number is not available, then utilize Positional Reference Identification.

    (c)   MP will verify that the correct WC is listed, annotate discrepancies.

    (d)   MP will verify the equipment is correctly associated to the correct PMS and the MIP and all associated MRCs will be annotated.

    (e)   MP will sign and date validation aid. (If using portable laptop or hand-held computer, disregard.)

    (f)   MP will return Equipment Validation Aid to WCS (if applicable). MP or WCS (if using portable laptop or hand-held computer MP will update the record) can update configuration record notes section to ensure all annotations on the validation aid are transcribed over to the MDS record, along with MP name who conducted sight verification and the date in which the sight validation was conducted. PMS MIP and all associated MRCs will be annotated in the notes section of record as well. If PMS is required but not assigned to unit, then submit an FBR requesting additional coverage and document the FBR number in the notes section of the record. If no PMS is required, annotate No Maintenance Required in the notes section of the record.

(3)   The WCS will take the validation aid (if applicable) and ensure all information on validation aid is entered correctly in the notes section of the configuration record. (If portable laptop or hand-held computers utilized, the WCS will verify record).

(4)   CoC will review and approve all equipment configuration record changes.

(5)   The 3MC will be able to view all completed validations from the MDS via reports or list function in the applicable MDS.
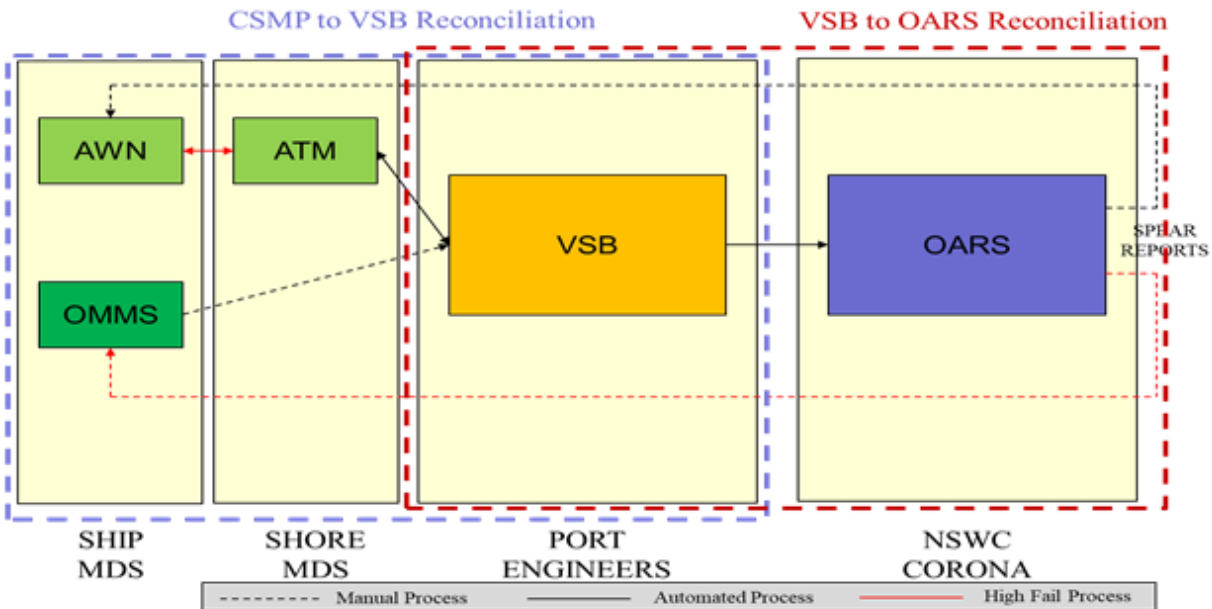
Figure 19-6-1

19-6.5 PLANNING BOARD FOR MAINTENANCE

19-6.5.1 PB4M Meeting. Each unit will have a formally structured PB4M which should meet twice per month at a minimum. This forum provides a review of open Casualty Reports, current planned off-ship and organizational maintenance, CSMP quality and accuracy, future maintenance and modernization planning, and fiscal concerns. The objective of PB4M is to ensure clarity of intent for both the ship's efforts and the shore infrastructure with respect to total ship maintenance, operational schedules, and other concerns affecting ship material readiness. The PB4M must include the CO (who will chair the meeting), XO, 3MC, all DH, SMMO, Port Engineer (PE), and additional personnel as desired (e.g., TYCOM Rep).

19-6.5.2 PE Responsibilities. Quarterly the PE will assist the ship's CO in conducting the PB4M meetings, including agenda development. The SMMO will prepare the ship input to the PB4M agenda in support of the PE to include COMNAVSURFOR reconciliation tool and self-Sufficiency report results.

19-6.5.3 PB4M Timing, Periodicity, And Agenda. Flexible to support the priorities of the individual ship and meet the unique maintenance requirements of each phase of the TYCOM Operational Fleet Response Plan. However, the Maintenance Team will have reviewed the CSMP in detail prior to PB4M, then discuss the CSMP during routine PB4Ms and prior to every maintenance availability.

19-6.6 3M 365 CONTINUOUS MONITORING

19-6.6.1 Pillars Of Performance. There are four Pillars of Performance within the 3-M program. While the pillars may affect one another, each pillar must be evaluated independently. For units with multiple crews, all 3-M 365 Pillars of Performance will be measured by hull.

   a.   Maintenance Accomplishment Rate (MAR). The Maintenance Accomplishment Rate is the amount of the scheduled or unscheduled maintenance that was accomplished.

Scheduled maintenance is performed on a periodic basis while situational maintenance is performed based upon an event such as those identified in the Major Events Listing or when required while conducting a periodic check.

b. Spot Check Program. The Spot Check Program is the Quality Assurance program for the maintenance conducted at subordinate commands. The purpose is to ensure the right maintenance is conducted on the right equipment safely and effectively.

c. Consolidated Ship's Maintenance Program. The CSMP program is the Navy's process of documenting discrepancies to spaces and equipment. The program entails Equipment configuration, discrepancy identification, screening or brokering work, and recording when deficiencies have been corrected.

d. Knowledge, Skills, and Experience. The KSE model is a way to gauge the knowledge, skills, and experience of the crew members that make up a work center, department, or command. This model creates a unit of measurement to ensure personnel have both the training and qualifications to execute the assigned duties. Additionally, the performance portion of the model identifies the "end result" of the KSE model. Although a Sailor may be trained and qualified, an evaluation of 3-M programs and activities will measure how well the responsibilities are executed. For units with multiple crews, a specific Multi-Crew KSE will be utilized. The multi-Crew KSE form will be identical to the single crew KSE except each 3-M position will have two names.

19-6.6.2 <u>Periodic Reports</u>.

a. Virtual Snap-Shot Report

(1) Overview. The Virtual Snap-Shot Report is a CNSF produced excel workbook that creates a 20-page graphical representation for the health of the MAR and Spot Check program pillars of performance. The report uses a drill down method to identify strengths and weaknesses with the two pillars.

(2) Periodicity. This report is to be conducted weekly by all commands.

(3) Required Documents.

(a) PMS Analysis Spreadsheet. The PMS Analysis Spreadsheet is an excel workbook that contains a list of all periodic checks, situational checks, and alerts the command has recorded in SKED for the past quarter. The report is generated from the SKED Admin tab. The period of report will be period of 13 weeks, beginning on a Monday and ending on a Sunday.

(b) Spot Check - All Report. The Spot Check - All Report from sked contains a list of all spot checks conducted during the last quarter with the associated grades for each of the spot checks. The report is generated from the Reports tab. The period of report will be period of 13 weeks, beginning on a Monday and ending on a Sunday.

(4) Virtual Snap-Shot Report Breakdown

(a) Cover Sheet. The cover sheet automatically fills in the ship's name

and date. The user will enter the following information for the command's 3-M Program:

1   FR#. Enter the current Force Revision the SKED implemented at the commands. (Ex. 4-21, 1-22, 2-22)

2   3-M Cert Date. Enter the date for the last 3-M certification event. If the certification date is not known, contact your Fleet's Afloat Training Group unit to provide.

3   CSMP Reconciliation Date. Enter the date of your last CSMP Reconciliation Report.

4   Number of Reconciliation Discrepancies. The total number of discrepancies identified during the last CSMP Reconciliation.

5   MAR Pillar. An automatically populated block that records the Maintenance Accomplishment Rate for the command.

6   Spot Check Pillar. An automatically populated block that records the Spot Check Accomplishment Rate for the command.

7   CSMP Pillar. A manually populated block to record the CSMP Management Score for the command. The CSMP Management Score can be found on the cover page of the CSMP Self-Sufficiency Report.

8   KSE. A Manually populated block to record the Knowledge, Skills, and Experience Score located on the Dashboard of the KSE Tool. This block is only applicable for commands that have transitioned from legacy 3-M Certification criteria to the 3-M 365 Continuously Monitored and Continuously Certified program.

9   Attachments. There are two mandatory attachments that must be submitted with the Virtual Snap-Shot Report:

      a   IEM Details Report

      b   Additional Attachments. Contains three empty spaces for voluntary attachments.

10   Acknowledgment blocks. Contains a place for the CO and XO to initial stating they have received the document and provides an area for comments if desired.

b.   PMS Performance Rate (PPR). The PPR page provides an overview of both the command's MAR and Spot Check Average to create a PPR for the command and each of the departments within.

c.   Maintenance Accomplishment Summary. The Maintenance Accomplishment Summary provides a three-page executive level evaluation of the MAR for the command. The major sections of the report as follows:

(1)   Maintenance Accomplishment by Week Graph. A graphical representation of the MAR for the last 13 weeks. The graph provides a trend analysis for the command's maintenance accomplishment. The Fleet requirement of 80% is identified by a red dotted line on the graph.

(2)   Departments for the Last Quarter. Each department at the command has the maintenance accomplishment number identified. The following metrics are used for evaluation:

   (a)   # COMPL. The number of checks the Department has completed within the last 13 weeks.

   (b)   # ALERTS. The number of alerts represents the number of checks that were rescheduled due to non-accomplishment. Each alert signifies one check that was not accomplished.

   (c)   # LOST. Checks that were scheduled and lost due to the inability to reschedule. Daily checks, or situationally required checks are unable to be rescheduled.

   (d)   # NA. The number of checks that were scheduled and marked as Not Applicable. While NA checks do not affect the commands 3-M score, caution should be taken to ensure there actually were not applicable and not maintenance that should have been accomplished.

   (e)   TOTAL # CHKS. This number is the sum of all checks completed, lost, and alerted during the 13-week period.

   (f)   PAR%. The PAR Score is the Periodic Accomplishment Rate. The PAR Score represents the amount of periodically scheduled maintenance that was accomplished.

   (g)   SAR%. The SAR Score is the Situational Accomplishment Rate. The PAR Score represents the amount of situationally scheduled maintenance that was accomplished.

   (h)   WEIGHT%. The portion of overall command maintenance accomplished within a given Department. This weight is also used to determine the effect on the command MAR.

   (i)   MAR%. The departments Maintenance Accomplishment Rate for the last 13 weeks.

(3)   Work Centers for the Last Quarter. This section is identical to the department section except data is for a specific Work Center over the last 13 weeks.

(4)   Alerts Report. A two-page section that graphically displays the command's alerts over the last 13 weeks. It is important to understand that a check will not start alerting until the check is beyond its maximum scheduling range. For example, an A-1 check will not alert as soon as the check is due. The check can still be moved out 6 months. After 18 months the check will start alerting. The following sections are used to evaluate the command's alerts:

(a)   Alerts by Week. A graphical representation for the number of alerts within the command over the last 13 weeks. This graph is used for trend analysis.

(b)   Number of alerts per Work Center. This is the number of alerts by work center for the previous week only. If the cell next to the work center is blank, it means that work center had no alerts for the previous week. If the cell next to the work center has a number and another number in parenthesis, than the first number is the number of alerts for the previous week and the number in parenthesis represents the number of alerts that have been out of periodicity for 13 weeks in a row. Adding up the number of alerts for each of the work centers will equal the number of alerts for the last week as identified in the alerts by week graph.

(c)   Top 50 longest running alerts. This a list of alerts at the command that have been out of periodicity the longest. This may not be all of the alerts. Each alert has the following information:

1   # weeks alerted. This is the number of weeks in a row that the check has been out of periodicity. A 13 in the cell does not mean that the check has only been alerting for 13 weeks. Because the report only utilizes 13 weeks of data this is the maximum number that can be displayed.

2   WC. The Work Center that has responsibility for the maintenance check.

3   MIP. The Maintenance Index Page of the Check that is out of periodicity.

4   Periodicity. The periodicity of the check as identified by the maintenance card.

5   Equipment name. The equipment name as listed in the SKED equipment file. If equipment in SKED is properly associated to the CDMD-OA file, the equipment name will match between the two.

d.   Lost Checks Report. A two-page section that graphically displays the command's lost checks over the last 13 weeks. The following sections are used to evaluate the command's lost checks:

(1)   Lost Checks by Week. A graph displaying the number of lost checks per week for the last 13 weeks. This graph is utilized for trend analysis purposes.

(2)   Lost Checks by Work Center. The number of lost checks by work center for the last 13 weeks. This data enables commands to identify which work centers are not able to complete daily and situational maintenance checks.

(3)   Top 50 Equipment items with the most lost checks. This is a list of the top 50 lost checks based upon the equipment and work center. Some equipment has

more than one daily check or situational check associated to it. Below is a description of what the list provides:

   (a)   WC. The work center that owns the piece of equipment that has lost checks associated to it.

   (b)   # times lost. The number of daily or situational checks that have been lost for the piece of equipment.

   (c)   Equipment. This is the equipment name as identified by the SKED equipment file. If the equipment is properly associated, the equipment name will be the same as the CDMD-OA database.

(4)   NA Checks Report. A two-page section that graphically displays the command's Not Applicable checks over the last 13 weeks. Although NA checks are not counted against the command's Maintenance Accomplishment Rate, the command should be aware of the checks marked NA as it could indicate maintenance that should have been accomplished and was not. The following sections are used to evaluate the command's Not Applicable checks:

   (a)   NA Checks by Week. A graph displaying the number of checks marked as not applicable over the last 13 weeks. This graph is used to show trend analysis for the command.

   (b)   NA Checks by Work Center. The number of checks marked NA by work center over the last 13 weeks.

(5)   Top 50 Equipment items with the most NA checks. This is a list of the top 50 NA checks based upon the equipment and work center. Below is a description of what the list provides:

   (a)   WC. The work center that owns the piece of equipment that has NA checks associated to it.

   (b)   # times NA. The number of checks that have been marked as Not Applicable for the piece of equipment.

   (c)   Equipment. This is the equipment name as identified by the SKED equipment file. If the equipment is properly associated, the equipment name will be the same as the CDMD-OA database.

e.   Spot Check Analysis Report. A summary of the Spot Check Program health via actionable metrics. Below is a description for each section of the report.

(1)   Number of Spot Checks per Week. A graph that displays the number of Spot Checks conducted at the command over the last 13 weeks. The number includes both historical Spot Checks and Monitored Maintenance Spot Checks.

(2)   Department Spot Check Program Health. A list of each department and their respective Spot Check metrics. The fields are listed below:

   (a)   Department. The Department Name.

(b)   # Spot Checks. The number of Spot Checks conducted within a given department for the last 13 weeks. This is a rollup metric for each of the work centers within a department.

(c)   # Fail. The number of spot checks that were marked as failures in SKED in the last 13 weeks.

(d)   Pass %. The percentage of Spot Checks that passed within a department. While commands may naturally desire a high pass percentage, a very high score may indicate Spot Checkers are not utilizing a critical eye.

(e)   Weight %. Weighting is used to calculate the weight of a given department score on the commands overall Spot Check Average. Weighting is based upon the amount of spot checks conducted in that department.

(f)   AVG Score %. The average spot check score achieved during the last 13 weeks.

(3)   Work Center Spot Check Program Health. A list of each Work Center and their respective Spot Check metrics. The fields are listed below:

(a)   Work Center. The Work Canter name.

(b)   # Spot Checks. The number of Spot Checks conducted within a given Work Center for the last 13 weeks.

(c)   # Fail. The number of spot checks that were marked as failures in SKED in the last 13 weeks.

(d)   Pass %. The percentage of Spot Checks that passed within a Work Center.

(e)   Weight %. Weighting is used to calculate the weight of a given Work Center score on the commands overall Spot Check Average. Weighting is based upon the amount of spot checks conducted in that Work Center.

(f)   AVG Score %. The average spot check score achieved during the last 13 weeks.

(4)   Top 10 Spot Checks Conducted. A list of the maintenance checks that were spot checked the most in the last 13 weeks. The "# of SCs" block indicates the number of times a spot check was completed. Line items highlighted in green indicate a troubled system check as specified by TYCOM. These are checks mostly identified as leading to INSURV inspection discrepancies.

(5)   Toughest Spot Checkers. This list contains the names of the 10 personnel that have failed the most spot checks. The list will only contain the names of Spot Checkers that have conducted more than the average number of spot checks for the command and have failed at least one spot check.

(6)   The 100% Club. A list of Spot Checkers that have conducted the over the

average number of spot checks and have found zero discrepancies. While grading one or more spot checks at 100% may be legitimate, this list may indicate personnel that need to have a more critical eye during spot checks.

(7) Partial Spot Checkers. A list of personnel that have conducted one or more spot checks with a partial grade. CNSF does not authorize partial grading during spot checks. Each attribute on the Spot Check form is an all or nothing score. For Example, an attribute worth 10 points will either be 10, 0, or NA as applicable. A grade of 1 through 9 will not be used for any reason for this attribute.

f. List of Failed Spot Checks. This is a list of spot checks that failed during the last week and the reason the check failed. Reason may be blank if the spot checker did not provide a comment. Because of the hard kill attributes on the spot check form, a person that partially grades a spot check may show up on this list even though they were unaware the spot check failed.

g. Spot Check Completion Report. A list of the command spot checkers and the number of spot checks the personnel conducted for each week for the last 13 weeks. Because this list is derived directly from SKED data, the personnel paygrade is unavailable. Due to this limitation, the list is sorted based upon the number of historical checks conducted in the last 13 weeks.

h. Spot Check Randomizer. A list of randomly selected checks to be spot checked for each work center that has conducted maintenance in the last 13 weeks. Checks are randomly selected based upon periodicity, troubled system status, when the check was accomplished, and how many times the spot check was previously conducted. All units are directed to utilize the Spot Check Randomizer to the maximum extent possible. If a maintenance person or equipment is unavailable and the randomly selected check cannot be performed, the spot checker will select another check within that work center with a moderate level of difficulty.

19-6.6.3 CSMP Reconciliation Report (OMMS).

a. Overview. This report is used to identify discrepancies between the alignment of the OMMS and VSB databases. Alignment of the databases is critical to CSMP management to ensure the command and Port Engineer have the same situational awareness for the status of on-ship and off-ship work candidates. The results of the CSMP Reconciliation will be forwarded to the Surface Force 3-M Representative upon completion.

b. Periodicity. The CSMP Reconciliation will be completed by all commands monthly by the fifth day of each month.

c. Required Documents:

(1) OMMS CSMP Export. A copy of active JSN residing on ship.

(2) VSB Export. An export of the global report in VSB named "CNSF CSMP Reconciliation Report".

d. CSMP Reconciliation Report Breakdown:

(1) Cover Sheet. The cover sheet of the report provides an executive level overview for alignment between the units OMMS database and the VSB database utilized by the Port Engineer to screen and broker work. Below are the sections of the report:

(a) Total Number of Jobs in the Ship's CSMP. The total number of active jobs in the ship's CSMP.

(b) Total Number of Jobs in VSB. The total number of active jobs in VSB.

(c) CSMP Reconciliation Score. A calculation that represents how closely aligned the OMMS and VSB database are aligned.

(2) CSMP Reconciliation Summary. A summary of discrepancies identified during the reconciliation process. Each discrepancy type has a independent list of jobs by JSN and Work Center that fall into the category. Below is a list of the discrepancies effect, the cause, and the corrective action needed:

(a) Closed in VSB. The number of jobs separated by those generated on-ship and off-ship that are closed in VSB but active on the ship's CSMP. Jobs that show closed in VSB are no longer being updated by the Port Engineer.

1 Possible Cause. Jobs may have been reported to the Port Engineer and closed to reflect that status.

2 Corrective action. Ship's force should review the job validity. If the job has been completed, the job should be marked as complete in OMMS. If the job is still active and needs to be complete, the Port Engineer will need to resurrect the job so it can be screened and brokered as needed.

(b) Not in VSB. The number of jobs separated by those generated on-ship and off-ship that reside in the ship's CSMP but are not in VSB. If a job is not in VSB than the Port Engineer does not see the job and it will not be screened or brokered.

1 Possible Cause. The unit may have inactivated and archived prior to performing an upline via RADWEB to VSB. If this happens, jobs will be archived and any updates will not be reflected in VSB. Jobs may be awaiting approval and have not made it to the 3MC.

2 Corrective Action. Ship's Force should review the job for validity. If the job is still valid, the job will need to be "tickled" so the job will be sent to VSB during the next upline. "Tickling" the job means to make an update to the job.

(c) Mismatch. The number of jobs separated by those generated on-ship and off-ship that are listed as TA 1-3 on the ship but are listed as TA 4

in VSB. This type of error leads the unit to believe that an outside activity will complete the work but the Port Engineer has stated that ship's force will complete the work.

    1   Possible Cause. Ship's force wrote the job as a TA 1-3 and the Port Engineer screened the job back to ship's force.

    2   Corrective Action. Ship's force will need to change the TA code in OMMS to a TA 4 or communicate why the job is not within ship's force capability and have the Port Engineer rescreen the job back to a TA 1-3.

(d)   TA 4 Not in OMMS. The number of TA 4 jobs separated by those generated on-ship and off-ship that reside in VSB but are not listed on the ship's CSMP.

    1   Possible Cause. The unit may have inactivated and archived prior to performing an upline via RADWEB to VSB. If this happens, jobs will be archived and any updates will not be reflected in VSB. Another possible cause is that a bulkload was sent to the ship from CNSF and was not loaded into OMMS.

    2   Corrective Action. The job will need to be reviewed for validity. If the job is still valid, the job will need to be rewritten. Additionally, the Port Engineer will need to close the job in VSB.

(e)   TA 1-3 Not in OMMS. The number of TA 1-3 jobs separated by those generated on-ship and off-ship that reside in VSB but are not listed on the ship's CSMP.

    1   Possible Cause. The unit may have inactivated and archived prior to performing an upline via RADWEB to VSB. If this happens, jobs will be archived and any updates will not be reflected in VSB. Another possible cause is that a bulkload was sent to the ship from CNSF and was not loaded into OMMS.

    2   Corrective Action. The job will need to be reviewed for validity. If the job is still valid, a list of the job/jobs missing will need to be sent to TYCOM 3-M team to generate a bulkload containing the missing jobs.

(f)   P.E. Action Needed. The number of jobs separated by those generated on-ship and off-ship that were reported to VSB as being customer completed and awaiting closure in VSB. TA 1-3 jobs are dual close jobs and require both the ship and the outside activity to report completion prior to the job closing in VSB.

    1   Possible Cause. The ship has marked the job as complete and

reported that status to VSB via an upline. The outside activity has not yet reported the job as complete.

2   Corrective Action. Notify the Port Engineer that the jobs have been closed by ship's force so they can get an updated status from the activity that completed the work. Port Engineer will need to close the job in VSB once activity reports status.

(g)   P.E. No Screening Required. The number of jobs separated by those generated on-ship and off-ship that are listed as TA 1-3 but have a WN status of "No Screening Required". This means the job will not be screened or brokered by the Port Engineer.

1   Possible Cause. The job status was changed from "Screening Required" to "No Screening Required" in VSB.

2   Corrective Action. Notify the Port Engineer so they can change the job WN status back to "Screening Required" and screen/broker as needed.

19-6.6.4 <u>CSMP Reconciliation Report</u>.

a.   Overview. This report is used to identify discrepancies between the alignment of the AWN, ATM and VSB databases. Alignment of the databases is critical to CSMP management to ensure the command and Port Engineer have the same situational awareness for the status of on-ship and off-ship work candidates. The results of the CSMP Reconciliation will be forwarded to the Surface Force 3-M Representative upon completion.

b.   Periodicity. The CSMP Reconciliation will be completed by all commands monthly by the fifth day of each month.

c.   Required Documents:

(1)   AWN CSMP Export. A copy of all JSNs residing on ship.

(2)   ATM CSMP Export. A copy of all JSNs residing on ship.

(3)   VSB Export. An export of the global report in VSB named "CNSF CSMP Reconciliation Report".

d.   CSMP Reconciliation Report Breakdown.

(1)   Cover Sheet. The cover sheet of the report provides an executive level overview for alignment between the units AWN database, the shore ATM database, and the VSB database utilized by the Port Engineer to screen and broker work. Below are the sections of the report:

(a)   Total Number of Jobs in the AWN. The total number of active jobs in the ship's CSMP.

(b)   Total Number of Jobs in the ATM. The total number of active jobs in the AWN ashore CSMP.

(c)   Total Number of Jobs in VSB. The total number of active jobs in

VSB.

(d)   Number of CSMP Discrepancies. A summation of the total number of discrepancies between all three CSMP databases.

(2)   CSMP Reconciliation Summary. A summary of discrepancies identified during the reconciliation process. Each discrepancy type has an independent list of jobs by JSN and Work Center that fall into the category. Below is a list of the discrepancies effect, cause, and corrective action needed:

(a)   Duplicate Jobs Same Problem. This is a list of jobs that are duplicated in the ATM database and have the same job description. Only one of these jobs' statuses are being reflected in VSB.

    <u>1</u>   Possible Cause. The most common cause is the Maintenance Figure of Merit system created a new job after ship's force updates the status of a job. For example, a job gets closed by ship's force but ATN creates a new duplicate job with the status of closed versus changing the status of an existing job.

    <u>2</u>   Corrective action. Ship's force should review the job validity. If the job has been completed, the job should be marked as complete in ATM.

(b)   Duplicate Jobs Different Description. A list of JSNs in ATM that have been duplicated by represent different corrective actions. Because there is a delay in transferring data between AWN and ATM, if jobs are being written directly to ATM there is a chance that ship's force is writing a job in AWN at approximately the same time. This will create two jobs with the same JSN that have different corrective actions.

(c)   In AWN Missing from VSB and ATM. A job that resides on the ship in the AWN database but has not replicated in ATM.

    <u>1</u>   Possible Cause. AWN Health was not monitored and connectivity loss led to data not being replicated off ship.

    <u>2</u>   Corrective Action. Updating the job in AWN will allow the job to attempt replication off-ship.

(d)   In ATM missing from VSB and AWN. These are typically bulkloaded (Off-Ship) jobs that did not replicate from the ATM database.

    <u>1</u>   Possible Cause. Not maintaining AWN health and connectivity will prevent ATM from replicating to AWN.

    <u>2</u>   Corrective Action. The job will need to be updated in ATM to force replication to AWN and VSB.

(e)   In ATM and AWN missing from VSB. Jobs from ATM did not replicate to VSB

    <u>1</u>   Possible Cause. ATM may have loss connectivity or servers

were down when upload was attempted.

    <u>2</u>   Corrective Action. The job will need to be updated in either AWN or ATM to force replication to VSB.

(f)   In VSB missing from ATM and AWN. Jobs that reside in VSB but are not contained in either the AWN or ATM databases.

    <u>1</u>   Possible Cause. Jobs may have been closed in AWN or ATM but the information did not reflect in VSB. Jobs may show as "Customer Completed" in VSB. TA 1-3 jobs require dual closure from both the command and maintenance activity.

    <u>2</u>   Corrective Action. Notify the Port Engineer that the jobs have been closed by ship's force so they can get an updated status from the activity that completed the work. Port Engineer will need to close the job in VSB once activity reports status.

(g)   In VSB and AWN missing from ATM. A job that is still active in AWN and VSB but not in ATM.

    <u>1</u>   Possible Cause. The job was somehow closed in ATM but did not replicate to AWN or VSB.

    <u>2</u>   Corrective Action. Modify the job in AWN to force replication to ATM. If the job still does not replicate than the existing job will need to be closed and rewritten. If the job is TA 1-3 and brokered by the Port Engineer to an active availability, the job can be bulkloaded back from VSB by TYCOM.

(h)   In VSB and ATM missing from AWN. A job that is still active in both VSB and ATM that does not reside in the command's CSMP.

    <u>1</u>   Possible Cause. AWN health prevented the ship from receiving updates from ATM.

    <u>2</u>   Corrective Action. Check AWN Health and modify the job in ATM. This will force the job to replicate back to AWN.

(i)   Active in AWN closed in ATM. A job that is still active in AWN but shows closed or canceled in ATM.

    <u>1</u>   Possible Cause. The job was closed in ATM but the job status did not replicate to AWN.

    <u>2</u>   Corrective Action. If the job is verified to be complete, close the job in AWN. If the job is verified to still be open, close the job in AWN and rewrite the job.

(j)   Active in ATM closed in AWN. A job that was closed in AWN but the information did not replicate to ATM.

    <u>1</u>   Possible Cause. AWN health prevented ATM from receiving AWN updates.

       <u>2</u>   Corrective Action. If the job is verified to be complete, close the job in ATM.

(k)   Active in AWN closed in VSB. A job that is still active in the command's CSMP but has been closed or canceled in VSB.

       <u>1</u>   Possible Cause. The job was closed in VSB. This job will no longer receive updates in VSB.

       <u>2</u>   Corrective Action. If the job is still open and valid than a new work candidate will need to be rewritten for the job.

(l)   Active in VSB closed in AWN. A job that is still active in the Port Engineer's CSMP but has been closed or canceled by the command.

       <u>1</u>   Possible Cause. A command not verifying AWN health may have led to AWN not replicating off ship and VSB not receiving updates.

       <u>2</u>   Corrective Action. The command will need to verify the work has been completed and work with the Port Engineer to close the job in VSB.

(m)   Active in ATM closed in VSB. A job that still shows open and active in the AWN Ashore CSMP but has been closed or canceled by the Port Engineer in VSB.

       <u>1</u>   Possible Cause. The job was closed in VSB. This job will no longer receive updates in VSB.

       <u>2</u>   Corrective Action. If the job is still open and valid, the job will need to be closed in ATM and rewritten in AWN.

(n)   Active in VSB closed in ATM. A job that is still active in the Port Engineer's CSMP but has been closed or canceled by the command.

       <u>1</u>   Possible Cause. A command not verifying AWN health may have led to ATM not reporting to VSB that the job was complete.

       <u>2</u>   Corrective Action. The command will need to verify the work has been completed and work with the Port Engineer to close the job in VSB.

(o)   TA 4 in VSB, TA1-3 in ATM and TA 4 in VSB, TA1-3 in AWN. A job that the command is expecting outside assistance with but the Port Engineer believes that the command will correct.

       <u>1</u>   Possible Cause. Although the command requested outside assistance, the Port Engineer changed the job status to being within the command's capability.

       <u>2</u>   Corrective Action. The command will need to communicate with the Port Engineer to identify the reason the job was

changed to a TA 4. If the job is determined to not be within the command's capability the Port Engineer will need to change the WN Status Code to "Screening Required" and broker as needed. If determined that the command will correct the discrepancy, the command will need to update the TA Code to 4 in AWN and take corrective action as needed.

(p) TA 1-3 with No Screening Required. A job that has a TA Code of 1-3 in VSB but displays "No Screening Required" as the WN Status.

<u>1</u> Possible Cause. Multiple updates to a job led to a discrepancy between the TA Code and WN Status. The Port Engineer may not see this job and corrective action will not occur.

<u>2</u> Corrective Action. The Port Engineer will need to update the WN Status to "Screening Required" and screen/broker as needed.

19-6.6.5 <u>CSMP Self-Sufficiency Report</u>.

a. Overview. This Report provides an executive level understanding of the unit's CSMP management. This report evaluates the CSMP Management Team as whole, to include the Port Engineer. The report is separated into two sections off-ship and on-ship CSMP management.

b. Periodicity. This report is required monthly for all units.

c. VSB Export. The VSB export for this report utilizes the same export as the CSMP Reconciliation tool. VSB is the only data used for this report making the reconciliation process critical for the accuracy of this report.

d. CSMP Self-Sufficiency Report Breakdown.

(1) Cover page. The top of the page is dedicated to providing overall assessment scores for CSMP Management.

(a) CSMP Self-Sufficiency Score. A percentage that combines the off-ship self-sufficiency score and on-ship self-sufficiency score with a weight of 30% and 70% respectively. On-ship CSMP management is held with a higher weight due to ship's force being solely responsible for the TA 4 jobs within the CSMP.

(b) Off-Ship CSMP Score. This score represents the management of TA 1-3 work candidates. The ability for a unit to ensure off-ship work is screened by the Port Engineer and brokered or referred to an active availability.

(c) On-Ship CSMP Score. This score represents a unit's ability to efficiently manage TA 4 work candidates. A heavy focus is placed on the length of time between when a TA 4 job is written to when the job is accomplished. Additional weighting is placed on jobs identified as safety related.

(d)   Departments CSMP Scores. Each department is independently evaluated for their respective ability to manage off-ship and on-ship work candidates.

(2)   Off-ship CSMP Self-Sufficiency Scores. The first page of this section evaluates each of the department's ability to manage off-ship CSMP work candidates. From left to right TA 1, 2, and 3 codes are separately analyzed. Each TA code has the same categories for evaluation:

(a)   Actively Screened. This is the number of active TA 1, 2, or 3 work candidates within a department.

(b)   Awaiting screening. This is the number of active TA 1, 2, or 3 work candidates within a department that are waiting for screening by the Port Engineer. Only jobs that have been waiting for screening over 30 days are counted. Commands should use this to initiate discussion with the Port Engineer to find out why jobs in the CSMP are still needing to be screened.

(c)   Assigned to Past Avails. This is the number of active TA 1, 2, or 3 work candidates within a department that are assigned to availabilities that have ended over 90 days from when the report was generated. A 90-day buffer was added to provide time for the Port Engineer to collect financials and close out the avail. Before the 90-day mark, the Port Engineer should move the job to another availability so the work can be completed.

(d)   Unfunded avail. An unfunded availability is a temporary availability created in VSB to provide port engineers a place to store jobs until they can be assigned to an active availability. This is an approved procedure and the number of jobs in unfunded availabilities will not be held against the command. The number is displayed to allow a unit visibility into unfunded availability process. Jobs placed in an unfunded availability are not actively being worked. If a unit believes that the work should be assigned to an active availability, the Port Engineer should be notified for action.

(e)   Availabilities that have ended and still have active jobs assigned. This list provides a list of availabilities that have ended over 90 days from the date of report generation and the number of active jobs assigned to them. Commands with jobs assigned to availabilities that have ended should coordinate with the Port Engineer to move the jobs to active availabilities. Each availability has the following information:

1   Avail ID. The availability ID number is a unique identifier for that availability.

2   Start Date. The day the Availability started.

3   End Date. The day the availability ended.

<u>4</u>   Location. The location the availability was conducted.

<u>5</u>   L and Z jobs. This is the number of ICMP tasks and Port Engineer created jobs that are active and assigned to the availability. These jobs do not penalize the command as they do not reside in the OMMS database. This is called out for situational awareness only.

<u>6</u>   TA 1. The number of TA 1 jobs still assigned to the availability.

<u>7</u>   TA 2. The number of TA 2 jobs still assigned to the availability.

<u>8</u>   TA 3. The number of TA 3 jobs still assigned to the availability.

(f)   On-Ship CSMP Self-Sufficiency Score. An evaluation of all TA 4 jobs in a unit's CSMP. The score represents the commands ability to create, plan, and execute discrepancies documented in the CSMP.

<u>1</u>   # TA 4 Jobs. The number of active TA 4 jobs residing in VSB.

<u>2</u>   # TA 4 Jobs Closed. The number of TA 4 jobs that have been closed within the last 90 days since the report was generated.

<u>3</u>   # > 90 Days Old. The number of active TA 4 jobs that are between 90 and 179 days old.

<u>4</u>   # > 180 days old. The number of active TA 4 jobs that are between 180 and 364 days old.

<u>5</u>   # > 12 Months Old. The number of active TA 4 jobs that have been in the CSMP 12 months or longer.

<u>6</u>   # Safety Jobs. The number of active TA 4 jobs that have a safety code of 1, 2, 3, or 4.

<u>7</u>   # Safety > 90 Days. The number of active TA 4 jobs that have a safety code of 1, 2, 3, or 4 and have been in the CSMP for 90 days or longer.

<u>8</u>   Avg Job Age. The Average age of active TA 4 jobs.

<u>9</u>   Avg Comp Job Age. The average age of TA 4 jobs that have been completed within the last 90 days from when the report was generated.

<u>10</u>   Weight %. The weight for grading that a department or work center has on the command.

<u>11</u>   Grade. A final score that represents a department or Work Center's ability to manage their CSMP. Each Department or Work Center will use the following calculation to determine the score.

(g)   Command Level Effectiveness Review (CLER). The Surface Force 3-
M Representative will conduct a CLER quarterly and submit to
TYCOM for each assigned command. CLER can be found on the
COMNAVSURFPAC 3-M SharePoint Site at
https://flankspeed.sharepoint-mil.us/sites/CPF-CNSP-
HQ/engineering/3M.

19-6.6.6 <u>3-M 365 Program Validation</u>. A program validation will occur on all newly
commissioned units that have completed Obligated Work Limiting Date (OWLD) or units that
have 6 consecutive months below TYCOM standards on any of the four pillars of performance.
A program validation is a more detailed look and validation of the 3-M 365 reports provided to a
chain of command on a weekly or monthly basis. The program validation will constitute a
"Truth in Reporting" evaluation. All Pillars of Performance are evaluated utilizing the 3-M
Assessment Tool. The Command Total Score is a weighted average of the four Pillars of
Performance and each of the pillars grading criteria is defined Table 19-6-4 of this chapter.

a.   Command Total Score. The Command Total Score is calculated utilizing the
weighted score of the four Pillars of Performance. Weighting is described in the
Table 19-6-4 of this chapter.

Pillar of Performance	Weight
MAR	35%
CSMP	35%
Spot Check Program	20%
KSE	10%

Table 19-6-4

b.   Maintenance Accomplishment Rate (MAR). The MAR is displayed in the Virtual
Snap-Shot Report. During an assessment omitted checks will be reviewed and an
Omitted Check Penalty Score is created. The MAR will be reduced by the Omitted
Check Penalty Score (represents the amount of maintenance the command failed to
schedule) to create the final MAR%. All omitted checks will be categorized into one
of the categories identified in Table 19-6-5 of this chapter and weighted according to
the category. Omitted Check Penalty Score = Σ ((omitted checks/total number of
checks) * Penalty Score).

Omitted Category	Penalty
Check Not Triggered (Globally)	1.4
Check Not Triggered (Local)	1.4
Equipment Not in SKED	0.5
Check Not Tied to State	0.8
Check Marked "N/A"	2.0
Mandatory Related Maintenance	2.0
Active Equipment in IEM	3.0
LU/PM/OT/SU Not Scheduled	1.0

Unauthorized Line-out (MIP)	2.0
Unauthorized Line-out (MRC)	2.0
Unauthorized Line-out (Split-MIP)	2.0
On LOEP but not in Work Center	2.0

Table 19-6-5

19-6.6.7 <u>Spot Check Program</u>. The Spot Check Program score is based on three metrics, identified as ensuring the command is conducting the minimum number of spot checks, the commands spot check average, and the Spot Check Effectiveness Score. The weight for each metric and scoring methodology is defined in Table 19-6-6 of this chapter.

Spot Check Program Metric	**Weight %**
Minimum Number of Spot Checks	25%
Spot Check Average Score	30%
Spot Check Efficiency Score	45%

Table 19-6-6

a. Minimum Number of Spot Checks. The Virtual Snap-Shot Report provides a summary of the number of Spot Checks conducted per week for the unit. The Score is calculated by using the number of weeks the minimum number of spot checks met divided by 13 (number of weeks in the report). For example, a unit that meets the minimum number of spot checks for 12 of the 13 weeks will receive a score of 92.3%.

b. Command Spot Check Average. The average grade for each spot check conducted at the command over the last 13 weeks.

c. Spot Check Effectiveness Score. The assessor will use the 3-M Assessment Tool to randomly select 50% of the command spot checkers. A spot check that the spot checker previously conducted will be chosen and the same spot check reassessed. The Spot Check Delta will be calculated based upon the number of attribute differences between the first spot check and the one reassessed. The total number of attribute discrepancies divided by total number attributes assessed will create the command Spot Check Effectiveness Score.

19-6.6.8 <u>CSMP Management Pillar</u>. The CSMP Pillar measures the command's ability to manage and maintain a CSMP that accurate reflects the material condition of the ship or unit. There are four metrics used to evaluate the CSMP, identified in Table 19-6-7 of this chapter as Off-Ship CSMP Self-Sufficiency Score, On-Ship CSMP Self-Sufficiency Score, Active TA 4 Work Notification Review, and Completed TA 4 Work Notification Review.

CSMP Management Metric	Weight %
Off-Ship CSMP Self-Sufficiency Score	30%
On-Ship CSMP Self-Sufficiency Score	30%
Active TA 4 Work Candidate Review	30%
Completed TA 4 Work Candidate Review	10%

Table 19-6-7

a.   Off-Ship CSMP Self-Sufficiency Score. The score reflects the management of all active TA 1-3 work candidates. This score can be found on the cover page of the CSMP Self-Sufficiency Report generated monthly.

b.   On-Ship CSMP Self-Sufficiency Score. The score reflects the management of all active TA 4 work candidates. This score can be found on the cover page of the CSMP Self-Sufficiency Report generated monthly.

c.   Active TA 4 Work Candidate Review. A validation of work candidates within the CSMP. Four Percent of the active TA 4 jobs will be randomly selected to be assessed for accuracy and management. If any block has a "N" result that job is annotated as fail. The Active TA 4 Work Candidate Review score is calculated using (number of jobs that pass / total number jobs inspected). Each job will be evaluated on the following criteria:

   (1)   Job listed in MDS. If the job is listed on the ship in either OMMS or AWN, enter "Y" in the block. Otherwise enter "N".

   (2)   Validated in the last 36 months. If the ship's equipment validation file shows the equipment was validated 36 months prior to job being entered or later than enter a "Y" in the block. If the job was written by an outside activity, enter "NA". Otherwise enter "N".

   (3)   Correct parts on order with a valid status. If the job does not require parts, enter "NA". If the correct parts are on order and the parts status is valid, enter "Y". Otherwise enter "N".

   (4)   Job still valid. This block determines if the work candidate reflects a material condition that still needs to be corrected. If the job was completed or is written in a way that the job will not be completed, enter a "N". Otherwise enter "Y".

d.   Completed TA 4 Work Candidate Review. A validation of work candidates completed in the last 90 days within the CSMP. Four Percent of the completed TA 4 jobs will be randomly selected to be assessed for accuracy and management. If any block has a "N" result that job is annotated as fail. The Completed TA 4 Work Candidate Review score is calculated using (number of jobs that pass / total number jobs inspected). Each job will be evaluated on the following criteria:

   (1)   Job Completed or another job written to supersede. Used to determine if the job that was closed reflects work that has been completed. If the work the job was written for was complete or another job written to cover the scope of

work can be produced, enter a "Y". Otherwise enter "N".

(2)   Parts on Order. If the job was closed and there are active parts on order for the job, enter "Y", Otherwise enter "N".

e.   The KSE provides a numerical value to PQS accomplishments, Training, amount of experience in a 3-M position, and unique events for individual sailors. This numerical value is combined at the Work Center, Division, Department, and Command. The KSE model will develop over time and currently consist of PQS and Maintenance University training events. There are two measurements for the KSE with each being equal:

(1)   PQS Qualifications. A percentage that represents the number of 3-M positions at a command and the number of those positions that are held by a Sailor qualified for the appropriate level. Each 3-M position is weighted depending upon the amount of maintenance performed by a Work Center or Department.

(2)   Maintenance University Attendance. A percentage that represents the number of 3-M positions and at a command and the number of those positions that are held by a Sailor that has attended the appropriate level of Maintenance University Training. Additionally, an evaluation is conducted based upon the amount of maintenance performed by a Work Center or Department.

f.   3-M Surface Force Representative Training. Training conducted by the Surface Force 3-M Representative will satisfy the Maintenance University attendance requirements.

VOLUME VI

CHAPTER 19-7

**MAINTENANCE DATA SYSTEM AFLOAT AND ASHORE
GENERAL REQUIREMENTS**

REFERENCES.

(a) NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual
(b) CNAL/CNAP N432 OMMS-NG Users Guide
(c) NAVSEA S9213-45-MAN-000(U) - Naval Nuclear Material Management Manual
(d) COMNAVAIRPAC/COMNAVAIRLANTINST 3500.3 – CVN Readiness and Project Management Strategies for Planning and Execution of Planned Incremental Availabilities (PIA) and Docking Planned Incremental Availabilities (DPIA)
(e) Ship's Force Resource Manual for Aircraft Carrier Availability Planning Management Guide
(f) SCLSIS TECHNICAL SPECIFICATION 9090-700
(g) NAVSEA TECHNICAL SPECIFICATION 9090-310 - Ship Alteration Accomplishment by Installation Teams
(h) NAVAIR 00-80T-124 - Airfield Operations Manual
(i) TL130-A1-HBK-010 - MSC Procedures Manual and Handbook
(j) COMNAVAIRFORINST 4700.2 - Ship's Force Resource Manual

LISTING OF APPENDICES.

A   Standard Work Center Codes for Master Job Catalog Items
B   Job Originator Values
C   Preparation Instructions Configuration Change Form (OPNAV 4790/CK)
D   Preparation Instructions Maintenance Action Form (OPNAV 4790/2K)
E   Preparation Instructions Supplemental Form (OPNAV 4790/2L)
F   Shipyard Alteration Certification Letter Example
G   Ship's First Endorsement On Alteration Certification Letter Example
H   Work Candidate and JSN Log Example

19-7.1 PURPOSE. The Maintenance Data System (MDS), per the requirements of reference (a), provides maintenance and material managers throughout the Navy with the means to plan, acquire, organize, direct, control and evaluate man-power 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 thereafter, the maintenance database will provide information to all who have a need for it. Organizational (O-level) MDS requirements require the reporting of maintenance actions and configuration changes on all categories of equipment. Reference (b) provides specific guidelines for aircraft carriers.

19-7.2 SPECIFIC REQUIREMENTS AND POLICY.

a.   Standard Force Work Center Numbering System. The production of automated products in support of the Ships' Maintenance and Material Management (3-M) system, as well as the various automated maintenance information systems, dictate that a standard force work center (WC) organization be maintained. Commanding

Officers (CO) will designate their command organization and applicable WC codes as reflected on the Joint Fleet Maintenance Manual (JFMM) website at https://www.navsea.navy.mil/Home/SUBMEPP/Products/JFMM/ under TYPE Commander (TYCOM) Documents and Forms. Additionally:

(1)   Commands must not allow the use of any WC codes not authorized by this manual.

(2)   Requests to change WC designation codes will not be approved unless they are applicable to all ships of a class and supported by detailed justification. WC change requests are routed to and approved by the U.S. Fleet Forces 3-M Requirements Management Board. This does not affect the re-assignment of a Maintenance Index Page (MIP) to another WC to effect shift of maintenance responsibility. Reference (a) and the feedback section of each TYCOM 3-M subchapter provide guidance for the shift of maintenance responsibility.

(3)   Small boat, tug, receiver, and service craft managers will use the specific WCs identified on the JFMM website at https://www.navsea.navy.mil/Home/SUBMEPP/Products/JFMM/ for MDS documentation. However, for Planned Maintenance System (PMS) management they may assign a "**00" WC to consolidate Periodic Force Revisions, MIPs, scheduling, etc., (e.g., PY30 through PY84 may consolidate PMS under WC PY00 or PY01-Mechanical, PY02-Electrical, etc.). The Unit Identification Code (UIC) will be that of the parent command.

(4)   Standard Master Job Catalog (MJC) assigned WC codes (surface force and submarines only) are reflected in appendix A of this subchapter.

b.   Job Control Number. The Job Control Number (JCN) is the key identifier for maintenance actions and related supply documents. The JCN is used to identify a maintenance action and to relate all parts used when a ship reports a maintenance action complete. The JCN allows for consolidated reporting of all associated actions taken for the specific maintenance action. The JCN is comprised of three blocks as defined by the ship's 3-M Manual.

(1)   Block 1 is the ship's UIC (5 numeric characters).

(2)   Block 2 is the WC (4 alphanumeric characters, left justified).

(3)   Block 3 is the Job Sequence Number (JSN), usually 4 numeric characters.

c.   Job Sequence Number. The first position of the JSN is used to identify the tool or organization that created the "Preparation Instructions Maintenance Action Form (OPNAV 4790/2K)" (2-Kilo). If an outside activity creates a job for a ship, e.g., an Intermediate Maintenance Activity (IMA) creates an I-level repair action for a ship, the first character of the JSN will be an "Alpha" character. The control over which organizations or tools "OWN" which "ALPHA" character(s) is provided by the job originator values, appendix B of this subchapter, defined within the Maintenance and Modernization Business Unit and is available through the Naval Sea Logistics Center (NAVSEALOGCEN) web site under Maintenance and Modernization Business Unit

look up tables. The specific value contained within the first position of the JSN provides enhanced data mining capabilities and facilitates data aggregation and analysis.

19-7.3 <u>CONFIGURATION DATA MANAGER</u>.

a. A Configuration Data Manager (CDM) for legacy UNNPI platforms, and Configuration Status Manager (CSM) for all platforms that have moved to Model Based Product Support (MBPS) is designated as the control authority for accuracy and completeness of the configuration information for each unit. A CDM may perform this function for multiple ships, submarines, and shore activities. Prior to MDS delivery, the System Command (SYSCOM) and the delivering activity are responsible for reviewing and ensuring the initial accuracy and completeness of configuration data provided to the CDM. After delivery, which is the initial CDM validation, each CDM will maintain, update and modify its configuration data in MBPS. Navy Product Lifecycle Management (N-PLM) is the overarching Logistics Information Technology (LOG IT) solution replacing legacy applications including the Configuration Data Manager's Database – Open Architecture and Revised Alternative Dataflow WEB (RADWEB) under digital transformation. MBPS is the maritime component of N-PLM and is comprised of three primary capabilities:

(1) Navy Product Data Management (NPDM),

(2) Navy Common Readiness Model (NCRM)

(3) Navy Data Acquisition Requirements Tool (NDART) .

b. NPDM's role is to manage configuration, sustain and provide enterprise access to all components of legacy and future standards-based Navy Weapon System Technical Data Packages to include both weapon system configuration and technical data integrated and management within a singular N-PLM environment. Accordingly, NPDM supports the Ship Configuration and Logistic Support Information System (SCLSIS) process and data requirements in the same fashion as the legacy applications. However, it accomplishes this using an integrated data architecture with ties configuration and supporting technical data together holistically within a single NPLM solution.

19-7.4 <u>CONFIGURATION WORTHY ITEM</u>. SCLSIS data requirements include documenting and maintaining all records associated with the design, supportability analysis, installation, test, certification, operation, assessment, inspection, maintenance, modernization and support of shipboard and shore-based equipment. Data requirements also include material, services and manpower associated with acquisition and sustainment. All identified Configuration Worthy Item (CWI) must be organized within the standard top-down breakdown hierarchically structured functional tiers approved for the ship or shore site in accordance with reference (f). An object is considered to be a CWI if it meets one or more of the following criteria:

a. Any object that supports or requires any one of the following elements of logistics:

(1) Supply support (APL or AEL worthy).

(2)   Test and repair equipment, technical manuals and, or repair standards, Master Job Catalog (MJC) Routines, Periodic Maintenance Requirements (PMR), Software Programs (SWP), Software Control Manuals, Computer Program Packages, Maintenance Assistance Modules, Pack-up Kits, Deep Submergence System Hull Integrity Procedure Unrestricted Operations, intermediate or depot level maintenance plans, class maintenance plans or drawings (e.g., installation or configuration control drawings and ship selected records).

(3)   Objects associated with Training Requirements (shore test plants, ashore training units and ashore or afloat simulators).

(4)   Bill of Material on Ship Installation Drawings (SID), Weight and Moment Data, Ship Selected Record Data, Interface Control Data, Ship System Status Program (SSSP) Report Data and objects associated with Engineering Calculations, Logistics Supportability Analysis Record/Logistics Product Data. May also include Reliability Centered Maintenance (RCM), Failure Mode and Effects Analysis / Failure Mode, Effects and Criticality Analysis, Fault Tree Analysis.

(5)   PMS Maintenance Requirement Cards (MRC). Item's that have an MRC but would not be considered configuration worthy for any other reason, may or may not be configuration worthy. Appendix J addresses the process for identifying maintenance and an item's configuration worthiness.

b.   Any hardware, software or firmware item required to describe a ship's or shore's functional hierarchy. This results in a top-down breakdown hierarchical identification of all configuration items that are significant from a ship's or shore maintenance and/or logistics perspective. Further guidance for software or firmware is included in Appendix H of reference (f).

c.   Any clearly identifiable functional assemblies such as pump/motor combinations (e.g., "Lube Oil Service Pump Assembly" composed of pump, coupling, motor, and controller), hydraulic manifolds, and air pressure reducing manifolds, etc.

d.   Any functional groups such as fitting groups, radio transmitter groups, network enclave etc.

e.   Any system or equipment that interfaces with an existing system or equipment already considered a CWI.

f.   Any system or equipment requiring "corrective" maintenance submitted via Maintenance Figure of Merit (MFOM) Automated Work Notification (AWN).

g.   Any object (structure, system, equipment, component, sub-component, part, etc) requiring a Danger or Caution Tag Out or an object that supports a tag out (i.e., tag hung on it).

h. Any device or object having maintenance information (e.g., material history, meter readings, parametric data taken in support of testing, operation and reporting material condition) recorded on it (e.g., Selected Equipment Records).

NOTE: **SOME OF THE ASPECTS ABOVE MAY LOSE RELEVANCE ONCE THE HULL OR OBJECT IS DELIVERED TO THE NAVY AND ENTERS SERVICE, BUT THAT DOES NOT NECESSARILY MEAN THAT LOWER-LEVEL DETAILED CONFIGURATION ITEMS SHOULD BE EXCLUDED FROM IN-SERVICE CONFIGURATION TRACKING. IN-SERVICE CONFIGURATION OBJECT DESIGNATION WILL IN PART DEPEND ON THE LEVEL OF AGGREGATION AT WHICH THE OBJECT WILL BE MAINTAINED AND SUPPORTED AT THE ORGANIZATIONAL, INTERMEDIATE, AND DEPOT LEVELS. CONFIGURATION ITEM DESIGNATION IS ALSO DRIVEN BY THE IMPORTANCE OF STRIKE FORCE INTEROPERABILITY REQUIREMENTS IN ACCORDANCE WITH REFERENCE (F) APPENDIX H (SOFTWARE POLICY).**

i. Any embarkable such as CCOP equipment being installed and removed between ship, submarine and shore stations, is the responsibility of the installing NAVIFOR entity, this allows for tracking of the readiness to of the installation entity for systems available to install, and the ship or submarines ability report readiness of these embarkables.

j. In addition to the valid CWI criteria listed above, the following items shall be considered when identifying and documenting CWI:

  (1) Underwater hull areas

  (2) Sea chests or sea suctions

  (3) Bilge bottoms or tank tops

  (4) Waster spools

  (5) Sacrificial anodes

  (6) Bunks

  (7) Lockers

  (8) Furniture

  (9) Underway replenishment fittings, straps, pendants, and accessories

  (10) Weight handling equipment

  (11) Anything with a separate manufacturer's serial number, or Navy or Government serial number

NOTE: **ALL IDENTIFIED CONFIGURATION WORTHY ITEMS MUST BE ORGANIZED WITHIN THE STANDARD TOP-DOWN BREAKDOWN**

HIERARCHICALLY STRUCTURED FUNCTIONAL TIERS APPROVED FOR THE SHIP OR SHORE STATION.

19-7.5 <u>DATABASES</u>. Automated systems have been developed to reduce the administrative workload associated with shipboard reporting of maintenance. These databases provide users with responsive and flexible systems for on-line management of maintenance and to improve the accuracy and timeliness of existing up-line reporting. The following provides a high-level overview of the process. For a more detailed in-depth explanation, refer to reference (f), part A and Appendix A

   a.   3-M System Historical Database. The NSLC 3-M System 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).

   b.   Model Based Product Support Navy Product Data Management (MBPS – NPDM). The MBPS-NPDM will ultimately replace the Legacy CDMD-OA, and non-authoritative configuration systems as the authoritative configuration status accounting system, to improve configuration and logistics management and control processes for Navy ships, submarines, and shore activities. Initially, MBPS-NPDM does not currently support those activities having U-NNPI data. Those activities will be maintained in CDMD-OA until such time NAVSEA 08 approves a MBPS U-NNPI solution. Through the implementation of Windchill, a Product Life Cycle Management application, NPDM integrates logistics data, processes, workflows, and people across the Navy enterprise and the Navy to support the management of information through the life cycle of systems and equipment in the fleet. This will provide enterprise access to all components of legacy with supported capabilities that include Configuration Management.

   c.   The Process for an OMMS-NG or Non-Automated Work Notification afloat unit is initiated when the activity submits Current Ship's Maintenance Plan (CSMP) up-line reports with equipment and configuration change transactions via JTDI in accordance with their TYCOM schedule. The CSMP flows to the MFOM data center, where the configuration change data (OPNAV 4790/CK) is then forwarded to MBPS via the MBPS enhanced SDIF UI file import utility provided by ESB (Enterprise Service Bus). MBPS receives the data from ESB, reformats into a Standard Data Interface Format (SDIF-750) and then disseminates it to the appropriate CDM as a Work File Change Notice for review and processing in MBPS by the CDM. After the data has been reviewed and processed by the CDM, it then becomes available as an Automated Shore Interface (ASI) file made available to the unit via their JTDI mailbox.

   d.   AWN activities do not generate CSMP files. Rather, they generate a "Not In Model (NIM)/Wrong In Model (WIM)" file and a separate file containing OPNAV 4790-2 Kilo data. The NIM/WIM data is replicated from the activity's AWN database to the MFOM data center's AWN database, reformatted, and passed to MBPS via the MBPS enhanced SDIF UI file import utility provided by ESB. MBPS receives the data from ESB, reformats it into a Standard Data Interface Format (SDIF-750) and then disseminates it to the appropriate CDM as a Work File Change Notice for review

and processing in MBPS by the CDM. Once the NIM/WIM data is processed in MBPS, it then becomes available for MFOM (via the SDIF outbound process) to pull the data for the purposes of updating the MFOM model editor and AWN database at the MFOM data center and subsequent replication to the activity's AWN database. Non-MFOM shore sites will use DPAS to track as until merged into MFOM and MBPS, all NAVIFOR sites will use MFOM/MBPS for tracking CWI equipment.

NOTE: **ONLY THOSE RECORDS WITH A VALID ALLOWANCE PARTS LIST (APL) OR AN ALLOWANCE EQUIPAGE LIST (AEL) ARE QUERIED BY REMAD. RECORDS WITH A PSEUDO–REPAIRABLE IDENTIFICATION CODE (X-RIC) ARE NOT QUERIED BY REMAD**

e.   REMAD receives all installed and confirmed planned installed systems and equipment by a specific configuration (end item) from MBPS via ESB generated file output to JTDI on a set frequency for download.

19-7.6 SHIP CONFIGURATION AND LOGISTICS SUPPORT INFORMATION SYSTEM.

a.   The SCLSIS process enables ships to maintain an on-line source of their configuration 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 OPNAV 4790/2K and OPNAV 4790/CK forms without having to refer to a series of manuals or offline reference books and files. The on-line system also allows 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-NG database is provided, shipboard or unit personnel need only select the correct equipment and report the information relevant to the actual maintenance of the equipment.

b.   OMMS-NG and Propulsion Organizational Maintenance Management System (P-OMMS) have been established as the CVN 3-M Reporting Data System for both topside OMMS-NG and P-OMMS systems. Naval Supply Systems Command, Weapons System Support Bechtel Plant Machinery Inc. and the P-OMMS Carrier Application Administrator Guide Insert 1 as per reference (c), govern operation of P-OMMS.

(1)   The OMMS-NG program will be used as a tool to assist in the management of all shipboard availabilities.

(a)   Chief of Naval Operations (CNO) availabilities will be planned and executed as per reference (a) and this manual.

(b)   Non-CNO availabilities and Ship's Force self-repair availabilities will be planned and executed as per references (d) and (e).

(2)   Reference (a) contains detailed listings and descriptions of reports available. Depending on the overall maintenance schedule of the ship, reports will be generated as required for usage within the ship.

(3)   Propulsion Organizational Maintenance Management System. Ships equipped with P-OMMS should use reference (c) for P-OMMS operating requirements.

(4)   Air Traffic Control Community Website (ATC Web). Per reference (h), all Commander Naval Installations Command (CNIC) Airfield Operations Department maintenance organizations will use the CDM tools for configuration management provided on the ATC Web at: https://atc.navy.mil/atc/home.aspx.

19-7.7 <u>REPORTING</u>. Reference (a) requires all afloat activities to report deferred and completed maintenance actions, configuration changes and configuration file corrections. Ashore 3-M WCs 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) will be submitted for each job action. Do not bundle multiple pieces of equipment on one work candidate. Reporting methods are as described in paragraph 19-7.7.a. and b. of this chapter.

NOTE: **THE MAINTENANCE PLANNING AND ESTIMATING FORM IS USED ALONG WITH THE OPNAV 4790/2K FOR DEFERRING MAINTENANCE TO BE DONE BY AN IMA. AS THIS DOCUMENT IS PRIMARILY USED BY THE IMA TO SCREEN AND PLAN THE JOB IN DETAIL, REFER TO REFERENCE (A) IF FURTHER INFORMATION IS REQUIRED.**

a.   Non-Automated. Appendix C provides preparation guidelines for documenting configuration changes (CKs), Appendix D provides preparation guidelines for documenting maintenance actions (2Ks), and Appendix E provides preparation guidelines for providing supplemental information (2Ls). The configuration and maintenance forms used for manual reporting are:

   (1)   Configuration Change Form OPNAV 4790/CK

   (2)   Maintenance Action Form OPNAV 4790/2K

   (3)   Supplemental Form OPNAV 4790/2L

   (4)   Maintenance Planning and Estimation Form OPNAV 4790/2P

b.   Automated

   (1)   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 (the exception being the OPNAV 4790/2L). Transactions are entered into the computer and up-line reported using applicable software.

   (2)   Software instructions are developed and distributed by the 3-M Central Design Activities. Commander Naval Air Forces Atlantic developed an OMMS-NG user guide, reference (b). In the past, this guide has been provided to the other TYCOMs to use and distribute at their discretion. Options are available in the system to print simulated 2Ks, CKs or work candidates when desired. Check the applicable system's user manual or ON-LINE HELP for additional information.

   (3)   With an automated information system, the computer will provide on-line access to the data for identifying equipment and ordering parts. When

documenting requirements, many of the data elements required for corrective maintenance and configuration change reporting such as the Allowance Parts List (APL), Equipment Identification Code (EIC), equipment name and location, are pre-filled and displayed when the subject equipment is identified. Reference (a), Appendix C provides the data elements and allowed values for each type of reporting.

c.   Data. 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 system database. These reports yield critical information concerning equipment maintainability, reliability, man-hour expenditures, material usage, costs, and material condition. The accuracy of this information is critical for Equipment Pillar readiness across all facets of the Navy. Inaccurate data will result in the ship or shore station being supplied with incorrect component parts or technical documents necessary for the operation and maintenance of equipment. This will ultimately hinder battle damage repair efforts.

19-7.8   CONFIGURATION CHANGE FORM OPNAV 4790/CK.

a.   Ship or Unit Responsibility. To ensure timely receipt of accurate configuration logistics support, COSAL, and supply support data, ship and activity personnel must:

(1)   Promptly report equipment installed, removed, or modified using an OPNAV 4790/CK. Navy Expeditionary Combat Command (NECC) commands will use OMMS-NG to process CKs. Per reference (h), all CNIC Airfield Operations Department maintenance organizations will use the method developed by Naval Information Warfare Center Atlantic and provided on the ATC Web to process automated CKs. CNIC Port Operations and Security Department maintenance organizations will utilize non-automated process in accordance with this instruction. For temporary issue of equipment to include embarkable's exceeding six consecutive months, a CK will be processed by the releasing and gaining commands, for example from a Commander Naval Surface Force Pacific unit getting CCOP equipment from a Naval Information Force unit.

(2)   Review all configuration change maintenance actions, equipment file corrections and logistics support transactions in a timely manner and transmit them for processing.

(3)   Process all ASI data promptly by following the SCLSIS Technical Specification and as described in 19-7.8.a.(3)(a) and (b) of this chapter.

(a)   Surface Force. Surface force ship ASI download, and processing is required when the ASI record count in Revised Alternative Dataflow Website (RADWEB) is 4,500 records for Guided Missile Cruisers, Guided-Missile Destroyers (DDG and DDG 1000), Mine Countermeasure ships, Amphibious Transport Dock ships, Dock Landing Ships, Patrol Craft, or shore facilities. Download and

processing for Landing Helicopter Assault, Landing Helicopter Dock, and Amphibious Command ships is required when the ASI record count in RADWEB reaches 10,000 records. Littoral Combat Ships will download and process ASI records monthly, at a minimum. Download and processing of all available ASI records in RADWEB is required when the unit is getting underway for a period of two weeks or longer, monthly at a minimum, or as directed by the TYCOM. Ship's ASI data, available in RADWEB, will be downloaded and processed into the ship's MDS within seven days of ASI creation.

(b) NECC. NECC requires processing of all ASI data into their automated system promptly following the SCLSIS technical specification. Units must report configuration changes to COMNECC via the respective Immediate Superior in Command (ISIC) in the form of a completed OPNAV 4790/CK Configuration Change form. Units will conduct up-line reporting at a minimum of twice per month and ASI processing within seven working days of the ASI posting to RADWEB.

(c) COMNAVAIRFOR. ASI processing and equipment validation requirements are being conducted by Maintenance Support Center (MSC) personnel only per reference (i). All additional validations conducted by work centers will be coordinated with the MSC for OMMS-NG data updates.

(4) Report equipment or component changes detected or accomplished by Ship's Force, unit personnel, and IMAs. While the equipment technical authority is responsible for reporting Alteration Installation Team installations, the ship or unit is ultimately responsible for its own configuration accuracy. If Alteration Installation Team configuration changes have not been properly reported by the technical authority, the ship or unit is responsible for reporting them.

b. Shipyard Installed Alterations. A certification of alteration accomplishment is provided by the Navy Supervising Activity to the recipient ship and the appropriate CDM when the shipyard accomplished the installation. This certification includes the WC JSN assigned to the alteration and the final action taken. The certification will be in the format shown in Appendix F. The ship will endorse the shipyard's certification letter and forward to the support activity managing the unit's master Current Ship's or Shore Maintenance Project (CSMP). The endorsement provides authorization for information transmitted to be processed as completed deferrals in the master CSMP. Refer to Appendix G. This eliminates the need for documenting multiple configuration changes to close the CSMP deferral.

c. Alteration or Configuration Change Related Completed Maintenance Action

(1) For the purpose of reporting configuration changes, all alterations, deletions, turn-ins, modifications, additions, installations or replacement of equipment are included in the term "maintenance action" whether the corrective maintenance is performed or not.

(2) The responsibility for identifying and reporting configuration changes exists at all levels of the command. For emergent requirements, when an Integrated Logistics Support requirements waiver has been granted by higher authority, and the installing activity has not pre-loaded the data in MBPS or CDMD-OA, the installing activity will provide the ship or unit with properly filled out and complete OPNAV 4790/CKs and will promptly report the completion of the installation to the CDM.

(3) During depot availabilities, the installing activity must ensure that configuration changes are promptly and properly reported. Alteration certification letters must be provided to the ship by the depot-level activity. Reporting is required for the:

  (a) Addition, installation, or ownership changes of any equipment.

  (b) Deletion, removal or turn-in of any installed equipment.

  (c) Replacement or exchange of any equipment. Non-serialized exact replacements do not change configuration records or logistics support and do not require a configuration change to be reported unless required by an alteration directive. Emphasis must be placed on "form, fit, function" equipment. Replacements such as any change in manufacturer, model or part number or serial number requires configuration change reporting.

(4) Modification of any installed or in-use equipment. A modification occurs when a maintenance action alters the design or operating characteristics of the equipment. Equipment is considered modified, and reporting is required when non-standard replacement parts (not identified on the APL or in the technical manual) are used in the accomplishment of the maintenance. A Departure from Specification (DFS) may be required as specified in Volume V, Part I, Chapter 8 of this manual.

(5) Relocation of any equipment to a different deck, frame, compartment, room, building or, if it affects drawings or other logistic support data. Any other relocation of equipment is considered a maintenance action and requires a completed maintenance action to be reported (for non-automated ships or commands, use the OPNAV 4790/2K Form).

(6) Re-designation of any space or compartment.

(7) Accomplishment of any alteration.

NOTE: **FOR NON-AUTOMATED ACTIVITIES, THE OPNAV 4790/CK CONFIGURATION CHANGE FORM IS USED TO REPORT THE ACCOMPLISHMENT OF MAINTENANCE ACTIONS THAT ARE RELATED TO AN ALTERATION OR RESULT IN A CONFIGURATION CHANGE. REFER TO REFERENCE (A), APPENDIX A FOR THE DATA ELEMENTS AND ALLOWED VALUES AND APPENDIX C FOR THE INSTRUCTIONS FOR MANUALLY COMPLETING THE OPNAV 4790/CK.**

NOTE: **REPORTING OF REACTOR PLANT CONFIGURATION CHANGES AND MODIFICATIONS PERFORMED TO EQUIPMENT OR COMPONENTS UNDER NAVSEA (SEA 08) COGNIZANCE ARE REPORTED PER REFERENCES (C) AND (D), AND VOLUME VI, CHAPTER 3 OF THIS MANUAL.**

d.   Configuration File Corrections. In addition to reporting configuration changes because of accomplishment of a maintenance action, it is necessary to correct deficiencies in the configuration file to obtain support for equipment that is onboard but is not identified in the COSAL, or to delete from the COSAL equipment that is not onboard but is supported. There are six categories of actions that must be reported. A configuration change record is submitted to:

(1)   Correct ship-controlled data elements in an existing record of the ship's configuration baseline. For additional information concerning the data elements, refer to reference (f), part B.

(2)   Correct erroneous data previously submitted.

(3)   Obtain support for equipment that is onboard, but not identified as such.

(4)   Identify equipment that is supported but is not onboard.

(5)   Report the turn-in or receipt of Portable Electrical and Electronic Test Equipment.

(6)   Report the completion of Ship's Force equipment configuration validations.

NOTE: **FOR NON-AUTOMATED SITES, THE OPNAV 4790/CK IS USED. IF USING THIS FORM REFER TO APPENDIX C FOR FORM PREPARATION INSTRUCTIONS. FOR AUTOMATED SITES, REFER TO THE APPLICABLE SYSTEM'S USER MANUALS OR GUIDES FOR THE PROCEDURES USED TO CHANGE, ADD, OR DELETE FILE INFORMATION.**

19-7.9   MAINTENANCE ACTION FORM OPNAV 4790/2K OR WORK CANDIDATE.

a.   When Required. A 4790/2K or fleet approved equivalent is required:

(1)   To document a material deficiency.

(2)   For a class maintenance plan maintenance action.

(3)   When ordering parts or materials.

(4)   For Selected Level Reporting (SLR).

(5)   When requesting special support or test equipment (hydrostatic pumps, rigging equipment, etc.).

(6)   For documenting a completed maintenance action (corrective or planned).

(7)   When submitting a Casualty Report (CASREP).

(8)   When submitting a temporary DFS.

(9)   For documenting the results of an inspection or assessment.

(10)   For installation of a Ship Alteration (SA).

(11)   For support services during a maintenance availability.

(12)   When requesting help from outside activities (technical assistance, repair, calibration, etc.).

b.   Work Candidate Documentation

(1)   Generic Requirements

(a)   Problem Description and Recommended Solution. Problem description must give a detailed description of what the problem is and why it is being deferred. The recommended solution will describe, in detail, what and who will be required to correct the deferred maintenance. For CVN ships, the noun name, serial number, Positional Reference Identification, and location of the equipment shall be included in the problem description block for all jobs written for outside activity maintenance level to ease the TYCOM's screening, validation and brokering process.

(b)   Maintenance Level Assignment. The maintenance level assigned to the work candidate will match the maintenance activity requirements of the problem description and recommended solution. Maintenance level assignment is sometimes referred to as the "level of effort".

(c)   First and Second Contact. The first contact field will contain the name of the senior person engaged in the maintenance action. The second contact field will contain the name of the supervisor of the first contact or maintenance person.

(d)   Work Candidate or CSMP Summary. The work candidate summary is a condensed summary of the problem. It will not contain the recommended solution, the equipment name, identification or serial number, or compartment location.

(e)   Deadline Date. All work candidates which require assistance from a type 2 or 3 maintenance activity will have a valid deadline date assigned. If a deadline date is used on a Type 1 Or Type 4 work candidate, the deadline date will be a valid date.

(f)   Priority Code. Reference (a), appendix C contains guidance for assigning appropriate priority codes.

(g)   Configuration. Work candidates must be written against the correct ship's configuration item.

(h)   Equipment Status Code. The Equipment Status Code and Equipment Operational Code (EOC) will reflect the actual condition of the equipment at the time the work candidate is created. The Equipment Status Code from OMMS-NG units is used to compute the EOC, which is a major factor in determining the mission operational capabilities of the ship.

(i)   Safety Hazard Code. When used, the Safety Hazard Code must have a supporting write up in the Problem Description field. The Safety Hazard Code is used in determining the mission operational capabilities of the ship, as reported off ship to Defense Readiness Reporting System-Navy.

(j)   Deferral Reason Code. The Deferral Reason Code must have a supporting write up in the Recommended Solution field. For CVN ships, use the local TYCOM guidance during selecting the correct deferral reason to use.

(k)   For CVN ships, all Ship's Force written JSNs with originating work center maintenance level shall be resolved within 180 days of creation with the exemption of JSNs when awaiting for outstanding parts.

(2)   Submarine Specific Requirements. Classified information or NNPI is not to be included on any work candidate entered in OMMS-NG. P-OMMS will be utilized for NNPI work candidates. Should classified information be required to adequately document a material deficiency, the following action will be taken:

(a)   Create a job in OMMS-NG.

(b)   For the Block 35 narrative (problem description), indicate the unclassified summary and Date Time Group of a classified message that fully describes the problem.

(c)   Transmit a classified message to the appropriate activities to supplement the work candidate.

(3)   Naval Air Force Specific Requirements. Certain work candidates will be submitted to be accomplished by the ship's repair work centers. Those work candidates will initially be entered by the parent Reactor Department work center into P-OMMS using the correct configuration item and assigned as O-Level (type 4B). Once the work candidate has been approved at ship level in P-OMMS:

(a)   The P-OMMS coordinator will manually enter jobs into TOPSIDE OMMS-NG using APL or XRIC (XCOMPARTMNT, XSYSTEMITEM, XSERVICEITM, etc.) as appropriate for the Reactor Department work center requesting the work.

(b)   The P-OMMS coordinator will document the TOPSIDE OMMS-NG JSN at the beginning of the work candidate problem description field in P-OMMS in following format: OMMS: JSN.

     Example: OMMS:RC011324. (A "blank space" must be placed after the JSN).

(c)   The P-OMMS coordinator will document the P-OMMS JSN at the beginning of the work candidate problem description field in Hull

Mechanical and Electrical (TOPSIDE OMMS in the following format: P-OMMS:JSN.

Example: P-OMMS:RC01002A. (A "blank space" must be placed after the JSN).

(d)   Upon completion of repairs, the repair WC will document their man-hours and close the work candidate in TOPSIDE OMMS-NG.

(e)   The P-OMMS coordinator will approve the completed job in TOPSIDE OMMS-NG at the Department Head level.

(f)   The P-OMMS coordinator or originating WC will close the job in P-OMMS.

(g)   The P-OMMS coordinator will send status of the Repair Department work candidates in TOPSIDE OMMS-NG to Reactor Department at least weekly.

(h)   Only the P-OMMS coordinator and assistants will write Reactor Department jobs for repair WCs in TOPSIDE OMMS-NG.

(i)   Those work candidates written for Ship's Force Organizational level requires Repair Officer's screening and approval prior to assignment of shop responsible as lead and assist work center. Ships Force will follow reference (j) for the execution of JSN screening and approval.

(j)   When generating work candidate for galley and laundry equipment, the repair work center responsible for the corrective and planned maintenance of the equipment will be responsible in documenting the JSN under the repair work center. The galley watch captains and laundry supervisors can contact the repair work center via ship's Trouble Call program to submit the trouble calls.

(4)   Nuclear Command, Control, and Communication Specific Requirements. Nuclear Command, Control, and Communication Navy system information is classified, and requires protection not afforded by unclassified maintenance data systems. Classified information documenting failure or status of Nuclear Command, Control, and Communication Navy equipment or NNPI is not to be included on any work candidate entered in MDS. Should this information be required to adequately document a material deficiency, the following action will be taken:

(a)   Create a work candidate in MDS.

(b)   For the Block 35 narrative (problem description), indicate the unclassified summary and Date Time Group of a classified message that fully describes the problem.

(c)   Transmit a classified message to the appropriate activities to supplement the work candidate.

(5)   CNIC Specific Requirements. Per reference (h), Airfield Operations Department work candidates will be submitted and tracked using the Maintenance Data Analysis Tool (MDAT) provided on the ATC Web. Port operations and security department work candidates will utilize the non-automated process in accordance with this instruction.

c.   Deferred Maintenance Action.

(1)   Criteria. A deferred maintenance action is a maintenance requirement that meets one or more of the following criteria:

(a)   Requires assistance from an activity external to the ship to accomplish (for example, IMA, depot, technical support unit, etc.), or is a Ship's Force job requiring assistance from outside the originating WC (for example parts required).

(b)   Is not expected to be accomplished by Ship's Force within seven days.

(c)   Is an uncorrected deficiency reported by Board of Inspection and Survey (INSURV); refer to Section II Chapter 1 of reference (a) or other inspecting activity (CMAT, C5RA, TSRA, OSAR, MRA etc.).

(d)   Is required to correct a condition that has caused or has the potential to cause injury to personnel or damage to material.

(e)   Repair Parts are required.

NOTE: FOR NON-AUTOMATED SITES, THE OPNAV 4790/2K IS USED TO REPORT A DEFERRED MAINTENANCE ACTION. REFER TO APPENDIX D FOR MANUALLY COMPLETING THE 4790/2K. FOR AUTOMATED SITES, REFER TO THE APPLICABLE SYSTEM'S USER MANUALS AND GUIDES.

(2)   NECC Unique Requirements and Policy. Whenever creating a deferred maintenance action ensure the blocks listed in paragraph 19-7.9.c.(5)(a) through (c) of this chapter contain the following information.

(a)   Block 6: The When Discovered Code identifies when the need for maintenance was discovered. Typically, deferred maintenance actions are written to document defects or failures on the command's equipment. However, deferred maintenance actions are also required to procure materials in support of PMS. To assist in data collection, all deferred maintenance actions generated in support of PMS will use option code "9 -No Failure, PMS Accomplishment Only". The correct use of this field will greatly enhance NECC's ability to distinguish between maintenance actions that are written due to equipment defects or failures and those written to procure materials in support of PMS.

(b)   Block 35: Will begin with the serial number of the equipment and a complete description of the malfunction. Next a detailed statement stating the required actions to correct the malfunction. For Civil

Engineering Support Equipment, an additional entry of miles or hours of the equipment at the time of failure will be documented.

      (c)   Block 37: Will be a short description of the problem.

    (3)   CNIC Unique Requirements and Policy. All deferred maintenance actions be accurately documented, in MDAT by Airfield Operations Department, by approved non-automated means by Port Operations and Security departments and reported with a CASREP when applicable per reference (a).

d.   Completed Maintenance Action. The ship is responsible for submitting a completed maintenance action to report:

    (1)   Completion of maintenance actions previously deferred. If no further work is required by Ship's Force, higher authority may allow an outside activity to report its completion. This is referred to as an "automatic close-out".

    (2)   Completion of maintenance actions not previously deferred.

    (3)   Completion of maintenance actions for SLR equipment. See reference (a) for the definition of SLR.

    (4)   Accomplishment of an alteration, i.e., SA, Ordnance Alteration (OA), Field Change (FC), etc. Policy and implementation are provided in reference (g).

    (5)   Addition of any new equipment or system.

    (6)   Reporting the relocation of any equipment.

    (7)   Reporting the replacement or exchange of any equipment.

    (8)   Deletion, removal or turn-in of any installed equipment.

    (9)   Completion of maintenance actions considered significant for material history purposes such as:

      (a)   Maintenance actions that alter the design or operating characteristics of an equipment or system.

      (b)   Other maintenance actions or conditions that are considered significant for future reference purposes.

    (10)   Accomplishment of maintenance that required parts.

NOTE: **FOR NON-AUTOMATED SITES, THE OPNAV 4790/2K IS USED TO REPORT A COMPLETED MAINTENANCE ACTION. REFER TO REFERENCE (A), APPENDIX C FOR THE DATA ELEMENTS AND ALLOWED VALUES AND APPENDIX D FOR THE INSTRUCTIONS FOR MANUALLY COMPLETING AN OPNAV 4790/2K.**

e. Documenting Changes. Documenting changes, additions, or deletions to previously reported maintenance actions. Any information previously reported on a deferred maintenance action, except for the JCN and the deferral date, can be added, deleted, or changed. Care should be taken not to make changes to jobs that have already been reported up-line. This will require additional screening by outside activities. Automated sites may have additional fields that cannot be modified. Deletion once a JCN or JSN is created is forbidden. Once a JSN is created, completion, cancelation, or pass to history is the only option. Closing or cancelling a JSN using a closure or cancel codes of 4, 5 or 6 will freeze Validation, Screening and Brokering (VSB). Do not use those 4, 5 or 6 codes when closing or canceling jobs.

NOTE: **ONCE A JCN DEFERRAL HAS BEEN PROCESSED, IT REMAINS ON EACH PROCESSING ACTIVITY'S CSMP (I.E., SHIP'S FORCE OMMS, THE ISIC, SUBMARINE SQUADRON SUPPORT UNIT OR REGIONAL SUPPORT GROUP MAINTENANCE RESOURCE MANAGEMENT SYSTEM (MRMS) OR REGIONAL MAINTENANCE AUTOMATED INFORMATION SYSTEM (RMAIS), THE TYCOM MASTER CSMP AND THE OPEN ARCHITECTURAL RETRIEVAL SYSTEM (OARS) DATABASE) UNTIL THE COMPLETED DEFERRAL IS PROCESSED. WHEN THE 3-M COORDINATOR (3MC), ISIC, REGIONAL MAINTENANCE CENTER (RMC) MAINTENANCE DOCUMENT CONTROL OFFICE, OR AFLOAT READINESS REPORTING SYSTEM (ARRS) SHIP SUPERVISOR PERSONNEL "DELETE OR PURGE", THE JCN WILL REMAIN ON ALL OTHER AFFECTED CSMPS IF THE REPORTING COMPLETION OR CANCELLATION IS NOT REPORTED UP-LINE.**

19-7.10 <u>CURRENT SHIP'S AND STATION'S MAINTENANCE PROJECT</u>. The purpose of the CSMP is to provide shipboard and ashore maintenance managers with a consolidated listing of deferred maintenance that reflects the material condition of the ship or station. Each WC is to maintain a current paper CSMP and Repair Parts Petty Officer Log, ensuring it reflects the actual condition of a WC's spaces and outstanding maintenance, if the data is not available in OMMS or AWN. The master CSMP is held in the shore MDS (i.e., RMAIS (being replaced by VSB)). For CNIC CSMP management, Airfield Operations department will utilize MDAT per reference (h), Port Operations and Security departments will utilize approved non-automated means.

a. CSMP Content. The CSMP includes, but is not limited to:

(1) The "automated CSMP" is the computer-produced listing of deferred maintenance and alterations that have been identified through the submission of OPNAV 4790 documents. In addition to the maintenance actions added by Ship's Force, outside activities may request that they be allowed to add items to the CSMP.

(2) The suspense file documents maintenance items that have been submitted but are not reflected in CSMP reports or have not appeared in the MDS Transaction and Error Identification Report as having been accepted.

(3) The work candidate or JSN Log which is the WC's list of all material discrepancies to be corrected either by Ship's Force or an outside activity. All non-automated units or ships use work candidate or JSN logs. The Work Center Supervisor (WCS) will maintain a work candidate or JSN Log using the format as shown in appendix H. The UIC and WC Code must be entered on each page of the log. A separate JSN for each maintenance action reported from that WC must be assigned. The JSNs must be in sequential order. The WCS will ensure that the JCN assigned to a specific maintenance action is reflected on any material request associated with that maintenance action.

b. Surface Force Unique Requirements.

(1) Surface Force ship unique requirements and policy for bulk loads and database transfer are as follows. A bulk load is a CSMP load (work candidate(s) provided as an external file to be loaded into the ship's CSMP) produced by any outside activity (e.g., Combat Systems, Command, Control, Communication, Computer Readiness Assessment (CSRA), INSURV, SURFPAC Enhanced Capability to Assess Programs (SECAP), or Total Ship Readiness Assessment (TSRA). COMNAVSURFPAC or COMNAVSURFLANT N43 3-M will review and approve all bulk loads prior to being loaded into any afloat or ashore database. COMNAVSURFPAC or COMNAVSURFLANT N43 3-M is the only authorizing activity for bulk load reviews. Commands will not transfer, copy, or allow the direct access to or copying of the MDS database by any outside activity without COMNAVSURFPAC or COMNAVSURFLANT N43 3-M written permission.

(2) CSMP management. CSMP is the primary source for documenting material discrepancies, ordering repair parts, and planning maintenance for the unit, whether it is being accomplished by Ship's Force or by an outside agency. CSMP fundamentals are delineated below:

(a) Priority for the work candidate will be determined based upon the material condition and current situation of the command vice casualty reporting requirements. All priority level changes or any updates to the work candidates will be documented in block 35 "recommended solution" of the work candidate. Every work candidate starts with a priority level of four "DESIRABLE". Priority of work candidates will be determined using the guidance in Figure A-1 of reference (c). During the review and approval process, the Division Officer (DIVO) or Leading Chief Petty Officer (LCPO) may raise the priority to a three "HIGHLY DESIRABLE" but no higher. The next level of review and approval is the Department Head (DH) who may raise the priority level to two "ESSENTIAL" but no higher. Priority level one "MANDATORY" is assignable by the 3MC upon direction of the unit CO.

(b) Work Candidate Review. The DH will ensure all work candidates in the departmental CSMP are reviewed and have an updated status of

current actions being taken in block 35 or comment section of AWN (examples: availability brokered to, parts status, troubleshooting efforts, date scheduled for organizational work or any detail that will inform Chain Of Command (CoC) with the current status) on or before 90 days and every 90 days thereafter; utilize the weekly 3MC CSMP Ad Hoc query to identify JSNs that have not been updated. The specific detailed update can be entered by the LCPO or DIVO and normal approval of the updates is required. If any Type Availability (TA) TA-4 work candidates exceed unit's capability or capacity, the TA code will be changed to TA-2. Enter "Exceeds unit's capability or capacity" into block 35.

(c) CSMP will reflect the actual material condition and workload of the unit.

(d) CSMP quality control is the daily responsibility of the Leading Petty Officer, LCPO, DIVO, and DH via the review and approval process.

(e) Do not close or cancel jobs based on age. If valid, jobs will remain on CSMP.

(f) The CoC must review work candidates before the Planning Board for Maintenance. Incorporate departmental work and maintenance plans into CNO availabilities and Continuous Maintenance Availability planning.

(g) Commands will review the CSMP to ensure work candidates written for corrosion control, environmental, or zone or space inspections contain "C", "E", or "Z" in Block 10, respectively.

(h) Up-line Reporting. Up-line reporting via revised alternative data flow website (RADWEB) is required at a minimum of twice per calendar week. Platforms on Automated Work Network (AWN), units will verify twice a week that automatic data transfer is occurring and "RSupply" batch jobs (JSL341/340) are running and executed.

c. Naval Air Force Unique Requirements. Aircraft Carrier unique requirements and policy for bulk loads and database transfer are as follows.

(1) A bulk load is a CSMP load (work candidate(s) provided as an external file to be loaded into the ship's CSMP) produced by any outside activity (e.g., CSRA, INSURV, or Inspections, Certifications, Assessments and Assist Visits.

(2) COMNAVAIRLANT or COMNAVAIRPAC N432 MDS managers will review and approve all bulk loads prior to being loaded into any afloat or ashore database.

(3) COMNAVAIRLANT or COMNAVAIRPAC N432 MDS managers are the only authorizing activities for bulk load reviews.

(4)   CSMP management. CSMP is the primary source for documenting material discrepancies, ordering repair parts, and planning maintenance for the unit, whether it is being accomplished by Ship's Force or by an outside agency. CSMP fundamentals are delineated below:

  (a)   Priority for the work candidate will be determined based upon the material condition and current situation of the command vice casualty reporting requirements. All priority level changes or any updates to the work candidates will be documented in block 35 "recommended solution" of the work candidate. Every work candidate starts with a priority level of four "DESIRABLE". Priority of work candidates will be determined using the guidance in reference (c), figure A-1. During the review and approval process, the DIVO or LCPO may raise the priority to a three "HIGHLY DESIRABLE" but no higher. The next level of review and approval is the DH who may raise the priority level to two "ESSENTIAL" but no higher. Priority level one "MANDATORY" is assignable by the 3MC upon direction of the unit CO. The verbiage "CASREP" will be annotated at the beginning of the recommended solution block when priority is raised to HIGHLY DESIRABLE or above.

  (b)   Work Candidate Review. The DH will ensure all work candidates in the departmental CSMP are reviewed on or before 90 days and every 90 days thereafter; utilize the weekly 3MC CSMP Ad Hoc query to identify JSNs that have not been updated. All ship's force written JSNs with "Originating Work Center" maintenance level shall be resolved within 180 days of creation with the exemption of JSNs that are awaiting for outstanding parts.

  (c)   Review and Approval Process. The DH will ensure newly written candidates are approved at DH level within seven days of creation. All JSN intended for Organizational level will need to be screened and approved by Repair Officer prior to upline off-ship. All JSN intended for Outside Activity repairs will need to be screened and approved by Ship's Maintenance Manager prior to SHIP level of approval and upline. Ship's force will not make any changes any JSN that were already brokered by TYCOM to a certain availabilities. If needed, changes need to be coordinated with the assigned Automated Work Package manager Maintenance Project Manager. Refer to reference (j) for details.

(5)   Repair Officer is responsible in maintaining the ship repair availability scheduling.

(6)   Commands will not transfer, copy, or allow the direct access to or copying of the MDS database by any outside activity without COMNAVAIRLANT or COMNAVAIRPAC N432 MDS manager written permission.

(7)   There will be no paper Automated Work Requests given to the ship by any external source for entry into the CSMP.

(8)   3-M PQS qualified maintenance personnel will be granted OMMS-NG access for the purpose of adding, modifying, and completing a work candidate within the respective WCs.

d.   Submarine Force Unique Requirements. Submarines operate in varied environments and circumstances, which may result in a ship's inability to comply with reference (a) and certain paragraphs of this subchapter. Paragraphs 19-7.10.d.(1) through (6) of this chapter provides amplifying direction.

(1)   The 3MC will perform CSMP up-lines as follows:

  (a)   Whenever a CASREP is transmitted, the corresponding CSMP JSN must be up-lined at the same time.

  (b)   Whenever a job is walked-through during an availability, the corresponding CSMP JSN must be up-lined at the same time.

  (c)   OMMS-NG up-lines will be performed a minimum of once a week regardless of availability or operational status, this includes running the "inactivate" and "archive" functions.

  (d)   P-OMMS-NG up-lines will be performed a minimum of monthly regardless of availability or operational status, this includes running the inactivate and archive functions.

(2)   For OMMS-NG only, CSMP up-line files (.uru) must be accompanied by the corresponding parts utilization files (.pts). The Maintenance Document Control Office will reject any .uru up-line file that does not include the corresponding .pts file.

(3)   The CSMP will not be replaced with any software required for use by a repair activity to track material condition of the ship or ongoing work. When use of these systems is required, the CSMP will be maintained parallel to the other required system.

(4)   As the Master CSMP resides ashore and is maintained by the local maintenance support activity, the shipboard CSMP and shore CSMP must be reconciled quarterly.

(5)   The 3MC will ensure all documented material or sound discrepancies or work candidates are assigned to a PMS WC and tracked to completion.

(6)   To ensure proper documentation of material deficiencies that are within the Submarine Safety (SUBSAFE), Fly-by-Wire (FBW), or Scope of Certification (SOC) boundaries, the following guidance is provided. Annotate all material deficiencies that are within the SUBSAFE, FBW or SOC boundaries in the CSMP using the Special Requirements Tab in OMMS-NG or RMAIS as appropriate. Additionally, SUBSAFE, FBW or SOC must be entered into the beginning of the CSMP Summary.

(a)   The maintenance brokers will ensure the SUBSAFE, FBW and SOC work candidates are appropriately marked in RMAIS following up-lines.

(b)   ISICs will verify the ships are appropriately using the Special Requirements Tab to annotate the SUBSAFE, FBW and SOC deficiencies in the CSMP during the 3-M Inspection using Subchapter 19F, Appendix B, Section IV-A2, CSMP Validity Factor form.

e.   Unit or Ship Use. The CSMP is utilized as follows:

(1)   The ship's CO and Executive Officer use CSMP reports to:

(a)   Determine the effects of deferred maintenance that limit the ship's capability.

(b)   Evaluate potential CASREP situations.

(c)   Evaluate the material condition of each individual WC.

(d)   Determine what kind and how much outside assistance is needed to complete the deferred maintenance.

(e)   Evaluate weaknesses or shortages in skill levels or resources required to do the deferred maintenance.

(f)   Determine the type of upkeep and propulsion plant shutdown requirements needed for the accomplishment of maintenance.

(2)   The DH or DIVO uses the CSMP reports for the same information as the CO and Executive Officer but are primarily interested in their specific department or division rather than the entire ship. CSMP reports can assist them in determining plans of action for accomplishing the deferred maintenance and evaluating the performance of WCSs in the management of their WCs.

(3)   The WCS uses the CSMP reports for managing WC maintenance. Each WCS is responsible for ensuring that the CSMP accurately describes the material condition of the WC. NECC WCSs are responsible for the review of their CSMP on a weekly basis, ensuring that completed jobs are closed, new equipment failures are properly documented and that materials required to repair or maintain equipment are on order.

(4)   NECC requires that any open job in the CSMP that exceeds six months must be researched by the CoC. The appropriate actions will be taken to expedite the repair or replacement of the equipment. Any job that exceeds six months and cannot be resolved at the command level will be forwarded to the ISIC for assistance and direction.

(5)   CNIC requires any open corrective action item exceeding six months that impacts mission capability and cannot be resolved at the command level, or supported by CASREP, be reported to the appropriate ISIC or regional commander for assistance and direction to expedite resolution.

f.   CSMP Reports. Current automated systems produce both summary and detail printed CSMP reports. Since software applications may differ, check the applicable system's user manuals and guides for available report formats. CSMP reports are produced in a variety of options with selected sequences and totals. Summary reports are single-line summaries of the uncompleted deferred maintenance actions in the CSMP and are available by type of availability, WC, INSURV number, safety-related deficiencies and EIC. Detail reports show the complete record for these actions. CSMP detail reports can be sorted by JCN, EIC or Ship(s) Work Authorization Boundary (SWAB).

(1)   Summary Reports. CSMP Report 1 (produced in seven options). Each option presents a single line summary of each non-completed deferred maintenance action:

(a)   Summary by Type Availability is provided on an as requested basis. This report provides a single-line description of each deferred maintenance action sequenced by ship, WC, type availability and JSN. A WC summary line on the CSMP provides the number of man-hours by IMA, depot, and Ship's Force. At the end of the report is a summary of estimated man-hours by type availability for each WC and department and a line for the ship total.

(b)   Summary by WC, available on an as requested basis, contains the same information as option (a), but sorted by ship, WC and JSN.

(c)   Summary by INSURV Number is provided routinely to the ship as directed by TYCOM after an INSURV inspection. It is restricted to only those items on the CSMP that have been assigned an INSURV number. Sequenced by ship, INSURV number, WC and JSN. It contains similar information to option (a). Man-hour estimates and summaries are not shown.

(d)   Summary by Safety Related Deficiencies, available on an as requested basis, is restricted to only those actions listed on the CSMP which have been assigned a safety hazard code. Sequenced by ship, WC, type availability and JSN, it contains the same information as option (a) for safety related deferred maintenance actions. No man-hour estimates, summaries or list of additions and deletions are shown.

(e)   Summary by EIC, available on an as requested basis, is sequenced by ship, EIC, WC, JSN and contains the same information as option (a). This report includes man-hour estimates summarized in EIC sequence at the system level.

(f)   Summary by INSURV Number and Type Availability, available on an as requested basis, contains the same information as option (c) sorted in ship, INSURV number and type of availability sequence.

(g)   Summary by SWAB or Ships Work List Item Number (SWLIN), available on an as requested basis, contains the same information as option (a) including only those JCNs that have a SWAB or SWLIN

assigned. The information is sorted by ship, SWAB or SWLIN and WC or JSN.

(2)   Detailed Reports. CSMP Report 2 (produced in three options). Each option presents detailed information regarding the ship's deferred maintenance.

(a)   Detail Listing by JCN displays a detailed record of the ship's deferred maintenance by JSN within the WC. If a deferred maintenance action has been documented as a safety hazard, "SAF HAZ" appears in the comment column. If the maintenance action has been assigned an INSURV Number, this number will appear in the "comment" column.

(b)   Detail Listing by SWAB displays a detailed record of the ship's deferred maintenance by SWAB. If a deferred maintenance action has been documented as a safety hazard, the words "SAF HAZ" appear in the "comment" column. If the maintenance action has been assigned an INSURV Number, this number will appear in the "comment" column.

(c)   Detail Listing by EIC is sequenced by JSN within a WC within an EIC.

APPENDIX A

STANDARD WORK CENTER CODES FOR MASTER JOB CATALOG ITEMS

Submarine Forces:

Description	Code
Overhaul, SRA, Baseline Routines	EXSY
NAVSEA Issued Ship Alterations	*XSA
NSWCPD Machinery Alteration	*XMA
NAVSEA Issued Field Changes	*XFC
NAVSEA Issued Engineering Changes	*XEC
NAVSEA Issued (TYCOM Managed) Temporary Alterations	**TA
TYCOM Issued Alterations	*XTY
DIRSSP Issued Strategic Systems Program Alterations (SSBN, SSGN)	**SP
TYCOM Directed and Funded Grooms and Certifications	**TY
Submarine Extended Operating Cycle PMRs	**JC
Test and Measurement System Repair Routines	**CR
MJC Service Routines	**MC

*=Department

**=Department or Division

Surface Forces:

Description	Code
Overhaul, SRA, Baseline Routines	EXSY
NAVSEA and TYCOM Issued Alterations	EXSA
Engineering Cycle	**EC

First character identifies the requesting Department.
Second character identifies the Administrative Procedure ("X").
Third character indicates catalog routine ("C").
Last character denotes the maintenance source code as:
   A - Planned Maintenance Subsystem
   B - Unassigned
   C - Corrective
   D - Upkeep
   E - Miscellaneous

APPENDIX B

JOB ORIGINATOR VALUES

JOB ORIGINATOR			OBS	BRKR		
SEQ	SORT	CODE	FG	FG	JOB ORIGINATOR TEXT	SHORT TEXT
25	1	A	0	0	ACCCIT (AIR)/TSRA ASSESSMENTS and DC (SURF) TSRA HM&E (SUBS)	LOCAL TYCOM
26	7	B	0	0	C5RA (AIR) CSAT/MAPAI (SUBS); CBR INSPECTION (SURF)	LOCAL TYCOM
27	2	C	0	0	LCS/DDG 1000 (SURF) TSRA COMBAT SYSTEMS (SUBS)	LOCAL TYCOM
28	8	D	0	0	CABLEWAY (AIR) I-LVL DEPARTURE (SUBS);Self-Assessment & Groom Training (SURF)	LOCAL TYCOM
42	42	E	0	0	ELEVATOR SUPPORT UNIT (AIR);SSRNM (SURF)	LOCAL TYCOM
46	46	F	0	0	INSURV (NATIONAL)	INSURV-N
29	9	G	0	0	ERAT, IRAT, TMIT (SURF)	LOCAL TYCOM
30	10	H	0	0	EQOL/FSL (AIR); 2K- Fault Tree Analysis (SURF)	LOCAL TYCOM
43	43	I	0	0	NAVSEALOGCEN RESERVED	NAVSEALOGCEN
37	17	J	0	0	POET'S (AIR); ICAS (SURF)	LOCAL TYCOM
31	11	K	0	0	TSRA/CSC C5RA (SURF)	LOCAL TYCOM
40	40	L	0	0	PORT ENGINEER WRITTEN JSNs	NATIONAL
39	39	M	0	0	MicroPMR (MPMR)/MSWP (SUB)	LOCAL TYCOM
41	41	N	0	0	CORROSION CONTROL (SURF)	LOCAL TYCOM
32	12	P	0	0	PEPSI (AIR)/SECAP (SURF); PMT OSAR (SUBS)	LOCAL TYCOM
15	15	Q	0	1	CREATED BY RMAIS (NATIONAL)	RMAIS-N
16	16	R	0	0	INSURV (NATIONAL)	INSURV-N
33	13	S	0	0	CEMAT (AIR) SHIP SEMAT (SURF); SAIL DEFICIENCIES (SUBS)	LOCAL TYCOM
45	45	T	0	0	TYCOM (AIR, SURF, SUBS)	LOCAL TYCOM
38	18	U	0	0	TOOLSET FOR INSPECTIONS (BOILERS, DIESELS, ETC.)	OPNAVINST 9220.3
44	6	V	0	0	ALRE ICAV (AIR), UNSCHEDULED INSPECTION/ASSESSMENT TASKS (SURF)	LOCAL TYCOM
34	14	W	0	0	BAWP (AIR)/ICMP; IMF TSRA; ICAS; RMC TSRA (SURF)	LOCAL TYCOM
35	15	X	0	0	BAWP (AIR)	LOCAL TYCOM
36	16	Y	0	0	AIR/MST (SURF); BAWP (AIR)	LOCAL TYCOM
23	5	Z	0	0	MST/CLASS MAINTENANCE PLANS (SURF) CLASS MAINTENANCE PLANS (NATIONAL) MST/M&SWP	LOCAL TYCOM
999,999	999,999	?	0	0	Invalid	Invalid

VI-19-7-B-1

APPENDIX C

PREPARATION INSTRUCTIONS CONFIGURATION CHANGE FORM

(OPNAV 4790/CK)

1. <u>CONFIGURATION CHANGE FORM (OPNAV 4790/CK)</u>

   a. The OPNAV 4790/CK Form is used to report completion (or partial completion) of alterations, maintenance actions that resulted in a configuration change and to correct discrepancies and errors in the configuration files.

   b. Three blocks at the top of the form are used to specify what type of action is being reported (a configuration file correction "CONFIG FILE CORR" a completed maintenance action that had no prior deferral "COMP M/A NO DEFL" and a completed deferred maintenance action "COMP DEFL"). The rest of the form is separated into four sections.

   c. The OPNAV 4790/CK is available to download in PDF format at: https://navalforms.documentservices.dla.mil/formsDir/_OPNAV_4790_CK_540.pdf

   d. The OPNAV 4790/CK Continuation form is available to download in .pdf format at https://navalforms.documentservices.dla.mil/formsDir/_OPNAV_4790_CK_C_3277.pdf

1.1 <u>Section I - Job Identification</u>: This section identifies the system or equipment involved in the configuration action. If a component or sub-unit is being reported, the Job Identification in this section must be that of the highest assembly. Components and sub-units are reported in Section III.

1.2 <u>Section II - Job Description and Remarks</u>: This section contains remarks relating to the accomplishment of the action. In some cases, an alteration directive will specify that certain information be documented.

1.3 <u>Section III - Component Configuration Change Identification</u>: This section contains information on the component(s) affected by the maintenance (configuration change) action. The Job Identification Level (section I) will be completed to the highest assembly directly affected by the change. The sub-units (components) are reported to the individual Allowance Parts List (APL) level in Section III. An OPNAV 4790/CK allows only one component (sub-unit) to be reported per form. When multiple sub-units need to be reported, "CONTINUATION SHEET(s)" OPNAV 4790/CK(C), that can report up to four components per Form can be attached. The same Job Control Number (JCN) as assigned to the higher level assembly maintenance action recorded in SECTION I is to be continued on each component reported.

1.4 <u>Section IV - Special Purpose</u>: This section is filled in onboard, with the exception of Block 30 (is no longer applicable).

NOTE: **EXAMPLES OF COMPLETED OPNAV 4790/CK FORMS FOR VARIOUS REPORTING SITUATIONS CAN BE FOUND AT THE END OF THIS APPENDIX AS FIGURES G1 THROUGH G8.**

2. <u>PROCEDURES FOR REPORTING CONFIGURATION CHANGE (OPNAV 4790/CK FORM)</u> - Place an "X" in the appropriate block at top of form to indicate the type of action being reported, "COMP M/A NO DEFL" or "COMP DEFL".

2.1 <u>Section I - Job Identification</u>.

2.1.1 <u>Job Control Number (Blocks 1 - 3)</u>:

    a.   Block 1 - UIC: Enter the Unit Identification Code (UIC) of the activity receiving the maintenance action.

    b.   Block 2 - WORK CENTER: Enter the code of the Work Center responsible for the equipment. For Ships, a four-position Work Center code will be entered. For repair departments of IMAs, RMCs and other IMAs, a three-digit code will be entered. The three-digit code is entered left-to-right leaving the right most position blank. Appendix C of this chapter provides a listing of authorized Work Center codes (Submarine Tenders have been converted to a four position Work Center code).

    c.   Block 3 - JOB SEQ. NO. (JSN): Enter the four character JSN assigned by the Work Center Supervisor. This is an entry assigned sequentially from the SFWL or JSN Log.

NOTE: **(BLOCKS 1, 2, 3): IF THE CONFIGURATION CHANGE BEING REPORTED IS NOT AN ALTERATION AND CLOSES A JOB PREVIOUSLY DEFERRED AND ON THE CURRENT SHIP'S MAINTENANCE PROJECT (CSMP), ENTER THE JCN OF THE OPENING DEFERRAL. IF THE MAINTENANCE ACTION IS THE ACCOMPLISHMENT OF AN ALTERATION, ENTER THE JCN FROM THE ALTERATION RECORD (E.G., EXSA2134, OXTY1016, WXSP1124).**

2.1.2 <u>Alteration Identification</u>.

    a.   Block 4 - ALTERATIONS (Ship Alterations (SHIPALTs), Field Changes (FCs), Etc.): If applicable, enter the alteration number from the authorizing directive.

    (1)   For SHIPALTs, enter the alteration identification exactly as it appears on the 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 (e.g., SASSBNf342130). Enter the title code from the alteration record in the last right-hand position of the block.

    (2)   For all other alteration types, enter the alteration type character code in the first two positions of the block. Enter the alteration number starting in position four (e.g., OAf96999, FC 29, TY 0132). If an alteration identification number is not provided with the alteration record, leave blank. Table 1 reflects the authorized alteration prefix codes:

Table 1 - Alteration Prefix Codes

Code	Descriptions
SA	Ship Alteration
OA	Ordnance Alteration
BA	Boat Alteration
FC	Field Change
MA	Machinery Alteration
SI	SYSCOM Command Instruction
EC	Engineering Change
HI	Habitability
TY	TYCOM Direction
TD	Technical Directive
SP	Strategic Systems Project Office Alteration
SC	Service Change
TR	Trident Alteration
EP	Engineering Change Proposal
MO	Crypto Equipment Modification
AR	Alteration Request May be originated by a ship to request an alteration design. Enter and left justify the authorized prefix "AR" followed by a blank space, any number the ship assigns for its own control.

2.1.3 <u>Block A - Enter Command's Name</u>.

2.1.4 <u>Block B - Enter Ship's Hull Number (if applicable)</u>.

2.1.5 <u>Block 5 - EIC</u>: Enter the Equipment Identity Code (EIC) for the equipment identified in the Equipment Noun Name field (Block 7). EICs are listed in the Ship Configuration Logistic Support Information System (SCLSIS) Index Report or Ship's 3-M Reference CD or DVD.

NOTE: **WHEN DOCUMENTING 3-M REQUESTS FOR FLEET AND DEPOT ASSISTANCE, A SPECIAL EIC OF "ZOZZ" FOR NAVSEA 08 AND "ZOYY" FOR DIRSSP MUST BE USED AND THE REMAINING DATA MUST BE UNCLASSIFIED.**

2.1.6 <u>Block 6 - ACT</u>: Enter the appropriate Action Taken code from the lower section of the OPNAV 4790/CK form or from the list provided in Table 2.

NOTE: **THE LIST OF "ACTION TAKEN" CODES CHANGES OCCASIONALLY. VERIFY CURRENT "ACTION TAKEN" CODES AT THE FOLLOWING WEB SITE: HTTPS://OARS.NSLC.NAVY.MIL/OARS/DOCS/REF/ INDEX.HTML**

Table 2 - Action Taken Code

Code	Descriptions
5A	Partially Completed Alteration. The IMA must describe in the Job Description/Remarks section what was done and the O-level that remains to be done.
5B	Fully Completed Alteration.
5C	Fully Completed Equivalent to Alteration.
5D	Alteration Directive Not Applicable.
NOTE:	**USE OF A NUMBER 5( ) CODE REQUIRES AN ENTRY IN BLOCK 4 "ALTERATION IDENTIFICATION".**
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.
NOTE:	**THE FOLLOWING SECOND CHARACTER CODES CAN BE USED WITH THE ACTION TAKEN CODES 1, 2, OR 3 AS DIRECTED BY THE TYCOM:**

	Code	Description
	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.

2.1.7 Block 7 - EQUIPMENT NOUN NAME: If the maintenance action is as the result of the accomplishment of a SHIPALT, enter the equipment Noun Name from the SHIPALT record. Otherwise, enter the equipment nomenclature and description of the equipment or system on which the maintenance was performed. If the maintenance action affects several components, enter the name and designator of the highest assembly. For HM&E equipment, enter the noun name. For electronics equipment, enter the Army-Navy type designator or commercial model number. For ordnance equipment, enter the system or equipment nomenclature, followed by the Mark and Mod numbers, e.g., Launch System 36/1.

2.1.8 Block 8 - MHRS EXP: Enter the total number of man-hours expended by Ship's Force, not previously reported,) in completing and documenting the maintenance action.

Man-hours expended by others tasked to perform equipment maintenance are to be documented separately.

2.1.9 Block 9 - ACT: Actual Maintenance Time used for Selected Equipment List (SEL) equipment only. Enter the total number of clock hours expended to complete the maintenance.

2.1.10 Block 10 - COMP. DATE: Enter the Julian date the maintenance action was completed.

2.1.11 Block 11 - M/R (Meter Reading): Enter an "X" if the equipment or any of the equipment components or sub-units to be identified in Section III have time meters installed.

2.2 Section II - Job Description/Remarks Block 12: Enter any information and remarks relating to the accomplishment of the action. In some cases, an alteration directive will specify that

certain information be documented. If an "X" is entered in Block 11, identify in Block 12 each equipment followed by "M/R" and the time meter reading.

2.3 <u>Section III - Component Configuration Change Identification</u>.

2.3.1 <u>Block 13 - COMPONENT NOUN NAME</u>: Enter the noun name of the component removed, installed, or modified. For HM&E equipment, enter the noun name. For electronics equipment, enter the "AN" type designator or commercial model number. For ordnance equipment, enter the system or equipment nomenclature, followed by the Mark and Mod numbers, e.g., Launch System 36/1.

2.3.2 <u>Block 14 - QUANTITY</u>: Enter the number of like components or sub-units identified in Block 13 that were, removed, installed, or modified. The quantity must be "001" if a component identification number is entered in Block 16, or a serial number is entered in Block 17 (see 2.3.5.).

2.3.3 <u>Block 15 - CA (Component Action)</u>: Enter the code identifying whether the equipment in Block 13 was, removed (R), installed (I) or modified (M). When reporting a configuration file action vice a maintenance action, enter (A) for an Add, (D) for a Delete or (C) for a Correction.

2.3.4 <u>Block 16 - COMPONENT IDENTIFICATION</u>: Enter the local identification number(s) such as station number or valve mark of the equipment identified in Block 13. This information must be consistent with the quantity entered in Block 14. For electronic (ELEX) equipment, enter the model number, and if available, enter the serial number in Block 17.

2.3.5 <u>Block 17 - COMPONENT SERIAL NUMBER</u>: Enter the manufacturer's serial number of the equipment identified in Block 13. If the serial number is not available, enter "NONE".

2.3.6 <u>Block 18 - COMPONENT APL/AEL</u>: Enter the Component Allowance Parts List or Allowance Equipage List (APL/AEL) of the component identified in Block 13. If not available, the unit's supply department should assign a temporary APL.

2.3.7 <u>Block 19 - LOCATION (DECK/FRAME/SIDE)</u>: Enter the location (compartment number, deck, frame, or side notation), that best describes the location of the equipment identified in Block 13. If none of the mentioned location identifications are appropriate, enter a descriptive term of the onboard location (e.g., FANTAIL, FLIGHT DECK, etc.).

2.3.8 <u>Block 20 - EIC</u>: Enter the Equipment Identity Code (EIC) that best describes the component identified in Block 13.

2.3.9 <u>Block 21 - NEXT HIGHER ASSEMBLY</u>: Enter the nomenclature and serial number of the next higher assembly. No entry is required when the component identified in Block 13 is the highest assembly.

2.3.10 <u>Block 22 - SAC</u>: Enter the Service Application Code (SAC) of the component identified in Block 13. SAC codes can be obtained from the supply department.

2.3.11 <u>Block 23 - WORK CENTER</u>: Enter the code (Work Center Responsible for Equipment (WCRE)) of the Work Center having primary maintenance responsibility for the component identified in Block 13.

2.3.12 <u>Block 24 - NAMEPLATE DATA</u>: Enter the Contract Number or Procurement Document Number, Part Number or Model Number or Drawing Number, and if available, the

Commercial and Government Entity, formerly called Federal Supply Code for Manufacturers. Additional information, if available, such as physical characteristics and manufacturer's identification is useful. No entry is required for modifications and deletions if an APL is listed in Block 13.

2.3.13 <u>Block 25 - MIP</u>: Enter the Maintenance Index Page (MIP) covering the component identified in Block 13 for removals, modifications, changes, and deletions. If not available, enter "N/A".

2.3.14 <u>Block 26 - EOSS</u>: (Engineering Operation Space Sequence) For HM&E equipment, enter the Engineering Operation Space Sequence (EOSS) Document Code and Control Number of the primary EOSS procedure affected. If more than a component level document is affected, enter only the EOSS component procedure.

NOTE: ENTRY NOT REQUIRED WHEN REPORTING ELECTRONIC OR ORDNANCE CONFIGURATION CHANGE ACTIONS.

2.3.15 <u>Block 27 - TM</u>: For removal and modifications, enter the Technical Manual (TM) covering the affected component. For like equipment installations, enter the TM covering the equipment. For new installations, enter the TM when available; if not available, enter N/A.

2.4 <u>Section IV - Special Purpose</u>.

2.4.1 <u>Block 28 - RIN</u>: Enter the Record Identification Number (RIN) as listed in part I, section C of the COSAL, for deletions, removals, and modifications. For installations and additions, leave blank.

2.4.2 <u>Block 29 - Automated Integrated Language System Identification Number</u>: Enter the Automated Integrated Language System Identification Number assigned by the CDM, Platform Manager or Item Manager. For Electronic equipment, no entry is required unless directed by TYCOM. (Commander Naval Installations Command, Commander Naval Surface Pacific, Commander Naval Surface Atlantic, Commander Naval Information Forces, Commander Submarine Force Atlantic And Commander Submarine Force Pacific have no requirement.)

2.4.3 <u>Block 30 - SECAS OFFICE USE</u>: Block is no longer used.

3. <u>PROCEDURES FOR USING CK CONTINUATION PAGES</u>: The JCN entry must beper paragraph 2.2.1 of this Appendix. Up to four components can be reported on the same continuation form, with each separate component block considered a separate continuation page with its own page number. Assign page numbers consecutively. If applicable, check the block at the top of each component identification section to indicate that all data to be entered per paragraph 2.2.1 of this Appendix, except for that data entered in the component identification section. An arrow* pointing up should be placed in the first block of each blank field to indicate that it is per paragraph 2.2.1 of this Appendix. For each component reported, the required entries on the continuation pages are the JCN, page number, equipment alteration number (if applicable) and those component identification data elements which differ from Section III (original CK).

> * On the electronic form this is accomplished by holding down the "Alt" key and on the number key-pad typing in 2 and then 4. This will produce an up arrow in the block selected.

4. PROCEDURES FOR REPORTING CONFIGURATION FILE CORRECTIONS AND UPDATING THE COORDINATED SHIPBOARD ALLOWANCE LIST.

4.1 Correct errors in a previous submission: Check the block "CONFIG FILE CORR" at the top right portion of the CK form. Enter the exact JCN (Blocks 1, 2, and 3) and page number of the CK which was submitted in error. Enter action code "C", which indicates "correction" in Block 15. If the entire configuration data submitted on the previous CK is in error, fill in ALL the blocks with the corrected data. Otherwise, fill in only the applicable blocks with the correct data.

4.2 Correct a Data Element Error in the Ship's COSAL or COSAL Indexes, or Other Such Documents: Check the block (CONFIG FILE CORR) at the top right portion of the CK form. In SECTION I, enter a new JCN in Blocks 1, 2 and 3. In SECTION II, Block 12 for "JOB DESCRIPTION" insert the words "CORRECTION OF COSAL", or a description of the type of correction. If the APL is to be corrected, enter the words "CHANGE APL FROM _____" and enter the incorrect APL number. In Section III, enter in Block 13 the component noun name from the SCLSIS Index report, COSAL, etc. Enter in Block 15 code "C" for "correction". Enter the EIC of the component in Block 20. If the correction is for HM&E equipment, also enter the APL in Block 18. Enter the applicable RIN in Block 28. In addition to the corrected data these are the only required data elements that need to be reported.

5. REPORT AN EQUIPMENT RECORD ADDITION/DELETION: Complete the CK as described for "CORRECTING A DATA ELEMENT IN THE SHIP'S COSAL" in the previous paragraph, with the following exceptions: In SECTION II, Block 13 enter the words "ONBOARD - NOT COSAL SUPPORTED" or "NOT ONBOARD - COSAL SUPPORTED", as appropriate. In Section III Block 15, enter action code "A" for equipment onboard but not COSAL supported, or action code "D" for equipment that is not onboard but is COSAL supported. For an equipment "ADD", also provide as much additional information as possible (e.g., Serial Number, Next Higher Assembly, if applicable, Location, Work Center, EIC, Nameplate Data, MIP, TMs, etc.). For equipment DELETE, provide the RIN in Block 28 if applicable.

6. REPORT THE TURN-IN OR RECEIPT OF PORTABLE ELECTRICAL/ELECTRONIC TEST EQUIPMENT (PEETE): Check the CK Block for "CONFIG FILE CORR" and then follow standard procedures described for "CORRECTING A DATA ELEMENT IN THE SHIP'S COSAL" in the previous paragraph.

7. HANDLING PROCEDURES: The completed CK form is submitted to the Work Center Supervisor and then to the Division Officer, each of whom reviews the form for completeness and accuracy and initials in the appropriate blocks at the bottom of the form. The Division Officer then forwards the CK to the supply department. Supply department personnel verify or enter data such as APL/AEL, SAC and RIN and will resolve any discrepancies noted with the Work Center Supervisor prior to further routing. Supply department personnel will initial the appropriate block at the bottom of the form and ensure the sequence number first digit is the last digit of the current calendar year. The remaining four digits indicate the chronological sequence of CK forms being submitted by the ship or activity for the year. Supply department personnel will ensure the Work Center entered in Block 23 as the correct Work Center having primary maintenance responsibility for the equipment (not the supply department Work Center). The Supply Department should then forward the CK to the 3-M Coordinator. After reviewing for completeness, initialing, and dating in the appropriate block, the 3-M Coordinator submits the

CK to the 3-M ADP facility serving the activity. A copy is to be maintained in the Work Center as a suspense copy.

The following figures are provided:

Figure 1 Configuration Change Form for Component Removal Maintenance Action

OPNAV 4790/CK (REV 4-17)

Clear Form

CONFIGURATION CHANGE FORM

☐ CONFIG FILE CORR   ☐ COMP. M/A NO DEFL   ☒ COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION
1. UIC **23152**	2. WORK CENTER **OC01**	3. JOB SEQ NO **0123**	4. ALTERATIONS (SHIPALT, FLD. CHG., ETC.)

A. COMMAND NAME **USS KIDD**	B. HULL NUMBER *(IF APPLICABLE)* **DDG-100**	5. EIC **0452E**	6. ACT TKN **1**

7. EQUIPMENT NOUN NAME **COMPUTER SYSTEM, DIGITAL**	8. MHRS. EXP. **120**	9. ACT.	10. COMP. DATE **7 2 1 8**	11. M/R ☐

SECTION II JOB DESCRIPTION/REMARKS

12. JOB DESCRIPTION/REMARKS

COMPUTER RETROFITTED WITH UPDATED HARDWARE

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13. COMPONENT NOUN NAME **CONTROLLER, MEMORY**	14. QUANTITY **001**	15. CA **R**

16. COMPONENT IDENTIFICATION **RACK 1A**	17. COMPONENT SERIAL NUMBER **12345ABC**

18. COMPONENT APL/AEL **00002785CL**	19. LOCATION (DECK/FRAME/SIDE) **04-102-0-Q**	20. EIC **QK4H200**

21. NEXT HIGHER ASSEMBLY **NONE**	22. S.A.C.	23. WORK CENTER **OC01**

24. NAMEPLATE DATA

HONEYWELL INFO SYS INC
SERIAL: 12345ABC
MOD: 1A

25. MIP **4A00/003**	26. EOSS

27. TM **NA47-00**

SECTION IV SPECIAL PURPOSE

28. RIN	29. AILSIN	30. SECAS OFFICE USE

--INSTRUCTIONS--

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II PAGE 1	CONT. PAGE	LEGEND			
1-3	JOB CONTROL NUMBER	M	M	IA	IF AVAILABLE	O	OPTIONAL
4	ALTERATION IDENTIFICATION	IP	IP	IP	IF APPLICABLE	NR	NOT REQUIRED
5	EQUIPMENT IDENTIFICATION CODE	M	NR	M	MANDATORY		
6	ACTION TAKEN	M	NR				
7	EQUIPMENT NOUN NAME	M	NR	SECTION I, BLOCK 6 ACTION TAKEN		SECTION III, BLOCK 15 COMPONENT ACTION	
8	SHIP'S FORCE MANHOURS EXPENDED	M	NR				
9	ACTIVE MAINTENANCE TIME	M	NR	5A	PARTIALLY COMPLETED ALTERATION		MAINTENANCE ACTIONS
10	COMPLETION DATE	M	NR				
11	METER READING	IP	NR	5B	FULLY COMPLETED ALTERATION	R	REMOVED EQUIPMENT
12	JOB DESCRIPTION (REMARKS)	O	NR			I	INSTALLED EQUIPMENT

ITEM NUMBER	SECTION III DESCRIPTION	REMOVE (R/D)	INSTALL (I/A)	MODIFY (M/C)			
13	COMPONENT NOUN NAME	M	M	M	5C	FULLY COMPLETED EQUIVALENT TO ALTERATION	M MODIFIED EQUIPMENT
14	QUANTITY	M	M	M			
15	COMPONENT ACTION	M	M	M	5D	ALTERATION DIRECTIVE NOT APPLICABLE	CONFIG FILE CORR
16	COMPONENT IDENTIFICATION	IP	IP	IP			NO MAINTENANCE ACTION
17	COMPONENT SERIAL NUMBER	IA	IA	IA	1	MAINTENANCE ACTION COMPLETED; PARTS DRAWN FROM SUPPLY	
18	COMPONENT APL/AEL	M	IA	IA			A ADDITION OF RECORD
19	LOCATION	M	M	M			
20	EQUIPMENT IDENTIFICATION CODE	NR	IA	NR	2	MAINTENANCE ACTION COMPLETED; REQUIRED PARTS NOT DRAWN FROM SUPPLY (LOCAL MANUFACTURE, PRE-EXPENDED BINS)	B DELETION OF RECORD
21	NEXT HIGHER ASSEMBLY	IP	IP	IP			
22	SERVICE APPLICATION CODE	IA	IA	IA			C CORRECT/CHANGE EXISTING RECORD
23	WORK CENTER	NR	M	NR			
24	NAMEPLATE DATA	NR	M	NR			
25	MAINTENANCE INDEX PAGE	IA	IA	IA	3	MAINTENANCE ACTION COMPLETED; NO PARTS REQUIRED	
26	EOSS	IP	IP	IP			
27	TECH MANUAL NUMBER	IA	IA	IA			

WORK CENTER SUPERVISOR **NUB**	DIVISION OFF **DUD**	SUPPLY DEPT. **CUG**	3 M COORDINATOR **MAC**	SHIP SEQUENCE NUMBER **70345**	PAGE __1__ OF __2__

VI-19-7-C-9

Figure 2 Configuration Change Form for Component Install (continuation)

OPNAV 4790/CK(C) (REV 4-17)

Clear Form

CONFIGURATION CHANGE FORM CONTINUATION PAGE

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION	SAME AS P1. SIII EXCEPT	
1. COMMAND UIC 23152	2. WORK CENTER OC01	3. JOB. SEQ NO. 0123	4. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)		PAGE __2__ OF __2__

13. COMPONENT NOUN NAME **COMPUTER SYSTEM, DIGITAL**		14. QUANTITY 001	15. CA R

16. COMPONENT IDENTIFICATION **INTERFACE, CURRENT LOOP**	17. COMPONENT SERIAL NUMBER **RAC1-2**

18. COMPONENT APL / AEL **00002803**	19. LOCATION (Deck / Frame / Side) **040-102-0-Q**	20. EIC **QK4H200**

21. NEXT HIGHER ASSEMBLY **COMPUTER, DIGITAL**	22. S.A.C.	23. WORK CENTER **OC01**

14. NAME PLATE DATA **HONEYWELL INFO SYS INC**

25. MIP **4A02/003**	26. EOSS

26. TM **NA47-00**

28. RIN	29. AILSIN	30. SECAS OFFICE USE

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION	SAME AS P1. SIII EXCEPT	
1. COMMAND UIC	2. WORK CENTER	3. JOB. SEQ NO.	4. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)		PAGE _____ OF _____

13. COMPONENT NOUN NAME		14. QUANTITY	15. CA

16. COMPONENT IDENTIFICATION	17. COMPONENT SERIAL NUMBER

18. COMPONENT APL / AEL	19. LOCATION (Deck / Frame / Side)	20. EIC

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER

14. NAME PLATE DATA

25. MIP	26. EOSS

26. TM

28. RIN	29. AILSIN	30. SECAS OFFICE USE

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION	SAME AS P1. SIII EXCEPT	
1. COMMAND UIC	2. WORK CENTER	3. JOB. SEQ NO.	4. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)		PAGE _____ OF _____

13. COMPONENT NOUN NAME		14. QUANTITY	15. CA

16. COMPONENT IDENTIFICATION	17. COMPONENT SERIAL NUMBER

18. COMPONENT APL / AEL	19. LOCATION (Deck / Frame / Side)	20. EIC

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER

14. NAME PLATE DATA

25. MIP	26. EOSS

26. TM

28. RIN	29. AILSIN	30. SECAS OFFICE USE

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION	SAME AS P1. SIII EXCEPT	
1. COMMAND UIC	2. WORK CENTER	3. JOB. SEQ NO.	4. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)		PAGE _____ OF _____

13. COMPONENT NOUN NAME		14. QUANTITY	15. CA

16. COMPONENT IDENTIFICATION	17. COMPONENT SERIAL NUMBER

18. COMPONENT APL / AEL	19. LOCATION (Deck / Frame / Side)	20. EIC

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER

14. NAME PLATE DATA

25. MIP	26. EOSS

26. TM

28. RIN	29. AILSIN	30. SECAS OFFICE USE

Figure 3 Configuration Change Form Resulting from an Alteration

OPNAV 4790/CK (REV 4-17)

Clear Form

CONFIGURATION CHANGE FORM

☐ CONFIG FILE CORR ☒ COMP. M/A NO DEFL ☐ COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION
1. UIC **23121**	2. WORK CENTER **EM03**	3. JOB SEQ NO **0526**	4. ALTERATIONS (SHIPALT, FLD. CHG., ETC.) **SALSD 28758**

A. COMMAND NAME **USS HARPERS FERRY**	B. HULL NUMBER *(IF APPLICABLE)* **LSD-49**	5. EIC **0452E**	6. ACT TKN **5B**

7. EQUIPMENT NOUN NAME **LP AIR COMPRESSOR**	8. MHRS. EXP. **150**	9. ACT. **010**	10. COMP. DATE **6 1 9 2**	11. M/R ☐

SECTION II JOB DESCRIPTION/REMARKS

12. JOB DESCRIPTION/REMARKS

REMOVED LOW PRESSURE AIR COMPRESSORS (LPAC) NR 1 / NR 2, AS PER SHIPALT

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13. COMPONENT NOUN NAME **LP AIR COMPRESSOR**	14. QUANTITY **001**	15. CA **R**

16. COMPONENT IDENTIFICATION **LPAC NR 1**	17. COMPONENT SERIAL NUMBER **DR-115880**

18. COMPONENT APL/AEL **061900511**	19. LOCATION (DECK/FRAME/SIDE) **5-89-0-E**	20. EIC **TF03100**

21. NEXT HIGHER ASSEMBLY **COMPRESSED AIR SYSTEM**	22. S.A.C. **0BACB**	23. WORK CENTER **EM03**

24. NAMEPLATE DATA

**DRESSER RAND INC
MOD 1**

25. MIP **5515/072**	26. EOSS **LPAC/0001**

27. TM
9241-AB-MMO-010

SECTION IV SPECIAL PURPOSE

28. RIN **B0510**	29. AILSIN **55153**	30. SECAS OFFICE USE

--INSTRUCTIONS--

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

WORK CENTER SUPERVISOR **RET**	DIVISION OFF **FLT**	SUPPLY DEPT. **COG**	3 M COORDINATOR **RES**	SHIP SEQUENCE NUMBER **60113**	PAGE __1__ OF __2__

VI-19-7-C-11

Figure 4 Configuration Change Form for an Alteration Install (Continuation)

OPNAV 4790/CK(C) (REV 4-17)

Clear Form

CONFIGURATION CHANGE FORM CONTINUATION PAGE

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION	SAME AS P1. SIII EXCEPT	
1. COMMAND UIC 23121	2. WORK CENTER EM03	3. JOB. SEQ NO. 0526	4. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.) SALSD 28758	☒	PAGE __2__ OF __2__

13. COMPONENT NOUN NAME	14. QUANTITY	15. CA

16. COMPONENT IDENTIFICATION LPAC NR 2	17. COMPONENT SERIAL NUMBER DR-115892

18. COMPONENT APL / AEL	19. LOCATION (Deck / Frame / Side) 05-89-4-E	20. EIC

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER

14. NAME PLATE DATA

25. MIP	26. EOSS

26. TM

28. RIN B0511	29. AILSIN 55153	30. SECAS OFFICE USE

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION	SAME AS P1. SIII EXCEPT	
1. COMMAND UIC	2. WORK CENTER	3. JOB. SEQ NO.	4. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)	☐	PAGE _____ OF _____

13. COMPONENT NOUN NAME	14. QUANTITY	15. CA

16. COMPONENT IDENTIFICATION	17. COMPONENT SERIAL NUMBER

18. COMPONENT APL / AEL	19. LOCATION (Deck / Frame / Side)	20. EIC

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER

14. NAME PLATE DATA

25. MIP	26. EOSS

26. TM

28. RIN	29. AILSIN	30. SECAS OFFICE USE

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION	SAME AS P1. SIII EXCEPT	
1. COMMAND UIC	2. WORK CENTER	3. JOB. SEQ NO.	4. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)	☐	PAGE _____ OF _____

13. COMPONENT NOUN NAME	14. QUANTITY	15. CA

16. COMPONENT IDENTIFICATION	17. COMPONENT SERIAL NUMBER

18. COMPONENT APL / AEL	19. LOCATION (Deck / Frame / Side)	20. EIC

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER

14. NAME PLATE DATA

25. MIP	26. EOSS

26. TM

28. RIN	29. AILSIN	30. SECAS OFFICE USE

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION	SAME AS P1. SIII EXCEPT	
1. COMMAND UIC	2. WORK CENTER	3. JOB. SEQ NO.	4. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)	☐	PAGE _____ OF _____

13. COMPONENT NOUN NAME	14. QUANTITY	15. CA

16. COMPONENT IDENTIFICATION	17. COMPONENT SERIAL NUMBER

18. COMPONENT APL / AEL	19. LOCATION (Deck / Frame / Side)	20. EIC

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER

14. NAME PLATE DATA

25. MIP	26. EOSS

26. TM

28. RIN	29. AILSIN	30. SECAS OFFICE USE

VI-19-7-C-12

Figure 5 Configuration Change Form for a Correction to a Previously Submitted Change

OPNAV 4790/CK (REV 4-17)

Clear Form

CONFIGURATION CHANGE FORM

[X] CONFIG FILE CORR   [ ] COMP. M/A NO DEFL   [ ] COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION
1. UIC **21447**	2. WORK CENTER **OE01**	3. JOB SEQ NO **5412**	4. ALTERATIONS (SHIPALT, FLD. CHG., ETC.)

A. COMMAND NAME **USS PRINCETON**	B. HULL NUMBER *(IF APPLICABLE)* **CG-59**	5. EIC	6. ACT TKN

7. EQUIPMENT NOUN NAME	8. MHRS. EXP.	9. ACT.	10. COMP. DATE	11. M/R [ ]

SECTION II JOB DESCRIPTION/REMARKS

12. JOB DESCRIPTION/REMARKS

CHANGE APL FROM 09590072015 TO 09590072010

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13. COMPONENT NOUN NAME **MOTOR, AC**	14. QUANTITY **001**	15. CA **C**

16. COMPONENT IDENTIFICATION **FAN MOTOR**	17. COMPONENT SERIAL NUMBER

18. COMPONENT APL/AEL **09590072010**	19. LOCATION (DECK/FRAME/SIDE) **02-115-1-L**	20. EIC **T30B151**

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER **OE01**

24. NAMEPLATE DATA

25. MIP	26. EOSS

27. TM

SECTION IV SPECIAL PURPOSE

28. RIN	29. AILSIN	30. SECAS OFFICE USE

--INSTRUCTIONS--

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

WORK CENTER SUPERVISOR **NAM**	DIVISION OFF **SUL**	SUPPLY DEPT. **GUS**	3 M COORDINATOR **CAM**	SHIP SEQUENCE NUMBER **70021**	PAGE __1__ OF __1__

VI-19-7-C-13

Figure 6 Configuration Change Form for Location Correction

OPNAV 4790/CK (REV 4-17)

Clear Form

CONFIGURATION CHANGE FORM

☒ CONFIG FILE CORR   ☐ COMP. M/A NO DEFL   ☐ COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION
1. UIC **21447**	2. WORK CENTER **ER04**	3. JOB SEQ NO **0265**	4. ALTERATIONS (SHIPALT, FLD. CHG., ETC.)

A. COMMAND NAME **USS PRINCETON**	B. HULL NUMBER *(IF APPLICABLE)* **CG-59**	5. EIC	6. ACT TKN
7. EQUIPMENT NOUN NAME	8. MHRS. EXP.	9. ACT.	10. COMP. DATE	11. M/R ☐

SECTION II JOB DESCRIPTION/REMARKS

12. JOB DESCRIPTION/REMARKS

CHANGE LOCATION FROM 5-225-0-E TO 5-220-0-E

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13. COMPONENT NOUN NAME **MOTOR, AC**	14. QUANTITY **001**	15. CA **C**

16. COMPONENT IDENTIFICATION **FIRE PUMP MOTOR**	17. COMPONENT SERIAL NUMBER

18. COMPONENT APL/AEL **09590072215**	19. LOCATION (DECK/FRAME/SIDE) **5-220-0-E**	20. EIC **T801114**

21. NEXT HIGHER ASSEMBLY	22. S.A.C.	23. WORK CENTER **OE01**

24. NAMEPLATE DATA

25. MIP	26. EOSS

27. TM

SECTION IV SPECIAL PURPOSE

28. RIN	29. AILSIN	30. SECAS OFFICE USE

--INSTRUCTIONS--

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

WORK CENTER SUPERVISOR **PHL**	DIVISION OFF **BFB**	SUPPLY DEPT. **GUS**	3 M COORDINATOR **CAM**	SHIP SEQUENCE NUMBER **70025**	PAGE __1__ OF __1__

VI-19-7-C-14

Figure 7 Configuration Change Form for COSAL Add

OPNAV 4790/CK (REV 4-17)

[Clear Form]

CONFIGURATION CHANGE FORM

☒ CONFIG FILE CORR   ☐ COMP. M/A NO DEFL   ☐ COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION			
1. UIC **22150**	2. WORK CENTER **EE02**	3. JOB SEQ NO **4251**	4. ALTERATIONS (SHIPALT, FLD. CHG., ETC.)			
A. COMMAND NAME **USS KIDD**	B. HULL NUMBER *(IF APPLICABLE)* **DDG-100**		5. EIC		6. ACT TKN	
7. EQUIPMENT NOUN NAME **SWITCH**		8. MHRS. EXP.	9. ACT.	10. COMP. DATE	11. M/R ☐	

SECTION II JOB DESCRIPTION/REMARKS

12. JOB DESCRIPTION/REMARKS

ON BOARD, NOT COSAL SUPPORTED

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13. COMPONENT NOUN NAME **SWITCH, ELEMENT**		14. QUANTITY **001**	15. CA **A**
16. COMPONENT IDENTIFICATION	17. COMPONENT SERIAL NUMBER **NONE**		
18. COMPONENT APL/AEL	19. LOCATION (DECK/FRAME/SIDE) **2-25-0-L**	20. EIC	
21. NEXT HIGHER ASSEMBLY **FAN, AXIAL**	22. S.A.C.	23. WORK CENTER **EE02**	
24. NAMEPLATE DATA **SWITCH, ELEMENT** **CUTLER HAMMER** **654975P** **VENTILATION SYSTEM**			
25. MIP **6641/005**	26. EOSS		
27. TM **0963-LP-026-010**			

SECTION IV SPECIAL PURPOSE

28. RIN	29. AILSIN	30. SECAS OFFICE USE

--INSTRUCTIONS--

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

WORK CENTER SUPERVISOR **DER**	DIVISION OFF **SED**	SUPPLY DEPT. **CUG**	3 M COORDINATOR **MAC**	SHIP SEQUENCE NUMBER **70420**	PAGE __1__ OF __1__

VI-19-7-C-15

Figure 8 Configuration Change Form for COSAL Delete

OPNAV 4790/CK (REV 4-17)

Clear Form

CONFIGURATION CHANGE FORM

☒ CONFIG FILE CORR ☐ COMP. M/A NO DEFL ☐ COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION
1. UIC **23161**	2. WORK CENTER **EE02**	3. JOB SEQ NO **5151**	4. ALTERATIONS (SHIPALT, FLD. CHG., ETC.)

A. COMMAND NAME **USS SAMPSON**	B. HULL NUMBER *(IF APPLICABLE)* **DDG-102**	5. EIC		6. ACT TKN

7. EQUIPMENT NOUN NAME **SWITCH**	8. MHRS. EXP.	9. ACT.	10. COMP. DATE	11. M/R ☐

SECTION II JOB DESCRIPTION/REMARKS

12. JOB DESCRIPTION/REMARKS

NOT ON BOARD, COSAL SUPPORTED

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13. COMPONENT NOUN NAME **SWITCH, ELEMENT**	14. QUANTITY **001**	15. CA **D**

16. COMPONENT IDENTIFICATION	17. COMPONENT SERIAL NUMBER **NONE**

18. COMPONENT APL/AEL	19. LOCATION (DECK/FRAME/SIDE) **2-25-0-L**	20. EIC

21. NEXT HIGHER ASSEMBLY **FAN, AXIAL**	22. S.A.C.	23. WORK CENTER **EE02**

24. NAMEPLATE DATA

SWITCH, ELEMENT
CUTLER HAMMER
654975P
VENTILATION SYSTEM

25. MIP **6641/005**	26. EOSS

27. TM
0963-LP-026-010

SECTION IV SPECIAL PURPOSE

28. RIN	29. AILSIN	30. SECAS OFFICE USE

--INSTRUCTIONS--

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

WORK CENTER SUPERVISOR **CUW**	DIVISION OFF **DAR**	SUPPLY DEPT. **FAL**	3 M COORDINATOR **POH**	SHIP SEQUENCE NUMBER **70025**	PAGE __1__ OF __1__

VI-19-7-C-16

APPENDIX D

PREPARATION INSTRUCTIONS MAINTENANCE ACTION FORM

(OPNAV 4790/2K)

1. <u>MAINTENANCE ACTION FORM (OPNAV 4790/2K)</u>. The OPNAV 4790/2K Form is used for reporting deferred maintenance actions, and the completion of maintenance actions that do not result in a configuration change. Two blocks at the top of the form are used to specify what type of maintenance action is being reported, a deferral "DEFL" or a completion "COMP". The rest of the form is separated into six sections. A partially completed maintenance action which results in a configuration change or a complete or partially accomplished alteration should be reported using the OPNAV 4790/CK Form. Refer to the instructions for using the OPNAV 4790/CK Form, appendix C.

1.1 <u>Section I - IDENTIFICATION</u>: This section is used to identify the equipment or system on which maintenance actions are being reported.

1.2 <u>Section II - DEFERRAL ACTION</u>: This section, filled in when reporting a deferral of a maintenance action, indicates man-hours expended up to the time of deferral, the date of deferral, man-hours remaining and required completion date (if necessary).

1.3 <u>Section III - COMPLETED ACTION</u>: This section is filled in when reporting the completion of a maintenance action and contains blocks used when reporting maintenance actions on selected equipment.

1.4 <u>Section IV - REMARKS/DESCRIPTION</u>: This section is filled in when reporting the deferral of a maintenance action. The type of information recorded includes remarks that describe what is wrong, what caused the failure or malfunction, maintenance to be performed, the names of personnel involved in the maintenance action, a priority and availability assignment and signatures by management personnel who screened the maintenance action.

1.5 <u>Section V - SUPPLEMENTARY INFORMATION</u>: This section completed by the reporting activity provides information pertaining to required maintenance actions or onboard reference material (e.g., technical manuals, blueprints, etc.). This section is also used by the repair activity in planning, scheduling and controlling the repair activity work.

1.6 <u>Section VI - REPAIR ACTIVITY PLANNING/ACTION</u>: This section is used by the repair activity for planning, estimating and scheduling purposes and can be used to report work accomplished by an internal department Work Center or by an external activity not under an ADP system.

NOTE: **EXAMPLES OF COMPLETED OPNAV 4790/2K FORMS FOR VARIOUS REPORTING SITUATIONS CAN BE FOUND AT THE END OF THIS APPENDIX:**

Figure 1 Maintenance Action Form for a Deferred Maintenance Action

Figure 2 Maintenance Action Form for a Completed Maintenance Action without Prior Deferral

Figure 3 Maintenance Action Form for Changes to a Previously Submitted Deferred
Maintenance Action

Figure 4 Maintenance Action Form for Add-on Remarks to a Previously Submitted Deferred
Maintenance Action

2. <u>PROCEDURES FOR DOCUMENTING A DEFERRED MAINTENANCE ACTION -
PLACE AN "X" IN THE BLOCK TITLED "DEFL" AT TOP OF FORM</u>.

2.1 <u>Section I - IDENTIFICATION</u>

a. JOB CONTROL NUMBER (Blocks 1 - 3):

    (1) Block 1 - UIC: Enter the UIC of the activity initiating the maintenance action.

    (2) Block 2 - WORK CENTER: Enter the Work Center code of the Work Center
initiating the maintenance action. For Ships, a four-position Work Center code
will be entered. For repair departments of, IMAs, RMCs and other IMAs, a
three-digit code will be entered. The three-digit code is entered left-to-right
leaving the right most position blank. Appendix C of this chapter provides a
listing of authorized Work Center codes. (Submarine Tender Repair Work
Centers have been converted to four position work center codes)

    (3) Block 3 - JOB SEQ. NO.: Enter the job sequence number assigned by the
Work Center Supervisor. This is an entry assigned sequentially from the
SFWL/JSN Log.

b. Block 4 - APL/AEL (Allowance Parts List/Allowance Equipment List): Enter the
APL/AEL of the equipment being reported. These numbers are found in the COSAL
or SCLSIS Index Report. An example of an APL would be "882170236" and an AEL
would be "2-260034096."

c. Block A - Enter COMMAND'S NAME

d. Block 5 - EQUIPMENT NOUN NAME: Enter the equipment nomenclature and
description on which maintenance is being reported. The equipment nomenclature
and description should be the same as that identified by the EIC and is limited to 16
positions. Standard abbreviations can be used if clarity is retained. For electronic
equipment having an Army-Navy (AN) designation, it will be substituted for the
equipment nomenclature.

e. Block B - Enter SHIP'S HULL NUMBER (if applicable).

f. Block 6 - WHEN DISCOVERED (WND): Enter the code (Table 1) that best
identifies when the need for maintenance was discovered.

Table 1 - When Discovered Codes

Code	Description
1	Lighting Off or Starting
2	Normal Operation
3	During Operability Test
4	During Inspection
5	Shifting Operational Modes
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.)

g.   Block 7 - STATUS (STA): Enter the code (Table 2) that most accurately describes the effect of the failure or malfunction on the operational performance capability of the equipment when the need for maintenance was first discovered.

Table 2 – Status Codes

Code	Description
1	Operational
2	Non-Operational
3	Reduced Capability
0	Not Applicable (use if reporting printing services, etc.)

(1)   OPERATIONAL must be selected when the system or equipment is operational with only minor discrepancies that do not impact performance. (Similar to EOC 0.8 – 1.0: See chapter 5, appendix A of this volume)

(2)   NON-OPERATIONAL must be selected when the system or equipment is totally inoperative or is severely degraded with major operation restrictions and may be a threat to personnel safety. (Similar to EOC 0.0 - 0.4: See chapter 5, appendix A, of this volume)

(3)   REDUCED CAPABILITY must be selected when the system or equipment is operational with discrepancies that could potentially impact performance or has minor operational restrictions that are not a threat to personnel safety. (Similar to EOC 0.5 - 0.7: See chapter 5, Appendix A, of this Volume)

(4) NOT APPLICABLE (Equivalent to EOC 1.0: See chapter 5, Appendix A, of this Volume) must be selected:

(a)   When ordering parts for PMS.

(b)   When updating a 4790/2K and the object has been repaired but the JCN cannot be closed due to awaiting parts.

(c)   When requesting services such as printing, plaques, special support equipment, test equipment, etc.

(d)   For data reporting.

(e)   For SHIPALTs/Ship Change Documents.

(f)   For system or equipment configuration changes (4790/CK).

(g)   When requesting support services in a maintenance availability.

(h)   For future time directed CMP and PMS maintenance tasks.

h.   Block 8 - CAUSE (CAS): Enter the code (Table 3) that best describes the cause of the failure or malfunction when the need for maintenance was first discovered. (Refer to reference (a), Appendix A, Table A-6 data element "CAUSE" for an expanded definition of the allowable codes or values).

Table 3 - Cause Codes

Code	Description
1	Abnormal Environment
2	Manufacturer or Installation Defects
3	Lack of Knowledge or Skill
4	Communication Problem
5	Inadequate Instruction or Procedure
6	Inadequate Design
7	Normal Wear and Tear
0	Other or No Malfunction

i.   Block 9 - DEFERRAL REASON (DFR): Enter the deferral reason code (Table 4) which best describes the reason the maintenance cannot be done at the time of deferral. (Refer to reference (a), Appendix A, Table A-7 data element "DEFERRAL REASON" for an expanded definition of the allowable codes or values).

Table 4 – Deferral Codes

Code	Deferral Reason
1	Due to Ship's Force, Unit's Work Backlog or Operational Priority
2	Lack of Material
3	No Formal Training on this Equipment
4	Formal Training Inadequate for this Equipment

Code	Deferral Reason
5	Inadequate School Practical Training
6	Lack of Facilities or Capabilities
7	Not Authorized for Ship's Force or Unit Accomplishment
8	For Ship's Force or Unit Overhaul of Availability Work List
9	Lack of Technical Documentation
0	Other - or Not Applicable (explain in block 35)

j.   Block 10 - This Block is reserved for TYCOM directed applications. Refer to TYCOM instruction for use.

k.   Block 11 - This Block is reserved for TYCOM directed applications. Refer to TYCOM instruction for use.

l.   Block 12 - This Block is reserved for TYCOM directed applications. Refer to TYCOM instruction for use.

m.   Block 13 - IDENT/EQUIPMENT SERIAL NUMBER: Enter the identification or serial number of the equipment or system on which maintenance is being deferred. For HM&E equipment, enter the Valve Mark or Electric Symbol Number (ESN) or Primary Identification Number. For electronic equipment, enter the manufacturer's serial number of the equipment or system on which maintenance is being deferred.

n.   Block 14 - EIC: Enter the Equipment Identification Code of the component, equipment, subsystem, or system for which the maintenance is being reported.

o.   Block 15 - SAFETY HAZARD: Enter an "X" or applicable safety code (Table 5) if the maintenance action describes a problem or condition which has caused or has the potential to cause serious injury to personnel or material. A brief explanation must be included in the Remarks/Description field (Block 35).

For example: "Reinspection of separator for presence of oil after rinse. MRC A-27 evidently not done. Presence of oil resulted in fire in HP air system when compressor operated under load. Fire badly burned valve AHP-287, requiring replacement."

NOTE: **THE SHIP'S OR UNIT'S 3-M COORDINATOR WILL FORWARD A COPY OF ALL OPNAV 4790/2K DOCUMENTATION HAVING AN ENTRY IN THIS FIELD TO THE SAFETY OFFICER FOR REVIEW. (REFER TO REFERENCE (A), APPENDIX A, TABLE A-14, DATA ELEMENT "SAFETY HAZARD" FOR AN EXPANDED DEFINITION OF THE ALLOWABLE CODES OR VALUES).**

| Table 5 - Safety Hazard Codes ||
Code	Description
1	Critical Safety or Health Deficiency-Correct Immediately
2	Serious Safety or Health Deficiency-Suspension of Equipment, System or Space Use is required
3	Moderate Safety or Health Deficiency-Waiver of Equipment, System or Space Use is granted Pending Correction of the Item
4	Minor Safety or Health Deficiency
5	Negligible Safety or Health Deficiency
0	Maintenance Action is Not Safety Related
NOTE:	**CODES "6" THROUGH "9" MAY BE LOCALLY ASSIGNED BY TYCOMS IF ADDITIONAL SAFETY CODES ARE REQUIRED.**

p.   Block 16 - LOCATION: Enter the location (compartment number, deck, frame, or side notation), that best describes the location of the equipment requiring maintenance as identified in Block 13. If none of the mentioned location identifications are appropriate, enter description of the location (e.g., FANTAIL, FLIGHT DECK, etc.).

q.   Block 17 - WHEN DISCOVERED DATE: Enter the Julian date when the equipment or system failure or malfunction was discovered.

r.   Block 18 - ALTERATIONS (SHIPALT, ORDALT, Fld. Chg., etc.): If reporting the deferral of an alteration:

    (1)   SHIPALT - Enter the alteration identification exactly as it appears on the 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 right-hand position of the block.

    (2)   OTHER Alteration Types - Enter the alteration type character code (Table 6) in the first two positions of the block. Leave the third position blank and enter the alteration number starting in position four (i.e., OA f96999, FC 29, TY 0132). If an alteration identification number is not provided with the alteration record, leave blank.

Table 6 - Alteration Type Codes

SA	Ship Alteration
OA	Ordnance Alteration
BA	Boat Alteration
FC	Field Change
MA	Machinery Alteration
SI	SYSCOM Command Instruction
EC	Engineering Change
HI	Habitability
TY	TYCOM Direction
TD	Technical Directive
SP	Strategic Systems Project Office Alteration
SC	Service Change
TR	Trident Alteration
EP	Engineering Change Proposal
MO	Crypto Equipment Modification
AR	Alteration Request May be originated by a ship to request an alteration design. Enter and left-justify the authorized prefix "AR" followed by a blank space any number the ship assigns for its own control.

 s. Blocks 19 through 24 - FOR INSURV USE - no entries required. See Section 2 of NAVSEAINST 4790.8C for specifications.

2.2 Section II - DEFERRAL ACTION.

 a. Block 25 - MAN-HOURS EXPENDED (MHRS. EXP.): Enter the total man-hours (to the nearest whole hour) expended by personnel of all Work Centers involved in the maintenance action up to the time of deferral (include documentation time which should not exceed one hour).

 b. Block 26 - DEFER. DATE: Enter the Julian date when the maintenance action was deferred. An example of a deferral on 11 January 1994 would be "4011".

 c. Block 27 - MAN-HOURS REMAINING (MHRS. REM.): Enter the estimated number of man-hours remaining to complete the maintenance action. Round off to the nearest whole hour. If the TYCOM allows an automated close out of the deferral by the IMA, the letters "AUTO" will be entered. 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

command does not receive CSMP support from the IMA doing the work, do not use the "AUTO" close out feature.

d.   Block 28 - DEADLINE DATE:

(1)   Depot (shipyard or ship repair facility) (T/A-1) the Deadline Date is required. The date entered is the end of the scheduled maintenance availability.

(2)   Intermediate Maintenance Activity (tender, repair ship, etc.) (T/A-2) the Deadline Date is required. The date entered is the end of the scheduled maintenance availability.

(3)   TYCOM Support Unit (floating dry dock, etc. or technical assistance from Systems Command, organic technical agents, or contractor representative) (T/A-3) is required. Date entered is the entry date plus a realistic estimated time to repair. Update to the Deadline Date is required if the estimate changes.

(4)   Ship's Force or Unit (T/A-4) is required. Date entered is the entry date plus a realistic estimated time to repair. Updates to Deadline Date are required if the estimate changes.

2.3 Section III - COMPLETED ACTION.

a.   Blocks 29 through 33 - USED FOR REPORTING THE COMPLETION OF A MAINTENANCE ACTION.

b.   Block 34 - METER READING: If the equipment has a time meter and is on the Selected Equipment List (SEL), the reading (to the nearest whole hour) at the time of failure is entered in this block. If the equipment has more than one meter, designate the meter being recorded in Block 35 "REMARKS" using the letters "METRED" followed by the meter designator. An asterisk (*) must precede and follow the meter designation. Example: *METRED-1A2M1*.

2.4 Section IV - REMARKS/DESCRIPTION.

a.   Block 35 - REMARKS/DESCRIPTION: Enter remarks relating to the maintenance action. These remarks should be brief, but complete and meaningful. Remarks should state what is wrong, what caused the failure (if known) and what must be done to correct the problem. Separate the two statements with "XXX". For example, "HIGH PITCHED SQUEAL OF PUMP SHAFT, GAUGE READING ABOVE RED LINE ON #2 PUMP, SSG CASING IS EXTREMELY HOT. XXX INVESTIGATE AND REPAIR AS NECESSARY." If more space is needed, check Block 36 "CONT. SHEET" and continue the remarks on a second form using the same JCN. Include the statement "2L USED" if Supplemental Form OPNAV 4790/2L is used for drawings or other supplemental information. The remarks should not include statements explaining what has been coded in another place of the form; i.e., "DEFERRAL REASON 2 = LACK OF MATERIAL". Classified or Navy Nuclear Power Information is prohibited from being entered into the Work Candidate. If a full description of the material deficiency requires the use of classified information, a separate message should be generated with the required data and the message referred

to in Block 35 by message Date Time Group. The following are minimum requirements for Block 35:

(1)   Depot (shipyard or ship repair facility) (T/A-1):

   (a)   Concisely describe the failure or malfunction and what caused it. Include how and when the casualty was discovered. Provide description of the casualty to include information on operating configuration symptoms and indications.

   (b)   Concisely describe the actions taken by Ship's Force or Unit personnel and outside activities to troubleshoot and correct the failure or malfunction. Include initial follow-up and troubleshooting, Ship's Force or Unit repair efforts or technical assistance received.

   (c)   Include any test results from troubleshooting.

   (d)   Include the reason for deferral to an off ship maintenance activity.

(2)   Intermediate Maintenance Activity (tender, repair ship, etc.) (T/A-2):

   (a)   Concisely describe the failure or malfunction and what caused it. Include how and when the casualty was discovered. Provide description of the casualty to include information on operating configuration symptoms and indications.

   (b)   Concisely describe the actions taken by the command and outside activities to troubleshoot and correct the failure or malfunction. Include initial follow-up and troubleshooting, command repair efforts or technical assistance received.

   (c)   Include any test results from troubleshooting.

   (d)   Include the reason for deferral to an off ship maintenance activity.

(3)   Technical Assistance in troubleshooting (T/A-3):

   (a)   Concisely describe the failure or malfunction and what caused it. Include how and when the casualty was discovered. Provide description of the casualty to include information on operating configuration symptoms and indications.

   (b)   Concisely describe the actions taken by command personnel to troubleshoot and correct the failure or malfunction. Include initial follow-up and troubleshooting, command's repair efforts or previous technical assistance.

   (c)   Include any test results from troubleshooting.

   (d)   Clearly specify the type of outside assistance and the time frame desired by the activity.

(4)   Technical Assistance in obtaining special support or test equipment (T/A-3):

   (a)   Describe the special support or test equipment required by the activity.

(b)   Describe the maintenance action for which the equipment will be used.

(c)   Include any assistance the activity may need from the requesting activity (e.g., training, assistance in operating the equipment, etc.).

(d)   Clearly specify the dates the equipment is needed and estimated time the equipment will be returned.

(5)   Technical Assistance documenting the results of an inspection or assessment (T/A-3):

(a)   The inspection or assessment activity must provide the activity with a maintenance ready 4790/2K.

(b)   Documentation of assessment results by the equipment Subject Matter Expert will include all the technical data needed to complete a 4790/2K as specified in chapter 42 of this volume.

(6)   Technical Assistance in obtaining support services during a maintenance availability (T/A-3):

(a)   Describe the support service required by the activity.

(b)   Describe the maintenance action for which the support services will be used.

(c)   Include any assistance the activity may need from the requesting activity (e.g., training, assistance in operating the equipment, etc.).

(d)   Clearly specify the dates the support services are needed and estimated time the support services will no longer be required.

(7)   Ship's Force and Unit maintenance action (T/A-4):

(a)   Concisely describe the failure or malfunction and what caused it. Include how and when the deficiency was discovered. Provide description of the deficiency to include information on operating configuration symptoms and indications.

(b)   Concisely describe the actions taken by command personnel to correct the failure or malfunction. Include initial follow-up and troubleshooting, command personnel repair efforts or previous technical assistance.

(c)   Include any test results from either troubleshooting or post repair testing.

b.   Block 36 - CONT. SHEET: Enter an "X" in this block if the "REMARKS" are continued on additional 2K forms. No more than three additional OPNAV 4790/2K forms can be used.

NOTE: WHEN USING OPNAV 4790/2K CONTINUATION PAGES FOR THE CONTINUATION OF "REMARKS", ENTER THE JCN OF THE FIRST FORM AND CONTINUE WITH THE REMARKS IN SECTION IV. IN

THE TOP MARGIN OF EACH CONTINUATION PAGE, INSERT THE WORDS "PAGE 2", "PAGE 3", ETC.

c. Block 37 – CSMP SUMMARY: Enter a condensed description of the problem. The Work Center Supervisor is to ensure the summary succinctly captures the meaning of the Block 35 REMARKS/DESCRIPTION narrative. 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 blocks.

d. Block 38 - FIRST CONTACT/MAINT. MAN: Printed name of the senior person knowledgeable in the specifics of the JCN (maintenance action).

e. Block 39 - RATE: Enter the rate of the first contact or maintenance person. Examples are:

Table 7 – Rank or Rate Codes	
Rank or Rate Code	Entry
Officers	OFF
ET1	ET1
Civilian	CIV
GMG2	GMG2
FTGSN	FTGN
FN	FN

f. Block 40 - SECOND CONTACT/SUPERVISOR: Printed name of the supervisor of the first contact or maintenance person after screening the maintenance action for completeness and accuracy.

g. Block 41 - PRI: Enter the appropriate priority code (Table 8). Refer to reference (a) Appendix A, Table A-12 for an expanded definition of the allowable codes or values.

Table 8 – Priority Codes	
Code	Description
1	Mandatory
2	Essential
3	Highly Desirable
4	Desirable

h. Block 42 - TA: Enter the Type Availability (T/A) code (Table 9) for the type availability recommended for performance of the deferral.

Table 9 - Type Availability Codes	
Code	Description
1	Depot (shipyard or ship repair facility)
2	Intermediate Maintenance Activity (tender, repair ship, etc.)
3	Fleet Technical Support. TYCOM Support Unit (floating dry dock, etc., or technical assistance from NAVSEA or Regional Maintenance Centers or contractor representative)
4	Ship's Force or Unit (Originating Work Center, Organizational Level)
0	Not Applicable
U	(Mission Degrading) (entered on 2K) Used by INSURV. Field identifies certain deficiencies which are considered as preventing the activity from carrying out some part of its mission.

NOTE: **TABLE 10 PROVIDES GUIDANCE ON USING AVAILABILITY CODES.**

Table 10 – Type Availability Codes	
Scenario or Issue	Use T/A Code
When requesting technical assistance from off-hull activities.	3
When requesting repair (industrial) from outside activities.	1 or 2
When requesting calibration from outside activities.	1 or 2
When ordering parts or materials for Ship's Force or Unit use.	4
For data reporting.	3
When requesting special support or test equipment (hydrostatic pumps, rigging equipment, etc.).	3
Completed without prior deferral.	4
When submitting a CASREP.	1, 2, 3 or 4
When submitting a temporary DFS.	1, 2 or 4
For any change in system or equipment configuration.	3
For documenting the results of an inspection or assessment.	3
For installation of a SHIPALT or Ship Change Document.	1, 2 or 4
For support services during a maintenance availability.	3
For a CMP maintenance action.	1 , 2, 3 or 4

i.   Block 43 - INTEGRATED PRIORITY: If the maintenance is to be done by an outside activity, the Command's Engineer may rank departmental deferrals by integrated priority. A sequential number may be placed in this block to indicate its priority relative to other deferred work for a given availability.

     (1)   Block C - DIV. INIT: Initialed by the Division Officer after screening the document.

     (2)   Block D - DEPT. INIT: Initialed by the Department Head after screening the document.

     (3)   Block E - COMMANDING OFFICER'S SIGNATURE: Required on all deferrals for outside assistance, the Commanding Officer or authorized representative must sign the deferral.

     (4)   Block F - TYCOM AUTHORIZATION: This block is reserved for the signature of the TYCOM representative screening the deferral. This is usually applicable when direct routing from command to TYCOM for Depot emergent work is employed.

j.   Blocks 44 through 46 are not completed at the time of deferral. Entries are made by the next level of management after leaving the command (IUC and TYCOM during the screening process).

2.5 Section V - SUPPLEMENTARY INFORMATION. Block 47 - BLUEPRINTS, TECH. MANUALS, PLANS, ETC.: Enter any TMs, blueprints, etc., which might be of use to a repair activity providing assistance. Indicate with an "X" in the "AVAILABLE ON BOARD" – "YES/NO" block if the TM is onboard or not.

3. PROCEDURES FOR DOCUMENTING INTERNAL WORK REQUESTS - When it is necessary to obtain assistance from other departments within the organizational level, the OPNAV 4790/2K Form can be used as an internal work request. If more than a single assisting Work Center is required, multiple copies will be prepared using the same JCN on each request. The requesting Work Center prepares the number of copies required for internal control. The words "INTERNAL WORK REQUEST" is written at the top of each copy to be sent to the assisting Work Center(s). The following blocks are used:

3.1 Section I - IDENTIFICATION: Document all of this section. See "Procedures for Documenting a Deferred Maintenance Action" paragraph 4.1.

3.2 Section IV - REMARKS/DESCRIPTION. Block 35 - REMARKS/DESCRIPTION: Describe the tasks required of the Assisting Work Center (AWC).

3.3 Section VI - REPAIR ACTIVITY PLANNING/ACTION.

a.   Block 49 - REPAIR WORK CENTER (W/C): Enter the AWC's code.

b.   Block 55 - REPAIR ACTIVITY UIC: Enter the organization unit's UIC. This will be the same as Block 1 except when the ship is being assisted by a non-reporting outside activity, in this case, the outside activity's UIC will be entered.

c.   Block 56 - WORK REQ. ROUTINE: Enter the appropriate Expanded Ship Work Breakdown Structure, SWAB, SWLIN, etc., as directed by the TYCOM.

4. PROCEDURES FOR DOCUMENTING SCREENING INFORMATION ON DEFERRED
MAINTENANCE ACTIONS - Used by other activities, such as IUCs, TYCOM representatives
and IMAs for screening, planning, and scheduling.

4.1 Section IV - REMARKS/DESCRIPTION.

a.   Block F - TYCOM AUTHORIZATION: This block is reserved for the signature of
      the TYCOM representative screening the deferral.

b.   Block 44 - IUC: The IUC or designated representative screening the deferral enters
      the recommendation as to the action to be taken. See the allowable codes (Table 11).

Table 11 - Action to be Taken Codes

Code	Description
1	Depot (shipyard or ship repair facility) Accomplish
1A	Depot Assisted by Ship's Force or Unit Personnel
1S	Ship to Shop
1M	Accomplish with Modification
2	IMA (tender or repair ship, etc.) Accomplish
2A	IMA Assisted by Ship's Force or Unit Personnel
2S	Ship to Shop
2M	Accomplish with Modification
3	Fleet Technical Support. TYCOM Support Unit (floating dry dock, etc.) accomplished or Technical Assistance from NAVSEA, Regional Maintenance Center or Contractor Representative.
3A	TYCOM Support Un Assisted by Ship's Force or Unit Personnel
3S	Ship to Shop
3M	Accomplish with Modification
4	Ship's Force or Unit Personnel 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

Code	Description
6A	Not Technically Justified
6B	Covered by an Existing Ship Alteration
6C	Duplicate of Another Job Control Number (JCN)
6D	Not Cost Effective
6E	General
8*	Disapproved. * 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
9**	Remove from Current Ship's or Unit Maintenance Project (CSMP). Pass to history (to be assigned by TYCOM only). ** This screening code is restricted to the removal of INSURV items from the CSMP for which, in the opinion of the Ship's or Unit's IUC and TYCOM, the ship has no responsibility for accomplishment.
NOTE:	**THE FIRST CHARACTER OF THE UIC OR TYCOM SCREENING CODE SHOULD BE ENTERED IN THE APPROPRIATE FIELD. THE SECOND CHARACTER, WHEN USED, SHOULD BE ENTERED IN THE SPACE JUST BELOW IT.**

c.   Block 45 - TYCOM: The TYCOM or designated representative screening the deferral will enter the action to be taken. See the allowable codes (Table 11).

d.   Block 46 (A-L) - SPECIAL PURPOSE: Use of these codes are optional and indicates that quality control and quality assurance standards may be required. Special purpose blocks 46A through 46H and 46K will be used when directed by TYCOM.

(1)   Block 46A - The Department Head may enter the KEY EVENT code from the ISIC provided Key Event Schedule.

(2)   Block 46B – Optional, if used Submarines will enter code "SS" if the job requires work within SUBSAFE boundaries or involves SUBSAFE materials. Surface Ships may enter S1 for "PARTS ON HAND or PARTS NOT REQD," S2 for "PARTS ON ORDER-DEF DEL DT," S3 for "CONT PROCURE PARTS," S4 for "WORK COMPL PREVIOUSLY."

(3)   Block 46C – Optional, if used, enter the code "L1" if the job requires work within Level I boundaries or involves Level I material.

(4)   Block 46D – Optional, if used, enter the code "08" if the job is associated with nuclear equipment. Refer to NAVSEAINST 9210.4A (NOTAL).

(5)   Block 46E - Optional, if used, enter the code "RC" if the job requires radiological controls (RADCON). (Refer to NAVSEA Technical Publication S9213- 33-MMA-000/(V).

(6)   Block 46F - Optional, if used, enter the code "DD" if the job requires Dry Docking to accomplish.

(7)   Block 46G - Optional, if used, enter the code "NC" for critical noise deficiencies or "NP" for potential radiated noise deficiencies.

(8)   Block 46H - 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).

(9)   Block 46I - Reserved for future use.

(10)   Block 46J - Reserved for future use.

(11)   Block 46K - Optional, if used, 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).

(12)   Block 46L - Enter the code assigned to the visiting activity. This will identify the visiting activity as the originator of the deferral.

4.2 Section V - SUPPLEMENTARY INFORMATION.

a.   Block 47 - BLUEPRINTS, TECHNICAL MANUALS, PLANS, ETC: The repair activity can use this block during the work request planning in much the same manner as the originator. Information that might be of use in the accomplishment of the maintenance can be entered (e.g., TMs, blueprints, etc.).

b.   Block 48 - PREARRIVAL/ARRIVAL CONFERENCE ACTION/REMARKS: The repair activity may enter any remarks considered necessary to facilitate repairs.

4.3 Section VI - REPAIR ACTIVITY PLANNING/ACTION.

a.   Block 49 - REPAIR W/C: Enter the character code of the lead Work Center assigned to the job. Refer to reference (a) appendix A, Table A-10 data element "IMA REPAIR WORK CENTER" for a listing of IMA Work Center codes.

b.   Block 50 - EST. MHRS.: Enter the total number of estimated man-hours required by the lead Work Center to complete the job.

c.   Block 51 - ASST. REPAIR W/C: Enter the three or four character code of the first Work Center assigned to assist the lead Work Center on the job being planned. If more than one assist Work Center is required, check Block 36 to indicate a continuation page is being used. On the continuation page (new 2K form), fill in Blocks 1, 2, 3 with the same JCN of the original 2K. In Block 51, enter the second

assist repair Work Center's code. No more than two assist Work Centers (two supplemental 2K forms) can be submitted.

d. Block 52 - ASST. EST. MHRS: Enter the total number of estimated man-hours required by the assist Work Center to complete its portion of the job.

e. Block 53 - SCHED. START DATE: Enter the Julian date that work on the job is to begin.

f. Block 54 - SCHED. COMP. DATE: Enter the Julian date that all work on the job is scheduled to be completed by the repair activity.

g. Block 55 - REPAIR ACTIVITY UIC: Enter the UIC of the repair activity performing the work for the originating command.

h. Block 56 - WORK REQ. ROUTINE: Enter the appropriate Expanded Ship Work Breakdown Structure, Ship Work Authorization Boundary (SWAB), Ship Work Line Item Number (SWLIN), etc., as directed by the TYCOM.

i. Blocks 57 through 63: - Used to identify Depot estimates on individual CSMP items from the Master Job Catalog. These blocks may also be used as directed by TYCOM instruction.

(1) Block 57 - EST. MAN-DAYS: Enter an estimate of the total number of man-days required to complete the job. If the estimate is less than one, enter 1.

(2) Block 58 - EST. MAN-DAY COSTS: Enter an estimate of the total man-day costs required to complete the job.

(3) Block 59 - EST. MATERIAL COSTS: Enter an estimate of the total material costs required to complete the job.

(4) Block 60 - EST. TOTAL COST: Enter an estimate of the total cost required to complete the job (Add Blocks 58 and 59).

(5) Block 61 - JOB ORDER NUMBER: Enter Job Order Number assigned by the activity performing the work.

(6) Block 62 - LEAD P&E CODE: Enter the code assigned to the lead planning and scheduling organization.

(7) Block 63 - DATE OF EST: Enter the date that the repair activity's planning action was completed.

5. <u>PROCEDURES FOR DOCUMENTING A COMPLETED MAINTENANCE ACTION PREVIOUSLY DEFERRED</u>: Blocks A, B, and applicable Blocks 1 through 47 have previously been filled. The maintenance person must report completion of a previously deferred maintenance action by using the copy of the OPNAV 4790/2K retained onboard when the maintenance action was deferred. If there is no record (paper) copy of the original 2K and the maintenance action is on the CSMP, enter the JCN on a blank 2K form, and without providing all the deferred maintenance information, enter the completion data in Section III. If the word "AUTO" has been entered in Block 27 as directed by the TYCOM, submission of a completed maintenance action by the originating ship may not be necessary.

5.1 <u>Section III - COMPLETED ACTION</u>. Block 29 - ACT. TKN: Enter the code (Table 12) that best describes the action taken to complete the maintenance.

NOTE: THE LIST OF "ACTION TAKEN" CODES CHANGES OCCASIONALLY. VERIFY CURRENT "ACTION TAKEN" CODES AT THE FOLLOWING WEB SITE: <u>HTTPS://OARS.NSLC.NAVY.MIL/OARS/DOCS/REF/INDEX.HTML</u>

Table 12 - Action Taken 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

NOTE: **THE FOLLOWING SECOND CHARACTER CODES CAN BE USED WITH THE ACTION TAKEN CODES 1, 2, OR 3 AS DIRECTED BY THE TYCOM:**

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

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.
7	Maintenance Action Completed; 2-M (Miniature and Micro-Miniature Electronic Modules) Capability Utilized.

NOTE: **THE FOLLOWING SECOND CHARACTER CODES CAN BE USED WITH ACTION TAKEN CODE 7 TO BETTER DESCRIBE THE ACTION TAKEN:**

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 or 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

NOTE: **THE FOLLOWING SECOND CHARACTER CODES CAN BE USED WITH ACTION TAKEN CODE 9 TO BETTER DESCRIBE THE ACTION TAKEN:**

Table 12 - Action Taken Codes		
Code		Description
	A	FOTE, 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 not available
	J	Specialty MQJs not available
0		None of the Above

b.   Block 30 - MHRS: Enter the total man-hours (to the nearest whole hour) that was expended doing the maintenance after submitting the deferral. This includes man-hours expended for reinstallation, witnessing of tests, etc. (include documentation time which should not exceed 1 hour).

c.   Block 31 - COMPLETION DATE: Enter the Julian date the maintenance action was completed.

d.   Block 32 - ACT. MAINT. TIME: Enter the total clock hours (to the nearest whole hour) during which maintenance was performed. This should the include time for troubleshooting, but not delays.

e.   Block 33 - TI: Enter a single numeral (1 through 9) to indicate, to the nearest 10%, the percentage of active maintenance expended in troubleshooting. For example, if no troubleshooting is involved, enter "f", "2" for 20%, "3" for 30%, "7" for 70%, etc.

f.   Block 34 - METER READING: There is no entry required on the completed deferral action. (Refer to Block 34 instructions for DOCUMENTING A DEFERRED MAINTENANCE ACTION).

g.   Block 35 - REMARKS/DESCRIPTION: When the "what must be done" statement on the original deferral accurately describes the work which was done, no further entries are required. If remarks in addition to the original remarks entered are needed to describe the work done, refer to paragraph 7 of this appendix for "Documenting Changes, Additions and Deletions to Previously Submitted Maintenance Actions." Describe what was done and any additional information considered significant. If additional space is needed for the completed action description, use up to three continuation pages.

5.2 Section IV - REMARKS/DESCRIPTION - (Used by the Repair Activity when Reporting a Completed Maintenance Action): This type of completed work request is to be provided to the ship for 3-M processing.

Block 64 - FINAL ACT.: Enter the code that best describes the final action taken to complete the maintenance. (Refer to Block 29 for "ACTION TAKEN" allowable codes or values). In addition, the following codes (Table 13) can be used:

NOTE: THE LIST OF "ACTION TAKEN" CODES CHANGES OCCASIONALLY. VERIFY CURRENT "ACTION TAKEN" CODES AT THE FOLLOWING WEB SITE: HTTPS://OARS.NSLC.NAVY.MIL/OARS/DOCS/REF/INDEX.HTML

Table 13 - Action Taken 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

NOTE: ADD THE FOLLOWING SECOND CHARACTER CODE WITH ACTION TAKEN CODE 6 TO BETTER DESCRIBE THE ACTION TAKEN:

A	Ship's Force or Unit Standard Stock Item
B	Excessive Ship Workload or Insufficient Availability
C	Lack of Skills
D	Lack of Facilities
E	Lack of Test or Calibration Equipment
F	Lack of Parts or Material
G	Lack of Documentation
H	Lack of Funds
I	Other (record the explanation in "Remarks")

b.   Block 65 - MHRS. EXPENDED: Enter 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.

c.   Block 66 - DATE COMPLETED: Enter the Julian date the work request is completed and signed off by the requesting command.

(1) Block G - COMPLETED BY: The signature and rank and rate of the individual authorized by the repair activity to verify the acceptability of work performed is entered in this block.

(2) Block H - ACCEPTED BY: The signature and rank and rate of the individual authorized by the command to verify the acceptability of work performed. Completion of this block is mandatory when a 2K is used to report completion of a previously deferred maintenance action.

6. <u>PROCEDURES FOR DOCUMENTING A COMPLETED MAINTENANCE ACTION WITHOUT PRIOR DEFERRAL</u>: Place an "X" in the block titled "COMP" at top of form.

6.1 <u>Section I – IDENTIFICATION</u>.

 a. JOB CONTROL NUMBER (Blocks 1 - 3):

  (1) Block 1 - UIC: Enter the Unit Identification Code (UIC) of the activity initiating the maintenance action.

  (2) Block 2 - WORK CENTER: Enter the code of the Work Center initiating the maintenance action. For Ships, a four-position Work Center code will be entered. For repair departments of IMAs, RMCs and other IMAs, a three-digit code will be entered. The three-digit code is entered left-to-right leaving the right most position blank. Appendix C of this chapter provides a listing of authorized Work Center codes (Submarine Tenders have been converted to a four position Work Center code).

  (3) Block 3 - JOB SEQ. NO. (JSN): Enter the four character JSN assigned by the Work Center Supervisor. This is an entry assigned sequentially from the SFWL/JSN Log.

 b. Block 4 - APL/AEL (Allowance Parts List/Allowance Equipment List): Enter the APL/AEL of the equipment being reported. These numbers are found in the COSAL or SCLSIS Index Report. An example of an APL would be "882170236" and an AEL would be "2-260034096."

 c. Block A - Enter COMMAND'S NAME.

 d. Block 5 - EQUIPMENT NOUN NAME: Enter the equipment nomenclature and description on which maintenance is being reported. The equipment nomenclature and description should be the same as that identified by the EIC and is limited to 16 positions. Standard abbreviations can be used if clarity is retained. For electronic equipment having an Army-Navy (AN) designation, it will be substituted for the equipment nomenclature.

 e. Block B: - Enter SHIP'S HULL NUMBER (if applicable).

 f. Block 6 - WHEN DISCOVERED (WND): Enter the code (Table 14) that best identifies when the need for maintenance was discovered.

Table 14 - When Discovered Codes	
Code	Description
1	Lighting Off or Starting
2	Normal Operation
3	During Operability Test
4	During Inspection
5	Shifting Operational Modes
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.)

g.   Block 7 - STATUS (STA): Enter the code (Table 15) that most accurately describes the effect of the failure or malfunction on the operational performance capability of the equipment when the need for maintenance was first discovered.

Table 15 - Status Codes	
Code	Description
1	Operational
2	Non-Operational
3	Reduced Capability
0	Not Applicable (use if reporting printing services, etc.)

h.   Block 8 - CAUSE (CAS): Enter the code (Table 16) that best describes the cause of the failure or malfunction when the need for maintenance was first discovered. (Refer to reference (a), Appendix A, Table A-6 data element "CAUSE" for an expanded definition of the allowable codes or values).

Table 16 - Cause Codes	
Code	Description
1	Abnormal Environment
2	Manufacturer or Installation Defects
3	Lack of Knowledge or Skill
4	Communication Problem
5	Inadequate Instruction or Procedure
6	Inadequate Design
7	Normal Wear and Tear
0	Other or No Malfunction

i.   Block 9 - DEFERRAL REASON (DFR): Leave blank.

j.   Block 10: - Block is reserved for TYCOM directed applications. Refer to TYCOM instruction for use.

k.   Block 11: - Block is reserved for TYCOM directed applications. Refer to TYCOM instruction for use.

l.   Block 12: - Block is reserved for TYCOM directed applications. Refer to TYCOM instruction for use.

m.   Block 13 - IDENT./EQUIPMENT SERIAL NUMBER: Enter the identification or serial number of the equipment or system on which maintenance is being deferred. For Hull, Mechanical & Electrical (HM&E) equipment, enter the Valve Mark or Electric Symbol Number (ESN) or Primary Identification Number. For electronic equipment, enter the manufacturer's serial number of the equipment or system on which maintenance is being deferred.

n.   Block 14 - EIC: Enter the Equipment Identification Code of the component, equipment, subsystem, or system for which the maintenance is being reported.

o.   Block 15 - SAFETY HAZARD: Enter an "X" or applicable safety code (Table 17) if the maintenance action describes a problem or condition which has caused, or has the potential to cause, serious injury to personnel or material. A brief explanation must be included in the REMARKS/DESCRIPTION field (Block 35). For example:

"Reinspection of separator for presence of oil after rinse. MRC A-27 evidently not done. Presence of oil resulted in fire in HP air system when compressor operated under load. Fire badly burned valve AHP-287, requiring replacement."

NOTE: **THE SHIP'S OR UNIT'S 3-M COORDINATOR WILL FORWARD A COPY OF ALL OPNAV 4790/2K DOCUMENTATION HAVING AN ENTRY IN THIS FIELD TO THE SAFETY OFFICER FOR REVIEW. (REFER TO REFERENCE (A), APPENDIX A, TABLE A-14, DATA**

ELEMENT "SAFETY HAZARD" FOR AN EXPANDED DEFINITION OF THE ALLOWABLE CODES OR VALUES).

Table 17 - Safety Hazard Codes	
Code	Description
1	Critical Safety or Health Deficiency-Correct Immediately
2	Serious Safety or Health Deficiency-Suspension of Equipment, System or Space Use is required
3	Moderate Safety or Health Deficiency-Waiver of Equipment, System or Space Use is granted Pending Correction of the Item
4	Minor Safety or Health Deficiency
5	Negligible Safety or Health Deficiency
0	Maintenance Action is Not Safety Related

NOTE: CODES "6" THROUGH "9" MAY BE LOCALLY ASSIGNED BY TYCOMS IF ADDITIONAL SAFETY CODES ARE REQUIRED.

p. Block 16 - LOCATION: Enter the location (compartment number, deck, frame, or side notation), that best describes the location of the equipment requiring maintenance as identified in Block 13. If none of the mentioned location identifications are appropriate, enter description of the location (e.g., FANTAIL, FLIGHT DECK, etc.).

q. Block 17 - WHEN DISCOVERED DATE: Enter the Julian date when the equipment or system failure or malfunction was discovered.

r. Block 18 - ALTERATIONS: Leave blank. If the completed maintenance action resulted in a configuration change or alteration, refer to the instructions for submitting an OPNAV 4790/CK form Appendix C.

s. Blocks 19 through 24 - FOR INSURV USE: No entries required. See Section 2 for details.

6.2 Section II - DEFERRAL ACTION (Block 25 - 28): Leave blank.

6.3 Section III - COMPLETED ACTION.

a. Block 29 - ACT. TKN: Enter the code (Table 18) that best describes the action taken to complete the maintenance.

NOTE: THE LIST OF "ACTION TAKEN" CODES CHANGES OCCASIONALLY. VERIFY CURRENT "ACTION TAKEN" CODES AT THE FOLLOWING WEB SITE: HTTPS://OARS.NSLC.NAVY.MIL/OARS/DOCS/REF/INDEX.HTML

Table 18 - Action Taken 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

NOTE: THE FOLLOWING SECOND CHARACTER CODES CAN BE USED WITH THE ACTION TAKEN CODES 1, 2, OR 3 AS DIRECTED BY THE TYCOM:

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.
7	Maintenance Action Completed; 2-M (Miniature and Micro-Miniature Electronic Modules) Capability Utilized.

NOTE: THE FOLLOWING SECOND CHARACTER CODES CAN BE USED WITH ACTION TAKEN CODE 7 TO BETTER DESCRIBE THE ACTION TAKEN:

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

Code	Description
8	Periodic Time Meter or 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

NOTE: THE FOLLOWING SECOND CHARACTER CODES CAN BE USED WITH ACTION TAKEN CODE 9 TO BETTER DESCRIBE THE ACTION TAKEN:

A	FOTE, multimode ST MQJs utilized
B	FOTE, multimode heavy duty MQJs utilized

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	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 not available
	J	Specialty MQJs not available
0		None of the Above

b.   Block 30 - MHRS: Enter the total man-hours (to the nearest whole hour) that were expended completing the maintenance. This includes man-hours expended for reinstallation, witnessing of tests, etc. (include documentation time, which should not exceed 1 hour).

NOTE: BLOCKS 32, 33, AND 34 ARE ONLY TO BE REPORTED, IF THE EQUIPMENT HAS BEEN SEL DESIGNATED.

c.   Block 31 - COMPLETION DATE: Enter the Julian date the maintenance action was completed.

d.   Block 32 - ACT. MAINT. TIME: Enter the total clock hours (to the nearest whole hour) during which maintenance was performed. This should include time for troubleshooting, but not delays.

e.   Block 33 - TI: Enter a single numeral (1 through 9) to indicate, to the nearest 10 percent, the percentage of active maintenance expended in troubleshooting. For example, if no troubleshooting is involved, enter "f", "2" for 20%, "3" for 30%, "7" for 70%, etc.

f.   Block 34 - METER READING: Enter the time 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 Block 35 "REMARKS" using the letters "METRED" followed by the meter designator. An asterisk (*) must precede and follow the meter designation. Example: *METRED-1A2M1*.

g.   Block 35 - REMARKS/DESCRIPTION: Enter remarks relating to the maintenance action. These remarks should be brief, but complete and meaningful. Remarks should state what was wrong, what caused the failure (if known) and what was done to correct the problem. If "SAFETY HAZARD" (Block 15) is checked, a description of the condition creating the hazard should be inserted in "REMARKS". If more space is needed, check Block 36 "CONT. SHEET" and continue the remarks on a second form using the same JCN.

7. PROCEDURES FOR DOCUMENTING CHANGES, ADDITIONS, AND DELETIONS TO PREVIOUSLY SUBMITTED MAINTENANCE ACTIONS: Place an "X" in the block titled "CORRECTION" at the top of the form. Enter the exact JCN (Blocks 1, 2, and 3) of the original 2K previously processed. Enter only the information to be added, deleted, or changed in the applicable blocks. If the selected data elements are to be deleted, without deleting the entire document, enter dashes (one dash per tic mark) within the data block to be deleted. When changing Block 35, REMARKS/DESCRIPTION, the entire narrative must be entered so that the correct information is included. It is not possible to change just a word or two.

8. PROCEDURES TO ADD-ON REMARKS TO THE CSMP: To add to the remarks as originally submitted, place an "X" in the block titled "ADD-ON REMARKS" at the top of a new 2K Form. Place an "X" in the "DEFL" block at the top of the form and enter in Blocks 1, 2 and 3 the JCN of the original 2K. In Block 35 "REMARKS/DESCRIPTION", enter the initials of the activity adding on to the remarks followed by a dash (-). For example, CINCPACFLT would be entered as "CPF-". Following the dash (-) enter the additional information. If it is necessary to rewrite, or change the narrative as originally submitted, use the procedures for "DOCUMENTING CHANGES, ADDITIONS, and DELETIONS" in paragraph 7.

9. HANDLING PROCEDURES: The 2K is required for documenting a maintenance action that did not result in a configuration change. The 2K must be forwarded to the automated data processing facility serving the command. A copy is submitted when reporting the completion of that maintenance action. A second copy is retained until completion of the maintenance action results in its removal from the CSMP; then it may be destroyed.

Maintenance Action Form for a Deferred Maintenance Action

Figure 1 Maintenance Action Form for a Completed Maintenance Action without Prior Deferral

OPNAV 4790/2K (REV 5-17)

Clear Form

MAINTENANCE ACTION FORM (2-KILO) ☐ COMP ☒ DEFL ☐ CORRECTION ☐ ADD-ON REMARKS

SECTION I. IDENTIFICATION

	JOB CONTROL NUMBER		
1. UIC **21455**	2. WORK CENTER **OI01**	3. JOB. SEQ NO. **0589**	4. APL/AEL **882170236**

A. COMMAND NAME **USS SCOUT**	5. EQUIPMENT NOUN NAME **VALVE, GLOBE**	6.WND **6**	7.STA **1**	8. CAS **7**	9.DFR **1**	10.	11.	12.

B. HULL NUMBER (IF APPLICABLE) **MCM8**	13. INDENT / EQUIPMENT SERIAL NUMBER **FM-3-20-0**	14. EIC **5E451**

15. SAFETY HAZARD ☐	16. LOCATION (Compartment / Deck / Frame / Side) **3-20-0-E**	17. WHEN DISCOVERED DATE YR **6 2** DAY **1 4**

CONFIGURATION CHANGE		FOR INSURV USE				
18. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)	19. */**	20. INSURV NUMBER	21. SUFFIX	22. U	23. S	24. R/M

SECTION II. DEFERRAL ACTION

25. MHRS. EXP. **4**	26.DEFER DATE YR **6 2** DAY **1 4**	27. MHRS. REM. **6**	28. DEADLINE DATE YR **6 2** DAY **2 5**

SECTION III. COMPLETED ACTION

			FOR SELECTED EQUIPMENT ONLY		
29. ACT. TKN.	30. MHRS.	31. COMPLETION DATE YR DAY	32. ACT. MAINT. TIME	33. TI	34. METER READING

SECTION IV. REMARKS / DESCRIPTION

35. REMARKS / DESCRIPTIONS

WHILE PERFORMING PMS, MAINTENANCE PERSON NOTED EXCESSIVE LEAKING FROM VALVE STEM PACKING GLAND ON FIREMAIN SUPPLY VALVE. XXX SHIPS FORCE WILL ORDER PACKING MATERIAL FROM SUPPLY AND REPAIR AT SOONEST OPPORTUNITY UPON RECEIPT OF PARTS.

36. CONT. SHEET ☐

37. CSMP SUMMARY
VALVE FM-3-20-0 STEM PACKING GLAND LEAKS EXTERNALLY

38. FIRST CONTACT / MAINT. MAN (Print) **GRUBE**	39. RATE **ENFN**	40. SECOND CONTACT / SUPERVISOR (Print) **GROFF, ENC**	41. PRI **4**	42. T/A **4**	43. INTEGRATE PRIORITY		

SCREENING

C. DIV. INT. **TFO**	D. DEPT. INIT. **DER**	E. COMMANDING OFFICER'S SIGNATURE	F. TYCOM AUTHORIZATION	44. IUC	45. TYCOM

46. SPECIAL PURPOSE	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.

SECTION V. SUPPLEMENTARY INFORMATION

47. BLUEPRINTS, TECH. MANUALS, PLANS, ECT.	AVAILABLE ON BOARD		48. PREARRIVAL / ARRIVAL CONFERENC ACTION / REMARKS
	YES	NO	
0947-214-9010	☒	☐	
	☐	☐	
	☐	☐	
	☐	☐	

SECTION VI. REPAIR ACTIVITY PLANNING / ACTION

49. REPAIR W/C	50. EST. MHRS.	51. ASST. REPAIR W/C	52. ASST. EST. MHRS	53. SCHED. START DATE YR DAY	54. SCHED. COMP. DATE YR DAY
55. REPAIR ACTIVITY UIC	56. WORK REQ. ROUTINE		57. EST. MANDAYS	58. EST. MANDAY COST $	59. EST. MATERIAL COST $
60. EST. TOTAL COST $	61. JOB ORDER NUMBER		62. LEAD P&E CODE	63. DATE OF EST. YR DAY	

64. FINAL ACT.	65. MHRS EXPENDED	66. DATE COMPLETED YR DAY	G. COMPLETED BY (Signature – Rate)	H. ACCEPTED BY (Signature – Rate/Rank)	

PAGE __**1**__ OF __**1**__

Figure 2 Maintenance Action Form for a Change to a Previously Submitted Deferred Maintenance Action

OPNAV 4790/2K (REV 5-17)

Clear Form

MAINTENANCE ACTION FORM (2-KILO) ☒ COMP ☐ DEFL ☐ CORRECTION ☐ ADD-ON REMARKS

SECTION I. IDENTIFICATION

JOB CONTROL NUMBER			
1. UIC **21455**	2. WORK CENTER **OI01**	3. JOB. SEQ NO. **0593**	4. APL/AEL **882170236**

A. COMMAND NAME **USS SCOUT**	5. EQUIPMENT NOUN NAME **VALVE, GLOBE**	6.WND **6**	7.STA **1**	8. CAS **7**	9.DFR **0**	10.	11.	12.

B. HULL NUMBER (IF APPLICABLE) **MCM8**	13. INDENT / EQUIPMENT SERIAL NUMBER **FM-2-21-0**	14. EIC **5E451**

15. SAFETY HAZARD ☐	16. LOCATION (Compartment / Deck / Frame / Side) **2-20-0-E**	17. WHEN DISCOVERED DATE YR **6 2** DAY **1 5**

CONFIGURATION CHANGE		FOR INSURV USE			
18. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)	19. */**	20. INSURV NUMBER	21. SUFFIX	22. U	23. S	24. R/M

SECTION II. DEFERRAL ACTION

25. MHRS. EXP.	26. DEFER DATE YR DAY	27. MHRS. REM.	28. DEADLINE DATE YR DAY

SECTION III. COMPLETED ACTION

	FOR SELECTED EQUIPMENT ONLY				
29. ACT. TKN. **3**	30. MHRS. **2**	31. COMPLETION DATE YR **6 2** DAY **1 5**	32. ACT. MAINT. TIME **2**	33. TI	34. METER READING

SECTION IV. REMARKS / DESCRIPTION

35. REMARKS / DESCRIPTIONS

WHILE PERFORMING PMS, MAINTENANCE PERSON NOTED EXCESSIVE LEAKING FROM VALVE STEM PACKING GLAND ON FIREMAIN CUT-OUT VALVE. XXX SHIPS FORCE TIGHTENED PACKING GLAND NUT IAW TECHNICAL MANUAL AND MONITORED VALVE FOR PROPER OPERATION. LEAK FROM VALVE STEM PACKING GLAND HAS BEEN REPAIRED.

36. CONT. SHEET ☐

37. CSMP SUMMARY
VALVE FM-2-21-0 STEM PACKING GLAND LEAKS EXTERNALLY

38. FIRST CONTACT / MAINT. MAN (Print) **GRUBE**	39. RATE **ENFN**	40. SECOND CONTACT / SUPERVISOR (Print) **GROFF, ENC**	41. PRI **4**	42. T/A **4**	43. INTEGRATE PRIORITY	SCREENING

C. DIV. INT. **TFO**	D. DEPT. INIT. **DER**	E. COMMANDING OFFICER'S SIGNATURE	F. TYCOM AUTHORIZATION	44. IUC	45. TYCOM

46. SPECIAL PURPOSE	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.

SECTION V. SUPPLEMENTARY INFORMATION

47. BLUEPRINTS, TECH. MANUALS, PLANS, ECT. **0947-215-9010**	AVAILABLE ON BOARD YES ☒ NO ☐	48. PREARRIVAL / ARRIVAL CONFERENC ACTION / REMARKS
	☐ ☐	
	☐ ☐	
	☐ ☐	

SECTION VI. REPAIR ACTIVITY PLANNING / ACTION

49. REPAIR W/C	50. EST. MHRS.	51. ASST. REPAIR W/C	52. ASST. EST. MHRS	53. SCHED. START DATE YR DAY	54. SCHED. COMP. DATE YR DAY
55. REPAIR ACTIVITY UIC	56. WORK REQ. ROUTINE		57. EST. MANDAYS	58. EST. MANDAY COST $	59. EST. MATERIAL COST $
60. EST. TOTAL COST $	61. JOB ORDER NUMBER		62. LEAD P&E CODE	63. DATE OF EST. YR DAY	

64. FINAL ACT.	65. MHRS EXPENDED	66. DATE COMPLETED YR DAY	G. COMPLETED BY (Signature – Rate)	H. ACCEPTED BY (Signature – Rate/Rank)	PAGE **1** OF **1**

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Figure 3 Maintenance Action Form for Add-on Remarks to a Previously Submitted Deferred Maintenance Action

OPNAV 4790/2K (REV 5-17)

Clear Form

MAINTENANCE ACTION FORM (2-KILO) ☐ COMP ☐ DEFL ☒ CORRECTION ☐ ADD-ON REMARKS

SECTION I. IDENTIFICATION

JOB CONTROL NUMBER

1. UIC	2. WORK CENTER	3. JOB. SEQ NO.	4. APL/AEL
21455	OI01	0589	

A. COMMAND NAME	5. EQUIPMENT NOUN NAME	6.WND	7.STA	8. CAS	9.DFR	10.	11.	12.

| B. HULL NUMBER (*IF APPLICABLE*) | 13. INDENT / EQUIPMENT SERIAL NUMBER | 14. EIC | | | | | | |
| | | | | | 2 | | | |

15. SAFETY HAZARD ☐	16. LOCATION (Compartment / Deck / Frame / Side)	17. WHEN DISCOVERED DATE YR DAY

CONFIGURATION CHANGE | **FOR INSURV USE**

18. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)	19. */**	20. INSURV NUMBER	21. SUFFIX	22. U	23. S	24. R/M

SECTION II. DEFERRAL ACTION

	25. MHRS. EXP.	26. DEFER DATE YR DAY	27. MHRS. REM.	28. DEADLINE DATE YR DAY

SECTION III. COMPLETED ACTION

					FOR SELECTED EQUIPMENT ONLY	
	29. ACT. TKN.	30. MHRS.	31. COMPLETION DATE YR DAY	32. ACT. MAINT. TIME	33. TI	34. METER READING

SECTION IV. REMARKS / DESCRIPTION

35. REMARKS / DESCRIPTIONS

WHILE PERFORMING PMS, MAINTENANCE PERSON NOTED EXCESSIVE LEAKING FROM VALVE STEM PACKING GLAND ON FIREMAIN SUPPLY VALVE. DUE TO DESIGN, VALVE STEM PACKING GLAND IS NOT ADJUSTABLE / REPAIRABLE. XXX SHIPS FORCE WILL ORDER REPLACEMENT VALVE FROM SUPPLY AND REPLACE AT SOONEST OPPORTUNITY UPON RECEIPT OF NEW VALVE.

36. CONT. SHEET ☐

37. CSMP SUMMARY

38. FIRST CONTACT / MAINT. MAN (Print)	39. RATE	40. SECOND CONTACT / SUPERVISOR (Print)	41. PRI	42. T/A	43. INTEGRATE PRIORITY	
						SCREENING

C. DIV. INT.	D. DEPT. INIT.	E. COMMANDING OFFICER'S SIGNATURE	F. TYCOM AUTHORIZATION	44. IUC	45. TYCOM

46. SPECIAL PURPOSE	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.

SECTION V. SUPPLEMENTARY INFORMATION

47. BLUEPRINTS, TECH. MANUALS, PLANS, ECT.	AVAILABLE ON BOARD YES NO	48. PREARRIVAL / ARRIVAL CONFERENC ACTION / REMARKS
	☐ ☐	
	☐ ☐	
	☐ ☐	

SECTION VI. REPAIR ACTIVITY PLANNING / ACTION

49. REPAIR W/C	50. EST. MHRS.	51. ASST. REPAIR W/C	52. ASST. EST. MHRS	53. SCHED. START DATE YR DAY	54. SCHED. COMP. DATE YR DAY

55. REPAIR ACTIVITY UIC	56. WORK REQ. ROUTINE	57. EST. MANDAYS	58. EST. MANDAY COST $	59. EST. MATERIAL COST $

60. EST. TOTAL COST $	61. JOB ORDER NUMBER	62. LEAD P&E CODE	63. DATE OF EST. YR DAY

64. FINAL ACT.	65. MHRS EXPENDED	66. DATE COMPLETED YR DAY	G. COMPLETED BY (Signature – Rate)	H. ACCEPTED BY (Signature – Rate/Rank)	
					PAGE 1 OF 1

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APPENDIX D

Figure 4 Maintenance Action Form for Add-on Remarks to a Previously Submitted Deferred Maintenance Action

OPNAV 4790/2K (REV 5-17)

Clear Form

MAINTENANCE ACTION FORM (2-KILO) ☐ COMP ☒ DEFL ☐ CORRECTION ☒ ADD-ON REMARKS

SECTION I. IDENTIFICATION

	JOB CONTROL NUMBER			
1. UIC **21455**	2. WORK CENTER **OI01**	3. JOB. SEQ NO. **0589**	4. APL/AEL	

A. COMMAND NAME	5. EQUIPMENT NOUN NAME	6.WND	7.STA	8. CAS	9.DFR	10.	11.	12.

B. HULL NUMBER (*IF APPLICABLE*)	13. INDENT / EQUIPMENT SERIAL NUMBER	14. EIC

15. SAFETY HAZARD ☐   16. LOCATION (Compartment / Deck / Frame / Side)   17. WHEN DISCOVERED DATE YR DAY

CONFIGURATION CHANGE		FOR INSURV USE				
18. ALTERATIONS (SHIPALT, ORDALT, Fld Chg. ect.)	19. */**	20. INSURV NUMBER	21. SUFFIX	22. U	23. S	24. R/M

SECTION II. DEFERRAL ACTION

	25. MHRS. EXP.	26. DEFER DATE YR DAY	27. MHRS. REM.	28. DEADLINE DATE YR DAY

SECTION III. COMPLETED ACTION

				FOR SELECTED EQUIPMENT ONLY		
	29. ACT. TKN.	30. MHRS.	31. COMPLETION DATE YR DAY	32. ACT. MAINT. TIME	33. TI	34. METER READING

SECTION IV. REMARKS / DESCRIPTION

35. REMARKS / DESCRIPTIONS

CSP - THIS IS THE FIFTH (5) FAILURE OF THIS TYPE OF VALVE ON THE MCM CLASS IN 60 DAYS. THIS APL / ESWBS WILL BE FLAGGED AS A "TROUBLED SYSTEM" FOR MATERIEL TRACKING PURPOSES.

36. CONT. SHEET ☐

37. CSMP SUMMARY

38. FIRST CONTACT / MAINT. MAN (Print)	39. RATE	40. SECOND CONTACT / SUPERVISOR (Print)	41. PRI	42. T/A	43. INTEGRATE PRIORITY	SCREENING

C. DIV. INT.	D. DEPT. INIT.	E. COMMANDING OFFICER'S SIGNATURE	F. TYCOM AUTHORIZATION	44. IUC	45. TYCOM

46. SPECIAL PURPOSE	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.

SECTION V. SUPPLEMENTARY INFORMATION

47. BLUEPRINTS, TECH. MANUALS, PLANS, ECT.	AVAILABLE ON BOARD YES	NO	48. PREARRIVAL / ARRIVAL CONFERENC ACTION / REMARKS
	☐	☐	
	☐	☐	
	☐	☐	

SECTION VI. REPAIR ACTIVITY PLANNING / ACTION

49. REPAIR W/C	50. EST. MHRS.	51. ASST. REPAIR W/C	52. ASST. EST. MHRS	53. SCHED. START DATE YR DAY	54. SCHED. COMP. DATE YR DAY
55. REPAIR ACTIVITY UIC	56. WORK REQ. ROUTINE		57. EST. MANDAYS	58. EST. MANDAY COST $	59. EST. MATERIAL COST $
60. EST. TOTAL COST $	61. JOB ORDER NUMBER		62. LEAD P&E CODE	63. DATE OF EST. YR DAY	

64. FINAL ACT.	65. MHRS EXPENDED	66. DATE COMPLETED YR DAY	G. COMPLETED BY (Signature – Rate)	H. ACCEPTED BY (Signature – Rate/Rank)	PAGE **1** OF **1**

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APPENDIX E

PREPARATION INSTRUCTIONS SUPPLEMENTAL FORM

(OPNAV 4790/2L)

1. <u>SUPPLEMENTAL FORM (OPNAV 4790/2L)</u>.

   a.   This form is used to provide amplifying information (such as drawings and listings) related to a maintenance action, reported on an OPNAV 4790/2K (2L) form. The 2L may be used to list multiple item serial numbers and locations for which identical maintenance requirements exist from an outside activity; or to provide a list of drawings and sketches that would be helpful in the accomplishment of the maintenance.

   b.   The OPNAV 4790/2L (2L) form is retained with the suspense copy of the corresponding 2K form that deferred the maintenance action. The 2L is never submitted to the ADP facility servicing the activity, as the data on the 2L will never be entered into the computer. However, the 2L can be attached to the original 2K or computer produced (simulated) 2K when submitted to an assisting activity.

2. <u>SPECIAL APPLICATION</u>.

   a.   If a MJC routine has been added to the CSMP for service routines or for IMA manufacturing of sheet metal enclosures, structures or flex hoses, multiple OPNAV 4790/2Ls may be used for the same JCN. Each 2L would result in an additional task being added to the JCN, thus accounting for man-hour expenditure for each task. Similarly, the 2L could be used to request critical hose manufacturing by referencing the MJC number and using the activity's own JCN, thus precluding the necessity to submit multiple complete OPNAV 4790/2Ks.

   b.   The form is separated into three sections:

      (1)   SECTION I "IDENTIFICATION"

      (2)   SECTION II "REMARKS/SKETCHES"

   (3)   SECTION III "AUTHENTICATION"

NOTE: **WHEN USING THE 2L, ALL SECTIONS OF THE FORM ARE TO BE FILLED OUT. ON THE OPNAV 4790/2K FORM, BE SURE TO ENTER THE NOTATION "2L USED" IN THE "REMARKS/DESCRIPTION" SECTION, BLOCK 35.**

NOTE: **FIGURES 1 AND 2 PROVIDE AN EXAMPLE OF COMPLETED OPNAV 4790/2L FORMS.**

   Figure 1   Supplemental Form Containing an Equipment Listing.

   Figure 2   Supplemental Form Containing a Sketch or Drawing.

3. <u>PROCEDURES FOR PROVIDING ADDITIONAL INFORMATION USING THE 2L</u>.

3.1 <u>Section I – Identification</u>.

    a.   Block A: - Enter the Command's Name.

    b.   Block B: - Enter the Ship's Hull Number (if applicable).

    c.   JOB CONTROL NUMBER: - Enter the same JCN (Command's UIC, Work Center, and Job Sequence Number) assigned to the original maintenance action (OPNAV 4790/2K or equivalent) in Blocks C, D and E.

    d.   Block F - CONTINUATION FOR: Enter an "X" in one of the blocks to indicate that this 2L is a continuation of either an OPNAV 4790/2K, 4790/2L or a 4790/2P Form.

3.2 <u>Section II - Remarks/Sketches</u>.   Block G: - Enter the information that is desired to be provided such as a list of serial numbers and locations for which identical maintenance requirements exist or sketches or drawings that may be useful in the accomplishment of the maintenance action.

3.3 <u>Section III – Authentication</u>.

    a.   Block H - FIRST CONTACT/MAINTENANCE MAN: The maintenance person preparing the form prints his or her name in this block.

    b.   Block I - DATE (YR/DAY): Enter the Julian date the document is prepared.

    c.   Block J - SECOND CONTACT/SUPERVISOR: The Work Center Supervisor prints his name following his review of the document in the block.

    d.   Block K - DATE: The Work Center Supervisor enters the Julian date the document was reviewed.

Figure 1 Supplemental Form Containing an Equipment Listing

OPNAV 4790/2L (REV 4-17) S/N 0107-LF-770-3060

Clear Form

SUPPLEMENTAL FORM (2-LIMA)

SECTION I. IDENTIFICATION

		JOB CONTROL NUMBER		

A. COMMAND NAME	B. HULL NUMBER	C. UIC	D. WORK CENTER	E. JOB SEQ NO.
USS JASON DUNHAM	**DDG 109**	**55685**	**OI02**	**0173**

			F. CONTINUATION FOR	☒ 2K	☐ 2L	☐ 2P

SECTION II. REMARKS SECTION

G. REMARKS / DESCRIPTIONS

THE FOLLOWING BINOCULARS NEED TO BE COLLIMATED;
SERIAL 17865, 17866, 17870, 20188, 20189, 21220, 21223

ADD IMAGE TO REMARKS / DESCRIPTIONS (BELOW)   CLEAR IMAGE

SECTION III. AUTHENTICATION

H. FIRST CONTACT/ MAINTENANCE MAN (Print)	I. DATE YR DAY	J. SECOND CONTACT/SUPERVISOR (Print)	K.DATE YR DAY
JONES ET3	**6 2 3 6**	**HOGGE ETC**	**6 2 3 8**

*U.S.GPO:1991-0-505-750

Figure 2 Supplemental Form Containing a Sketch or Drawing

OPNAV 4790/2L (REV 4-17) S/N 0107-LF-770-3060

Clear Form

SUPPLEMENTAL FORM (2-LIMA)

SECTION I. IDENTIFICATION

			JOB CONTROL NUMBER		
A. COMMAND NAME **USS JASON DUNHAM**	B. HULL NUMBER **DDG 109**	C. UIC **55685**	D. WORK CENTER **EA01**	E. JOB SEQ NO. **2136**	
			F. CONTINUATION FOR	☒ 2K ☐ 2L ☐ 2P	

SECTION II. REMARKS SECTION

G. REMARKS / DESCRIPTIONS
INSTALLATION DWG FOR BULKHEAD MOUNTED WASTE RECEPTACLES

ADD IMAGE TO REMARKS / DESCRIPTIONS (BELOW)   CLEAR IMAGE

INSTALLATION & MOUNTING DETAILS
OF WASTE RECEPTACLE MOUNTED ON
M J BULKHEADS & S M PARTITIONS

SECTION III. AUTHENTICATION

H. FIRST CONTACT/ MAINTENANCE MAN (Print) **W. J. OLMO MM3**	I. DATE YR 6 3 DAY 0 3	J. SECOND CONTACT/SUPERVISOR (Print) **C. R. HOUCK MMC**	K. DATE YR 6 3 DAY 0 3

*U.S.GPO:1991-0-505-750

APPENDIX F

SHIPYARD ALTERATION CERTIFICATION LETTER EXAMPLE

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):			
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)

VI-19-7-F-1

APPENDIX G

**SHIP'S FIRST ENDORSEMENT ON ALTERATION CERTIFICATION
LETTER EXAMPLE**

4720
Ser/Org Code
Date:

FIRST ENDORSEMENT on NSY ltr 4720 Ser/Org Code of (Date of ltr)

From: Commanding Officer, USS (Ship's Name and hull number)
To: (Supporting Activity, e.g., IUC, **Regional Support Group**, etc.)

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

Ref: (a) NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual

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)

APPENDIX H
WORK CANDIDATE AND JSN LOG EXAMPLE

DEFICIENCY IDENTIFICATION		TYP AVAIL	P R I	DEFICIENCY		REVIEW		REPAIR STATUS	SUPPLY	3M ACTION		COMPLETION
DATE:	SYS/CMPNT:	1 2 3	1 2 3			LPO	DIV OFF		REQN#	DEFER Y/N	COMPLETE Y/NA	DATE:
JSN:	ENTERED BY:	4	4	2 LIMA Y N	TAG-OUT Y N					INT:	INT:	CLEARED BY:(Sign)
DATE:	SYS/CMPNT:	1 2 3	1 2 3			LPO	DIV OFF		REQN#	DEFER Y/N	COMPLETE Y/NA	DATE:
JSN:	ENTERED BY:	4	4	2 LIMA Y N	TAG-OUT Y N					INT:	INT:	CLEARED BY:(Sign)
DATE:	SYS/CMPNT:	1 2 3	1 2 3			LPO	DIV OFF		REQN#	DEFER Y/N	COMPLETE Y/NA	DATE:
JSN:	ENTERED BY:	4	4	2 LIMA Y N	TAG-OUT Y N					INT:	INT:	CLEARED BY:(Sign)
DATE:	SYS/CMPNT:	1 2 3	1 2 3			LPO	DIV OFF		REQN#	DEFER Y/N	COMPLETE Y/NA	DATE:

VOLUME VI

CHAPTER 20

WEIGHT AND MOMENT CONTROL FOR SUBMARINES

REFERENCES.

(a)   NAVSEA S9086-C6-STM-010 - NSTM Chapter 096 (Weights and Stability)
(b)   NAVSEA T9096-AA-INS-010 - Weight and Stability Requirements for Active Submarines

LISTING OF APPENDICES.

A   Sample Ship Message to ISIC Concerning Removal or Reinstallation of Cargo Ballast
B   Sample Ship Message to ISIC Concerning Audit of Cargo Ballast Documentation

20.1 PURPOSE. This chapter provides basic information and guidance concerning submarine ballast changes, including mandatory authorization and reporting requirements.

a.   The use of solid ballast is important for submarine stability and the ability to maintain submerged equilibrium for all design conditions. Ballast lead typically, is installed in submarines for the following purposes:

(1)   To maintain adequate stability.

(2)   To correct for inherent transverse moments that would otherwise create list.

(3)   To permit submarines to submerge with neutral buoyancy and zero trim for all design equilibrium conditions.

(4)   To compensate for future installed alterations.

b.   An inclining experiment and all-stop trim dive are performed per the requirements of reference (a). These experiments provide the basic data concerning weight and center of gravity for use in all considerations of stability, reserve buoyancy, equilibrium and in determining compliance with the requirements of the weight control program. An inclining experiment is the only satisfactory method of accurately determining the location of the vertical center of gravity of the submarine. The trim dive is the only satisfactory method of determining the load to submerge and the final ballasting solution. Inclining experiments are conducted on each submarine in new construction, after the Post Shakedown Availability, unless waived by Naval Sea Systems Command (NAVSEA), and when authorized by Naval Sea Systems Command (NAVSEA) for some Chief of Naval Operations (CNO) availabilities. Trim dives are performed during delivery sea trials, prior to each CNO availability, after each CNO availability with a duration of 18 months or longer and under specific circumstances to address ballasting issues reported by Ship's Force. Trim dives are also performed periodically prior to smaller availabilities to identify weight growth.

c.   Initial ship design provides for adequate stability and equilibrium for all expected loading conditions. Service life margin, in the form of permanent lead ballast in excess of that needed to

maintain stability and equilibrium, allows for growth, but historically the margin is quickly consumed for several reasons:

(1)   The on-going process of modernization over the life of the ship.

(2)   Unknown weight growth due to the accumulation of personal gear and equipment, undocumented alterations, spare parts and stores.

(3)   Weight removal or margin recovery measures being accorded a low priority.

20.2 <u>BALLAST CHANGES</u>. NAVSEA maintains a record of the solid ballast installed in each submarine. These records are required for evaluating and tracking the ship's stability and equilibrium. Any permanent alteration to a submarine that changes weight, moment or displacement may require compensation by the removal or installation of lead ballast.

20.2.1 <u>Naval Sea Systems Command Notification</u>. Any activity performing this alteration is required by reference (b) to submit a reballasting proposal to NAVSEA for approval. NAVSEA approval is required for all permanent ballast changes. Copies of the reballasting proposal must be sent to the Type Commander (TYCOM), Immediate Superior In Command (ISIC) and the Commanding Officer.

20.2.2 <u>Ballast Types</u>. Submarines of the active fleet must be maintained within stability and buoyancy limits for a state of war readiness. Deviations from this principle are generally unauthorized. Some ships are authorized to carry other types of lead ballast:

a.   Cargo Ballast: Ships have cargo ballast (cargo lead) loaded at various times to compensate for loads or loading configurations. This cargo ballast can become undocumented weight over time due to crew turnover and loss of corporate knowledge. To that end, the following is required for loading and off-loading of cargo ballast:

(1)   Cargo ballast, unless part of the original ship's design, is approved by NAVSEA on a ship-by-ship basis. Requests for cargo ballast, and requests for increased amount of cargo ballast, must be submitted by the ship, in writing, to NAVSEA for approval. All such requests must have ISIC and TYCOM endorsement and include the specific weight amount, location and method for securing the lead.

(2)   Once cargo ballast is approved, either as part of the ship's original design or on a ship by ship basis, Ship's Force is responsible for managing the ballast. The ship shall add a line item for cargo ballast to the ship's set of dive cards or compensation spreadsheet, and the cargo ballast's weight and location shall be kept current by the Diving Officer. If cargo ballast is carried and a heavier load out occurs, which would put any calculated variable ballast point outside the equilibrium polygon, some or all of this ballast must be removed. All cargo ballast shall be removed prior to an Arctic deployment.

(3)   The ship shall obtain TYCOM concurrence via the ISIC prior to removing or reinstalling previously approved cargo ballast, and shall inform the ISIC, TYCOM, NAVSEA PMS392, NAVSEA 05U7, NSWCCD Code 844 and the planning yard of the removal or reinstallation of cargo ballast using the format of Appendix A.

(4)   With the exception of 774 Class VLS/Payload System Cargo Lead ballast, changes to cargo ballast should normally be accomplished by a nuclear qualified shipyard. With the

exception of 774 Class VLS/Payload System Cargo Lead ballast, approval by the ISIC and TYCOM is required in the event a situation requires an organization other than a nuclear qualified shipyard to add, remove or relocate cargo lead.

(5) Any cargo lead load that results in a calculated mission equilibrium point outside the equilibrium polygon requires a NAVSEA approved Departure From Specifications (DFS). Additional guidance and procedures concerning the installation or removal of cargo ballast is available in reference (b).

(6) Cargo ballast documentation shall be audited by Ship's Force during each Major Maintenance Period (MMP), DSRA, DMP, Engineered Overhaul, or PIRA to ensure the cargo ballast is being properly tracked. The ISIC is responsible for ensuring that Ship's Force is using the latest shipyard documentation for the cargo ballast. A report of the audit findings will be made using the format of Appendix B.

b. Permanent Ballast: Changes in permanent ballast, which includes adding, removing or relocating, must not be accomplished by Ship's Force, Fleet Maintenance Activities or any industrial activity without prior TYCOM concurrence and NAVSEA written approval.

c. Sea Trial Lead. Temporary ballast may be added as necessary to assure that the ship is capable of diving and trimming out when lightly loaded during sea trials following initial delivery and following a CNO availabilities (DMP, DSRA, PIRA, etc.). NAVSEA must review and approve temporary ballast used for trials. The TYCOM must approve the use of any temporary lead retained or added after sea trials for transit to homeport. All temporary lead ballast must be removed prior to load-out and deployment. A temporary DFS must be opened upon installation of temporary sea trial ballast and closed upon removal of that ballast. The forwarding letter for the post-availability stability report must reference the DFS and provide the current status of the temporary lead ballast.

20.3 UNUSUAL CONDITIONS. NAVSEA requires reports to be submitted of any unusual conditions which are considered dangerous or seriously affect the operation of the ship. Ship's Force will report the following situations to NAVSEA, via the ISIC and TYCOM, per the requirements of reference (a).

a. Excessive rolling.

b. Heeling due to rudder action.

c. Excessive pounding.

d. Inadequate propeller immersion.

e. Difficulty in maintaining neutral buoyancy. If so, document loads, density of water and depth. Also indicate whether or not the ship was hovering or if additional variable ballast was loaded due to sea state.

APPENDIX A

**SAMPLE SHIP MESSAGE TO ISIC CONCERNING REMOVAL OR
REINSTALLATION OF CARGO BALLAST**

FM USS <SHIP NAME>//
TO COMSUB<RON/GRU NO.>//
COMSUBRON <NO. HOME SQUADRON IF DEPLOYED>
INFO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
COMNAVSEASYSCOM WASHINGTON DC//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//
BT
UNCLAS //N9096//
PASS TO OFFICE CODES
COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS392/05U7/TIC//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//844//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>REMOVAL <REINSTALLATION> OF
CARGO BALLAST//
REF/A/DOC/COMUSFLTFORCOM/<DATE>//
REF/ REF A IS COMUSFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE
MANUAL,
VOLUME VI, CHAPTER 20.//
RMKS/ DDS SHELTER <NUMBER> IS BEING ON-LOADED <OFF-LOADED>
2. PER REF A THE SPECIFIC DDS LEAD THAT HAS BEEN REMOVED
<REINSTALLED> IS PROVIDED:

APPROXIMATE WEIGHT - LOCATION
APPROXIMATE WEIGHT - LOCATION APPROXIMATE WEIGHT - LOCATION
APPROXIMATE WEIGHT - LOCATION APPROXIMATE WEIGHT - LOCATION

BT

**NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS
UTILIZED.**

APPENDIX B

**SAMPLE SHIP MESSAGE TO ISIC CONCERNING AUDIT OF CARGO BALLAST
DOCUMENTATION**

FM USS <SHIP NAME>//
TO COMSUB<RON/GRU NO.>//
INFO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
<SUPERVISING ACTIVITY >
COMNAVSEASYCOM WASHINGTON DC //
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//
BT
UNCLAS //N9096//
PASS TO OFFICE CODES
COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N43//
<SUPERVISING ACTIVITY//CODE NO//>
COMNAVSEASYSCOM WASHINGTON DC//PMS392/05U7/TIC//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//844//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> AUDIT OF INSTALLED CARGO BALLAST
REF/A/DOC/COMUSFLTFORCOM/<DATE>//
REF/B/DOC/<ACTIVITY>/<DATE>//
REF/ REF A IS COMUSFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE
MANUAL,
VOLUME VI, CHAPTER 20. REF B IS THE DATA PACKAGE BY THE <NAME> NAVAL
SHIPYARD FOR THE INSTALLATION OF CARGO BALLAST.//
RMKS/1. THE SHIP IS UNDERGOING <AVAILABILITY TYPE>. PER REF A AN AUDIT
OF CARGO BALLAST DOCUMENTATION HAS BEEN CONDUCTED. SHIP'S FORCE
HAS REF B THAT DOCUMENTS THE CURRENT AMOUNT AND LOCATION OF
CARGO BALLAST.
BT

**NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
AND CURRENT PLAD IS UTILIZED.**

VOLUME VI

CHAPTER 21

(Reserved for Future Use)

VOLUME VI
CHAPTER 22
TRIDENT SYSTEM AND EQUIPMENT MAINTENANCE PLANS

REFERENCES.

    (a)   OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
    (b)   SUBMEPP 9086-008-814 - TRIPER Information Notebook

LISTING OF APPENDICES.

    A   TRIPER Information Sheet

22.1 PURPOSE. To provide information and guidance concerning TRIDENT submarine system and equipment maintenance plans and associated programs.

22.2 TRIDENT SYSTEM AND EQUIPMENT MAINTENANCE PLANS. Maintenance plans have been prepared for all maintenance worthy configuration items onboard SSBN and SSGN 726 Class Submarines. These maintenance plans are written to the system, equipment or component and list all of the planned maintenance required by a configuration item during its life cycle. These Maintenance Requirements are derived through the conduct of a maintenance engineering and a logistics support analysis process. Maintenance plans list the job description, periodicity, maintenance level (organization, intermediate, or industrial) and the applicable maintenance procedures. Unrestricted Operation (URO), TRIDENT Planned Equipment Replacement (TRIPER), Major Shore Spares (MSS), Submarine Maintenance Standards (SMS) and Performance Monitoring applications are included in maintenance plans as appropriate. Technical management of these plans is assigned to the Submarine Maintenance Engineering, Planning and Procurement Activity. A SSBN or SSGN 726 Class Submarine Maintenance Plan comprising all individual maintenance plans is issued periodically by NAVSEA. Per reference (a), the Type Commander will identify and prioritize corrective maintenance actions for SSBN and SSGN Class Submarine emergent repairs. Programs and requirements supporting the SSBN or SSGN 726 Class operating cycle are discussed in the following paragraphs.

22.2.1 TRIDENT Planned Equipment Replacement. The purpose of the TRIPER program is to accomplish an incremental overhaul of a submarine over several refit periods in the case of SSBNs and during Major Maintenance Periods (MMP) in the case of SSGNs.

    a.   Shipboard equipment which requires significant maintenance during the planned operating cycle between overhauls, which is beyond the capability of Ship's Force, and which cannot be accomplished during the refit period or MMP (without unacceptable impact on other refit or MMP requirements), will be supported by this program. TRIPER equipment will be removed from the ship for refurbishment ashore, replaced with pre-tested, ready for issue units and the affected system restored to full operational condition prior to completion of the refit period or MMP. Replacement will be accomplished on a planned basis at intervals designed to preclude the failure of the equipment or significant degradation of its associated system. Deviations of greater or less than one refit or MMP from established TRIPER change-out periodicities must require Type Commander concurrence. A planned change to shelf

stock TRIPER equipment will be accomplished only when sufficient change kits are available to effect the change in all units of a given model of the equipment held in shelf stock. Shelf stock TRIPER equipment is represented in configuration status accounting databases maintained by Submarine Maintenance Engineering, Planning and Procurement Activity Hull, Mechanical, Electrical, Ordnance and Electronic and Naval Underwater Warfare Center Division Newport and transitions to the configuration database of the receiving ship upon installation.

b. The Type Commander must manage emergent repairs requiring use of TRIPER assets. Per reference (a), the Type Commander will identify and prioritize corrective maintenance actions for SSBN and SSGN Class Submarine emergent repairs. Support of the Strategic Platform (SSBN) generally has the highest priority.

22.2.2 Deployed SSGN Unplanned TRIPER Change Out. An unplanned change out is not to be used as a substitute for accomplishing repairs. An unplanned change out is only to be accomplished if the deficient condition cannot be repaired or if the repair time required is unacceptable.

22.2.2.1 TRIPER Asset Segregation. TRIPER assets are segregated from normal supply process instructions and additional controls are in effect to manage these assets. Additional actions beyond normal supply procedures are required to obtain a TRIPER asset for corrective maintenance. Stakeholders in the maintenance process for SSGNs must understand the TRIPER process and how to quickly identify a TRIPER asset from normal stock numbered items to ensure timely release of material from the TRIPER Program. The supply system will cancel requisitions that have not been pre-alerted to the TRIPER Program Management.

22.2.2.2 TRIPER Information Notebook. Reference (b), available as a CD-ROM from SUBMEPP, provides identification, location, Comp ID, technical data, boundary drawings and configuration change records for all components in the TRIPER Program. All TRIPER assets have a TRIPER Tag with a unique TRIPER Serial Number (TSN) engraved on it. Location of the TRIPER Tag is shown on the component boundary drawing. TRIPER assets have a "4Y" COG national stock number. When requesting a "4Y" COG asset, Appendix A must be submitted by the Fleet Maintenance Activity (FMA) to the homeport SSGN Project Team. The homeport SSGN Project Team will interact with TRIPER Program Management to ship the requested asset to the needed location.

22.2.2.3 Responsibilities.

a. SSGN: Identify the deficient component TSN via the Casualty Report message reporting system and submit work request to their Immediate Superior In Command.

b. Immediate Superior In Command: Assign job to an FMA.

c. FMA:

 (1) Fill out Appendix A and forward to the homeport SSGN Project Team.

 (2) Upon confirmation of receipt of delivery of Appendix A, the FMA will order the TRIPER asset via normal supply means.

 (3) Receive shipped TRIPER asset, carefully uncrate and save the shipping container for use as a shipping container for the off-loaded asset carcass.

      (4)   Ship back the TRIPER carcass to an address provided by the SSGN Project Team in the same shipping container the received asset was shipped in.

   d.   Naval Submarine Support Center: Induct a separate job from the actual maintenance action Job Sequence Number for the homeport SSGN Project Team to ship the TRIPER asset to and from job location. This will allow for closing of the maintenance action Job Control Number (JCN) for work certification and maintain a separate JCN for disposition of the shipped asset to and from the deployed maintenance site.

   e.   SSGN Project Team:

      (1)   Use Appendix A, fill out the appropriate forms and deliver to the TRIPER Manager. Forms are: "REQUEST FOR UNSCHEDULED REPLACEMENT OF TRIPER ASSET" and "REQUEST FOR CANNIBALIZATION OF TRIPER PROGRAM ASSET". Appropriate forms can be found on the internet under Navy Forms on Line.

      (2)   Act as liaison between the FMA and the TRIPER Manager.

      (3)   Ship the TRIPER asset to desired location when released by the TRIPER Manager.

      (4)   Coordinate the return shipment of the TRIPER carcass to the TRIPER Manager.

      (5)   Close out Naval Submarine Support Center inducted job once the TRIPER Manager has received the carcass.

   f.   TRIPER Manager:

      (1)   Evaluate request priorities of the requested asset from a total TRIPER Program support position. Approve the release of the requested asset.

      (2)   Ensure appropriate Pre-Installation Testing and material condition assessments are conducted prior to the release of the asset to the SSGN Project Team.

      (3)   Release asset to the SSGN Project Team for subsequent shipping to desired location.

22.2.3 <u>Major Shore Spares</u>. The purpose of the TRIDENT MSS Program is to maintain a supply of designated major equipment candidates in a certified, tested, ready-for-issue condition to effect replacement of equipment experiencing catastrophic failure, without jeopardizing refit completion. The employment of MSS assets must require Type Commander authorization. Typically, MSS equipment includes ship's propeller, Ship's Service Turbine Generators, towed arrays, towed buoys, Integrated Radio Room cabinets, etc. Like TRIPER, MSS equipment is managed by NAVSEA (PMS 392). Configuration tracking is under the cognizance of the applicable Participating Manager and is identified in the TRIDENT MSS Catalog published by NAVSEA (PMS 392). Equipment under the cognizance of the Strategic System Project Office and Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) is not included in the TRIPER or MSS programs.

22.2.4 <u>Fleet Logistics Agent</u>. The function of the fleet logistics agent for SSBN and SSGN 726 Class Submarines has been assigned to the TRIDENT Refit Facility (TRIREFFAC) in the case of

Kings Bay and Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS-IMF) for the Pacific Northwest. TRIREFFAC and PSNS-IMF provides refit, MMP and configuration management support. These functions involve:

a. Staging and delivering updated Logistics Technical Data (LTD) applicable to the ship's current configuration.

b. Providing available interim technical documentation and logistic support elements for emergent changes installed during refit or MMP.

c. Assessing the logistic impact and reporting of, configuration changes effected by all sources in SSBN and SSGN 726 Class Submarines.

22.2.5 Updating of Submarine Logistics Technical Data. TRIREFFAC and PSNS-IMF will stage and deliver LTD Advance Change Notices and revisions to SSBN and SSGN 726 Class Submarines during refit or MMP and must assist Ship's Force in the removal and disposal of LTD that is no longer applicable to the ship's current configuration. Upon request, TRIREFFAC and PSNS-IMF will also provide training to Ship's Force in the proper techniques for identification, procurement and maintenance of TRIDENT LTD.

22.2.6 Planned Refit Work Lists. Planned Refit Work Lists (PRWL) define all the planned work required for each SSBN and SSGN 726 Class ship for a one-year period or four refits. The PRWL includes scheduled TRIPER replacements, URO and Performance Monitoring requirements. In addition, alterations approved for accomplishment will be incorporated into the PRWL. The PRWL will be issued periodically, each for a one-year period. Subsequent PRWLs will include rescheduling of requirements identified on previous work lists which were not reported complete. Each PRWL will allocate specific work items to a proposed refit based on the Class Maintenance Plan scheduled requirements and projected manpower requirements.

APPENDIX A
TRIPER INFORMATION SHEET

FMA will fill out this form and forward to SSGN Project Team

1. Requesting Activity: _____

2. Requesting Activity Point of Contact: _____

3. Phone number(s): _____

4. E-mail: _____

5. Date: _____

6. Ship: USS _____SSGN (_____)

7. CASREP Serial Number, Date Time Group of message, or both:

    _____

8. JCN: _____

9. NSN: _____

10. COG: 4Y

11. Nomenclature: _____

12. TRIPER Serial No. (TSN) of failed item TSN _____
        (TSN is located on the assets TRIPER Tag)

13. FGC (S): _____

14. Requisition Number: _____

15. Description of failure: _____

16. Remarks: _____

_____

_____

_____
Printed name of FMA Repair Officer or PMA

Signature: _____Date:_____

VOLUME VI

CHAPTER 23

SUBMARINE NOISE REDUCTION

REFERENCES.

(a) NAVSEA S9073-AW-SNC-010 - Ship Acoustical Surveys for Submarines
(b) NAVSEA S9073-A4-SNC-010 - USS LOS ANGELES (SSN 688) Class Acoustic Stealth Manual
(c) NSWCCD-71-TR-2001/020 - February 2001 USS SEAWOLF (SSN 21) Class Acoustic Stealth Manual
(d) NAVSEAINST C9073.2 - Acoustical Survey of Submarines
(e) COMSUBFORINST C9460.3 - Coordinated Submarine Radiated Noise Analysis
(f) NAVSEA S9073-AF-SNC-010(C) - Ship Noise Control
(g) NAVSEA S0600-AA-PRO-230 - Underwater Ship Husbandry Manual, Chapter 23: Submarine Predeployment Noise Inspections
(h) NAVSEA S0600-AA-PRO-010 - Underwater Ship Husbandry Manual
(i) NAVEDTRA 10500 - Catalog of Navy Training Courses
(j) COMNAVSUBFORINST 5400.25 - Standard Submarine Supply Department Organization and Regulations Manual
(k) COMNAVSUBFORINST 5400.29 - Standard Submarine Navigation/Operations Department Organization and Regulations Manual
(l) COMNAVSUBFORINST 5400.40 - Standard Submarine Combat Systems Department Organization and Regulations Manual (SSN)
(m) COMNAVSUBFORINST 5400.41 - Standard Submarine SSBN 726 Class Weapons Department Organization and Regulations Manual
(n) COMNAVSUBFORINST 5400.47 - Standard Submarine Combat Systems Department Organization and Regulations Manual (SSGN)

LISTING OF APPENDICES.

A Supplemental Noise Measurements
B Beartrap Acoustic Radiated Trials (BART)
C Shipboard Noise Reduction Instruction
D Predeployment Noise Inspection
E Submarine Silencing Publications
F Sample Propeller Changeout Message

23.1 PURPOSE. This chapter provides the requirements for an effective onboard noise reduction program during the ship's operating cycle. It identifies the acoustic surveys required to assess the radiated noise signature of a ship and summarizes the responsibilities and requirements for the onboard surveys necessary to be performed on a regular basis to maintain the submarine in its most quiet configuration.

23.1.1 Scope. Reference (a) discusses the various acoustic surveys to be conducted on ships in order to establish their baseline noise signatures and to monitor those signatures throughout the

operating cycle. Surveys discussed in reference (a) are briefly summarized, as well as several additional survey techniques available and essential to an effective noise reduction program. In addition, a discussion of the model shipboard noise reduction program and available training programs are presented. References (b) and (c) provide class specific and comprehensive documentation on submarine noise reductions, including discussion of acoustic surveys, shipboard noise reduction program, acquisition systems, and procedures, data analysis and trending, and detailed write-ups with photographs and audio clips of typical noise sources. In addition, the manual contains an extensive library of documents and training aids.

23.1.2 <u>Background</u>. Reduction of the radiated noise signature of a submarine platform is a key element to the tactical employment of the ship. As a ship begins its operating cycle, a series of acoustic surveys are conducted to characterize the baseline noise signature. Then, throughout the remainder of its operating cycle, the ship requires the tools and procedures necessary to monitor its signature against the baseline. As deficiencies are identified, Ship's Force needs to have an understanding of the extent to which an identified deficiency can affect the ship's radiated noise signature and the procedures required to effect corrective action. It should be kept in mind that although the implications of a degraded noise signature are fundamentally tactical in nature, the primary method of preserving a ship's acoustic advantage is through an aggressive and effective planned and corrective noise reduction maintenance program. Because of an increased emphasis in recent years, a number of new initiatives are being pursued within the technical community to develop new and improved measurement procedures and equipment that will assist Ship's Force in more effectively assessing the effects of noise deficiencies on their radiated noise signature. These efforts should lead to improved survey procedures and will be incorporated into future changes to this chapter.

23.2 <u>NOISE REDUCTION PROGRAM ELEMENTS</u>.

23.2.1 <u>Radiated Noise Surveys</u>.

23.2.1.1 <u>Naval Sea Systems Command Acoustic Trials</u>. These trials are conducted at the beginning of and at various times throughout each ship's operating cycle per reference (d) and provide a broad range of baseline measurements for the ship. In particular, the radiated noise signature of the ship is measured under various operating conditions. A determination is made of the controlling radiated noise offenders including those which are speed and depth dependent. While the principal objective of these trials is to assess the radiated noise signature of the submarine, platform, machinery and hull vibration, measurements are also made to provide baseline and supporting data in these areas for continued ship monitoring.

23.2.1.2 <u>Coordinated Submarine Radiated Noise Analysis Exercise</u>. This test must be conducted per reference (e), for Commander Submarine Force Atlantic (COMSUBLANT) units and Commander Submarine Force Pacific (COMSUBPAC) units. The primary objective of these submarine-versus-submarine exercises is to collect and analyze data to assess current acoustic vulnerabilities. These tests can be used during Pre-Overseas Movement (POM) or Deployment Preparation Period (DPP) work-ups to indicate that the deploying unit's acoustic signature is free of any unusual or highly detectable noise characteristics.

23.2.1.3 <u>Coordinated Submarine Exercises (KILOEX, JTFEX, INT-2, TRACKEX, GUNSLINGER)</u>. While acoustic trials and surveys are the principal means to evaluate a submarine's acoustic profile, coordinated exercises provide another opportunity for the

submarine force to monitor itself for noise deficiencies. Although the primary purpose of these exercises is generally tactically oriented, the noise signature obtained can and should also serve to monitor submarine radiated noise. It is incumbent upon exercise participants to note and record any unusual or excessive radiated noise being emitted by submarine exercise participants. Discrepancies noted should be reported to the cognizant Immediate Superior In Command (ISIC) for evaluation and corrective action. Initial message reports should be followed by supporting documentation including tape recordings, annotated LOFAR grams, and annotated frequency spectrum plots. The message report should contain the following information:

    a.   Description of noise signature problem.

    b.   Date and time of detection.

    c.   Range at detection.

    d.   Sensor or processor used for detection.

    e.   Own ship depth and speed.

    f.   Acoustic sea state.

    g.   Water depth.

    h.   Water temperature.

    i.   Layer depth.

23.2.1.4 <u>Beartrap Acoustic Radiated Trials</u>. The primary objective of these trials is to provide a cost effective means to detect and identify radiated noise sources that have caused signature degradations. Coordinated trial events are conducted with Marine Patrol Aircraft. Detected narrowband tones in the radiated noise signature are provided by naval message. Parent ISICs are responsible for requesting these trials. Specific information, including message requests and scheduling requirements, as well as Ship's Force and Type Commander (TYCOM) responsibility is provided in Appendix B of this chapter.

23.2.2 <u>Onboard Noise Surveys</u>. The noise surveys discussed in this section do not provide conclusive information on the actual radiated noise signature of the ship. However, when these surveys are analyzed for developing trends, they can be effective tools for monitoring overall ship effectiveness in noise reduction.

23.2.2.1 <u>Platform Noise Survey</u>. This survey is conducted to define own ship's noise environment and is the best means available to Ship's Force to assess the radiated noise signature of the ship using only onboard equipment. Surveys are conducted by taking periodic measurements under various ship's operating conditions using the applicable Planned Maintenance System (PMS) Maintenance Requirement Cards (MRC). In addition, at-sea watch-to-watch aural monitoring is also conducted. Analysis of this data determines the platform noise signature and also identifies the noise offenders which affect this signature. When changes in the ship's signature occur, the diagnostic procedures of the class specific platform noise manual are used to isolate the noise source. Platform Noise Surveys should be conducted per enclosure (2a) of Appendix C of this chapter. Propeller cavitation surveys, a separate survey from the Platform Noise Survey but considered an important part of platform noise monitoring analysis, should be conducted per enclosure (2b) of Appendix C of this chapter.

23.2.2.2 <u>Topside and Housekeeping Survey</u>. The most common and preventable sources of submarine noise are rattles emanating from improperly secured topside equipment, discontinuities in the hull, and machinery noise sound shorted to the hull due to improper stowage.

23.2.2.2.1 <u>Topside Survey</u>. The topside survey consists of a thorough inspection to identify and eliminate potential noise sources external to the pressure hull. Particular attention should be given to ensure that rattles are not installed, built in, or created by repairs, alterations, or stowage. Topside Surveys should be conducted per enclosure (2c) of Appendix C of this chapter.

23.2.2.2.2 <u>Housekeeping Survey</u>. The housekeeping survey consists of a thorough visual inspection to identify and eliminate these potential noise sources internal to the pressure hull. Particular attention should be given to ensure that sound shorts are not installed, built in, or created by repairs, alterations, or stowage. Housekeeping Surveys should be conducted per enclosure (2d) of Appendix C of this chapter.

23.2.2.3 <u>Machinery Vibration Survey</u>. A vibration survey conducted quarterly for both machinery health assessment and noise reduction purposes. Performance of this survey alone does not provide reliable information on radiated noise. Machinery Vibration Surveys should be conducted per enclosure (2e) of Appendix C of this chapter.

23.2.2.4 <u>Hull Vibration Survey</u>. A shipboard hull vibration survey is conducted semi-annually or as required for the purpose of noise diagnostics by Ship's Force. The purpose is to assess acoustic deficiencies related to noise sources and transmission paths, and to estimate certain slow-speed, low frequency radiated noise levels. Hull Vibration Surveys should be conducted per enclosure (2e) of Appendix C of this chapter.

23.2.2.5 <u>Isolation System Survey</u>. This survey consists of a visual inspection of sound isolation components throughout the ship per applicable road maps and reference (f). These components include resilient mounts, pipe hangers, ground straps, and flexible piping. This visual inspection ensures that these devices are properly installed, undamaged and not sound shorted. Improper installation or failure of any of these devices will contribute to increasing the radiated noise signature of the ship. Isolation System Surveys should be conducted per enclosure (2f) of Appendix C of this chapter.

23.2.2.6 <u>Damping Material Survey</u>. This is a visual inspection of sound damping material installed in the vicinity of sonar arrays, sail, free flood spaces, and on machinery foundations. Like the isolation system survey, this inspection is designed to detect deficiencies in materials installed to limit the radiated noise signature of the ship. Damping Material Surveys should be conducted per enclosure (2g) of Appendix C of this chapter.

23.2.2.7 <u>Predeployment Noise Inspections</u>. Requirements and forms are contained in references (g) and (h) and Appendix D of this chapter.

23.2.2.8 <u>Technical Onboard Monitoring Assist</u>. This survey consists of at sea analysis by acoustic technical experts to evaluate the acoustic signature of the ship. The survey consists of a towed array, platform noise hydrophones and machinery and hull vibration measurements taken simultaneously to identify and localize major acoustic degradation. Emphasis is placed on training the submarine's crew on own ship noise data acquisition and analysis using their

available sensors. Technical Onboard Monitoring Assists should be conducted per Appendix A of this chapter.

23.2.2.9 <u>Sound Absorption Material Survey</u>. This is a thorough visual inspection of interior sound absorption material and sound transmission loss material conducted in all spaces. These materials are installed to assist in habitability of the ship by absorbing vibration. Sound Absorption Material Surveys should be conducted per enclosure (2h) of Appendix C of this chapter.

23.2.2.10 <u>Airborne Noise Survey</u>. The airborne noise survey exists to identify shipboard areas whose airborne noise levels have increased or are possibly high enough to cause hearing damage. Airborne Noise Surveys should be conducted per paragraph 5.c.(6) of Appendix C of this chapter.

23.2.3 <u>Shipboard Noise Reduction Program</u>. The key to a successful shipboard noise reduction program will be the ability of the ship to identify potential noise deficiencies and to initiate prompt corrective action. References listed in Appendix E of this chapter should be a part of the ship's onboard library of submarine silencing publications. Several elements of the noise reduction program are discussed in the following paragraphs.

23.2.3.1 <u>Noise Reduction Officer</u>. To ensure a coordinated and aggressive approach to noise reduction, each ship will assign one of its senior Department Heads, as designated by the Commanding Officer, to serve as Noise Reduction Officer. The Noise Reduction Officer will coordinate the activities of all personnel assigned to support the ship's Noise Reduction Program. This officer will ensure that all required surveys are conducted, that identified deficiencies are documented, and that corrective action is initiated. A Noise Reduction Board, chaired by the Noise Reduction Officer, will convene at regular intervals to review the status of the Noise Reduction Program. Following each meeting, formal written reports will be made to the Commanding Officer.

23.2.3.2 <u>Noise Deficiency Log</u>. The ship's Equipment Status Log (ESL) will be used to record and track all noise deficiencies. Deficiencies will be entered in the section for the Work Center (WC) responsible for the equipment concerned. The Critical Noise Deficiencies (NC) or Potential Noise Deficiencies (NP) code (per paragraph 23.2.3.3) in the deficiency description block will tag the entry as a noise deficiency. The Noise Reduction Officer will ensure the ESL is properly maintained and accurately reflects the latest status of all noise deficiencies. Items to be entered in the ESL include noise deficiencies reported during radiated noise acoustic trials as well as those discovered during onboard surveys. Ship's logs must be maintained in a manner where all diagnostics, repairs or other evaluations performed are documented. The logs need to be maintained until noise issues are verified to be repaired by associated acoustic or vibration measurements.

23.2.3.3 <u>Noise Related Maintenance Records</u>. The OPNAV 4790/2K will be used to document all deferred and completed noise related maintenance actions. Block 46-G will be used to further classify noise deficiencies in one of two categories; NC and NP.

NOTE: **INFORMATION CONTAINED IN WORK CANDIDATES MUST BE UNCLASSIFIED. IF CLASSIFIED DATA IS REQUIRED TO FULLY DESCRIBE THE NATURE OF THE PROBLEM BEING REPORTED, REFER TO TYCOM REPORTING REQUIREMENTS TO FULLY DESCRIBE THE NATURE OF THE PROBLEM.**

a. The NC code will be used to identify deficiencies of a critical nature identified during one of the following:

(1) Naval Sea Systems Command (NAVSEA) Acoustic Trials.

(2) Supplemental Radiated Noise Measurements.

(3) Technical Onboard Monitoring Assist.

(4) Platform Noise Monitoring Surveys.

b. The NP code will be used to identify deficiencies that could potentially be radiated noise problems identified during one of the following:

(1) Topside and Housekeeping Surveys.

(2) Machinery and Hull Vibration Surveys.

(3) Isolation System Surveys.

(4) Damping Material Surveys.

(5) Airborne Sound Absorption Material Surveys.

(6) Routine Ship Operations.

23.2.4 <u>Training</u>. Formal training course prerequisites and descriptions are listed in reference (i). Specific training requirements are contained in references (j) through (n).

23.3 <u>RESPONSIBILITIES</u>.

23.3.1 <u>Immediate Superior In Command</u>.

a. Assign a Staff Noise Reduction Officer as a specific point of contact for all matters relating to noise reduction within the Squadron.

b. Oversee and supervise the Noise Reduction Program within the Squadron, ensuring that assigned units aggressively identify and correct noise deficiencies.

c. Submit requests for Beartrap Acoustic Radiated Trials (BART) to COMSUBLANT N454, or COMSUBPAC N42N, as appropriate.

d. Schedule acoustic surveys during the operating cycle of submarines per reference (d).

e. Recommend, authorize, or both, corrective actions based on the findings of the surveys conducted.

f. Review Noise Reduction Program records, survey results, procedures and monitoring equipment during material readiness inspections, Tactical Readiness Evaluations and POM or DPP certification.

g. Schedule divers to conduct underwater hull and propeller surveys for noise deficiencies prior to undocking, pre-deployment, post-deployment, and during upkeep.

h.   Report propeller replacements using the message format of Appendix F of this chapter.

i.   Ensure that personnel tasked to support assigned submarines are adequately trained in submarine noise reduction.

23.3.2 <u>Industrial Activity</u>.

a.   Ensure proper handling and repair of noise critical machinery.

b.   Conduct in-shop and in-place balancing of all rotating equipment, both motors and coupled units, repaired by the industrial activity.

c.   Conduct in-place balancing as authorized by work requests.

d.   Assist ships in identifying and correcting noise problems and in conducting noise surveys following approved work requests.

e.   Establish new baseline machinery and hull vibration measurement data for repaired units.

f.   Ensure that all applicable personnel are adequately trained in submarine noise reduction.

g.   Conduct underwater hull and propeller surveys for noise deficiencies per reference (g).

23.3.3 <u>Submarine Commanding Officer</u>.

a.   Establish and maintain a ship's Noise Reduction Program consistent with this chapter. Appendix C of this chapter provides the basis for a shipboard instruction to meet this requirement.

b.   Appoint a senior Department Head as Noise Reduction Officer and establish a Ship's Noise Reduction Board.

APPENDIX A

SUPPLEMENTAL NOISE MEASUREMENTS

This Appendix provides a brief discussion of the TYCOM sponsored, noise measurements that may periodically be conducted on submarines during their operating cycle.

TECHNICAL ONBOARD MONITORING ASSIST (TOMA)

1. Purpose. TOMAs are conducted on submarines to maintain their acoustic signatures between scheduled radiated noise trials. Major acoustic degradations and their corrective actions are identified, and training is provided to Ship's Force.

2. Procedure. TOMA schedules are coordinated by the TYCOMs and the Squadrons. TOMAs are conducted by Naval Surface Warfare Center Carderock Division (NAVSEAWARCEN CD), with assistance from on-site Performance Monitoring Team (PMT) and Ship's Force personnel. TOMAs need 18 to 30 hours of data acquisition time. Normally, TOMAs are conducted on three to seven-day underways and can be scheduled concurrently with other operations. Tests consist of a series of runs in various machinery line-ups to collect data required to assess the acoustic signature of the submarine. Data is collected using onboard sensors and compared to baseline signatures from previous acoustic trials. A TOMA will serve as the quarterly hull, machinery, and platform noise surveys.

3. Frequency. TOMAs are to be conducted prior to, or early in the POM or DPP cycle when no radiated noise trial is scheduled to occur within one year of the deployment date.

NOTE: A TOMA IS NOT A SUBSTITUTE FOR THE NAVAL SEA SYSTEMS COMMAND ACOUSTIC TRIAL. A TOMA MAY ALSO BE REQUESTED BY THE SUBMARINE'S ISIC.

4. Reports. NSWCCD will issue a "quick look" message from the submarine at the completion of the TOMA. This message will detail significant findings and recommended corrective actions, as well as the status of previous corrective actions. A separate message will be sent by NSWCCD detailing hull and machinery vibration data.

5. Action. Ship's Force and the submarine's ISIC should use the results and recommendations of the TOMA "quick look" message to schedule and implement corrective action. Ship's Force should use the 3-M Maintenance Data System to document deficiencies and corrective actions. For deferred items, the Noise Reduction Officer should develop and implement appropriate corrective action.

APPENDIX B

BEARTRAP ACOUSTIC RADIATED TRIALS (BART)

1. <u>Purpose</u>. BARTs provide submarines with the opportunity to measure and assess their narrowband radiated noise signatures, identify problems, and provide an opportunity to correct deficiencies and evaluate their acoustic health prior to certain deployments.

2. <u>Procedure</u>. BARTs are initially scheduled by TYCOM prior to major deployments or upon request by the submarine's ISIC. The ISIC is then responsible for updating the TYCOM on schedule changes. BARTs are a structured Beartrap in a designated quiet ocean area following the BART agenda. The objective is to collect sufficient data to determine the radiated noise signature and mission readiness of the ship. Data collection on station is accomplished by Commander Patrol Reconnaissance Forces Pacific (COMPATRECONFORPAC) or Commander Patrol Reconnaissance Forces Atlantic (COMPATRECONFORLANT) Anti-Submarine Warfare patrol aircraft and is restricted to a single eight-hour period during ship operations in a designated ocean area.

3. <u>Frequency</u>. For COMSUBPAC units, ISICs should coordinate BART scheduling for their submarines such that each ship will be tested prior, or early in the DPP. The schedule should allow sufficient time for corrective action on noise deficiencies detected during the BART to be planned and accomplished during a DPP upkeep period. For COMSUBLANT units, ISICs should coordinate BART scheduling for their submarines as required.

4. <u>Reports</u>. For Pacific Fleet submarines, COMPATRECONFORPAC will issue a message within 60 days of completion of a BART. For Atlantic Fleet submarines, "quick look" message will be issued following Local Operating Instructions.

5. <u>Action</u>. Ship's Force and the submarine's ISIC should use the results of the BART messages to schedule and implement corrective action for noise deficiencies detected during the trial. For deferred items, the Noise Reduction Officer should develop and implement appropriate corrective action.

APPENDIX C

SHIPBOARD NOISE REDUCTION INSTRUCTION

USS   (Ship's Name and Hull No.)

Subj: SHIP'S NOISE REDUCTION PROGRAM

Ref: (a) COMUSFLTFORCOMINST 4790.3; Joint Fleet Maintenance Manual, Volume VI, Chapter 23

Encl: (1) Quarterly Noise Reduction Program Status Report
          (2) Noise Reduction Surveys
          (3) Control Surface Noise Questionnaire

1. <u>Purpose</u>. To establish a ship's Noise Reduction Program to include: a Noise Reduction Board to advise the Commanding Officer concerning appropriate noise reduction procedures; a set of noise surveys to characterize the ship's noise signature; and procedures to ensure proper coordination of efforts in the ship's noise reduction program.

2. <u>Discussion</u>. A great deal of emphasis has been placed on upgrading noise reduction awareness within the submarine force. As required by reference (a), (Ship's Name) must devote continued attention to the detection, correction and prevention of increases in its radiated noise signature. Significant mission degrading radiated noise problems could not be tolerated in wartime. (Ship's Name) must minimize noise to maximize the ships detection range of threats and targets and to reduce the possibility of hostile ships detecting (Ship's Name). Quietness is absolutely essential to the ships primary mission and a continuous, aggressive effort must be made in acoustic housekeeping and noise reduction to ensure a quiet ship. The acoustic surveys considered mandatory for effectively maintaining a quiet ship and improving the ship's acoustic signature during the operating cycle are discussed in this instruction. While these surveys serve as a formal means of noise reduction, each crew member's actions play an equally important role in the noise reduction consciousness of the entire ship. A quiet ship requires involvement of the whole crew. THINK QUIET!

3. <u>Program Organization</u>.

    a.   A ship's Noise Reduction Board must be established to assist the Commanding Officer in the development and execution of long and short range plans for maintaining and enhancing the acoustic posture of the ship. The board will recommend appropriate shipboard noise reduction procedures and monitor their execution. The board will consist of the following personnel:

        (1)   Executive Officer.

        (2)   Combat Systems Officer.

        (3)   Engineer Officer.

        (4)   Sonar Officer.

        (5)   Electrical Officer.

        (6)   First Lieutenant.

        (7)   Sonar Division Leading Petty Officer.

      (8)   Electrical Division Noise Reduction Petty Officer (NRPO).

      (9)   Chief of the Boat.

      (10)   Sail Coordinator.

b.   To assist the board in carrying out their responsibilities, experienced Petty Officers and non-rated personnel who have completed qualification in submarines must be assigned in the ship's collateral duties notice as NRPO. Each division will have at least one formally designated NRPO.

4. <u>Program Management</u>.

a.   The Noise Reduction Officer will coordinate all noise reduction activities within the ship. The Noise Reduction Board will meet quarterly and discuss actions completed and further action required to correct outstanding noise deficiencies. Special quarterly noise reduction boards should be held prior to the initial work definition conference for depot availabilities (initial planning meetings are typically scheduled; Selected Restricted Availability and Interim Drydocking A-43 weeks, Depot Modernization Period and Engineered Refueling Overhaul A-12 months) and prior to POM1 upkeep periods. The Noise Reduction Officer will chair these meetings. The Noise Reduction Officer will ensure that the noise reduction portion of the ESL contains updated entries on all outstanding noise deficiencies. Each of the significant noise deficiencies will be discussed at every meeting. The Commanding Officer will be apprised of the results of the meeting and any unresolved problems shortly after the meeting. Formal written reports summarizing the status of the Noise Reduction Program will be submitted following each meeting to the Commanding Officer using the format of enclosure (1).

b.   Onboard surveys will be conducted per this instruction. Noise deficiencies discovered during these surveys or detected during routine ship's operations will be reported to the Noise Reduction Officer. At sea, these reports will be made to the Officer Of the Deck (OOD) who will, in turn, inform both the Noise Reduction Officer and the Commanding Officer. The OOD will initiate corrective action for all significant noise deficiencies and ensure that these items are included in the watch turnover. All deficiencies that are not immediately correctable will be entered in the noise deficiency section of the ESL.

c.   The Noise Reduction Officer must ask the following questions during each Noise Reduction Board meeting.

      (1)   Have Ship's Force effected all corrective action recommendations from the latest acoustic trials? Have on board measurement surveys conclusively proven that outstanding noise deficiencies were corrected? Report all unresolved items to the Commanding Officer using the format of enclosure (1).

      (2)   Have any noise sources, especially rattles or control surface transients, been aurally detected during the conduct of the platform noise survey of enclosure (2a)? If rattles or transients are present, have tape recordings or data packages been accomplished following platform noise or maintenance manual guidance for submission?

(3)   Have Ship's Force conducted a propeller tip cavitation survey per enclosure (2b)? Are the measured tip cavitation points acceptable? If cavitation is not acceptable, has a tape package been prepared per reference (a)?

(4)   Have any signature degradations been identified from the latest set of towed array, platform noise hydrophone or machinery and hull vibration measurements? If so, have the noise sources been identified? Report unresolved items to the Commanding Officer using the format of enclosure (1).

5. <u>Action</u>.

     a.   The Executive Officer must:

     (1)   Attend all Noise Reduction Board meetings.

     (2)   Implement a comprehensive, all hands training program to elevate the awareness of Ship's Force personnel to the importance of noise reduction.

     b.   The Noise Reduction Officer must:

     (1)   Coordinate and administer the ship's Noise Reduction Program.

     (2)   Schedule Noise Reduction Board meetings and chair their meetings.

     (3)   Report the status of noise deficiencies to the Commanding Officer following meetings of the Noise Reduction Board. Submit written summary reports to the Commanding Officer using the format of enclosure (1).

     (4)   Ensure that cognizant divisions enter all noise reduction deficiencies in the ESL, that prompt corrective action is taken by responsible divisions and that work requests are submitted for deficiencies beyond the capability of Ship's Force.

     (5)   Ensure that acoustic trial deficiencies are entered in the ESL and that appropriate corrective action is initiated.

     (6)   Assess the tactical implications of noise deficiencies detected during underway operations and make recommendations to the Commanding Officer as to tactical limitations and required corrective action.

     (7)   Ensure that cognizant divisions have men properly trained in Ship's Force acoustic surveys, noise reduction equipment, proper bearing replacement and in-place balancing of rotating equipment.

     (8)   Ensure that surveys are being conducted by cognizant divisions and that deficiencies are reported to the Commanding Officer.

     (9)   Conduct spot reviews of acoustic survey results.

     (10)   Be inventory manager of all publications required by reference (a), to support the Noise Reduction Program and ensure that divisions have applicable MRCs.

     (11)   Assist the Engineer Officer with the implementation and maintenance of the ship's quiet bills.

(12)   Ensure action is taken, to the maximum extent possible, to complete enclosure (3) for all identified control surface noises.

c.   The Sonar Officer must:

(1)   Ensure that the Platform Noise Survey is accomplished, recorded, and analyzed per enclosure (2a).

(2)   Perform Propeller Cavitation Noise Surveys as required per enclosure (2b).

(3)   Develop propeller cavitation curves per enclosure (2b) and forward results to the Commanding Officer via the Noise Reduction Officer.

(4)   Direct the use of the installed sonar systems to assist in the identification and isolation of noise related material deficiencies detected in Topside, Housekeeping, Machinery and Hull Vibration, and Isolation System Surveys. (Enclosures 2c, 2d, 2e, and 2f respectively refer).

(5)   Ensure that Damping Material Surveys are accomplished, recorded, and analyzed per enclosure (2g).

(6)   Ensure the Airborne Noise Surveys are accomplished, recorded, and analyzed following the applicable Maintenance Index Page (MIP). The Sonar Officer must ensure that airborne noise levels in all shipboard areas remain within permissible limits. An Airborne Noise survey must be conducted when increased airborne noise levels are suspected of exceeding permissible limits. A written report in memorandum form must be submitted for each watch station and must include, as a minimum, the date of inspection, names of personnel conducting the survey, and the discrepancies noted in the ESL. Review the status of noise level measurements and any affected watch station and report this information to the Commanding Officer and the ship's corpsman.

(7)   Report immediately any abnormal increase in own ship's noise to the OOD and the Noise Reduction Officer.

(8)   Ensure that all survey deficiencies are entered in the noise reduction section of the ESL and reported to the Noise Reduction Officer. Ensure that prompt corrective action is taken and that work requests are submitted for deficiencies beyond the capability of Ship's Force.

(9)   Ensure that personnel assigned to conduct noise reduction surveys under his cognizance are properly trained.

d.   The Electrical Officer must:

(1)   Ensure that the Machinery and Hull Vibration Surveys are accomplished, recorded, and analyzed per enclosure (2e).

(2)   Ensure that in-place balancing is conducted on an assembled unit at any time that repairs are made by Forces Afloat that would affect the balance of the equipment.

(3)   Determine the cause of out of specification machinery and hull vibration readings and initiate corrective action.

(4)   Ensure that prompt corrective action is taken and that work requests are submitted for deficiencies beyond the capability of Ship's Force.

(5)   Ensure that personnel under his cognizance assigned to conduct noise reduction surveys are properly trained.

e.   The First Lieutenant must:

(1)   Ensure that the Topside and Housekeeping Surveys are accomplished, recorded, and analyzed per enclosure (2c) and (2d).

(2)   Ensure that the Sound Absorption Material Survey is accomplished, recorded, and analyzed per enclosure (2h).

(3)   With the assistance of the Supply Officer, ensure that equipment, stores, personal effects, and consumables are stowed in a manner that will not produce noise or transmit noise to the ship's hull or structure.

(4)   Ensure that all survey deficiencies are entered in the noise reduction section of the ESL and reported to the Noise Reduction Officer. Ensure that prompt corrective action is taken and that work requests are submitted for deficiencies beyond the capability of Ship's Force.

(5)   Ensure that personnel under his cognizance assigned to conduct noise reduction surveys are properly trained.

f.   The NRPO must:

(1)   Promote the Noise Reduction Program in their respective divisions.

(2)   Perform or assist in the performance of noise reduction surveys under their respective division's cognizance per enclosure (2).

(3)   Enter all survey deficiencies in the noise reduction section of the ESL and report deficiencies to the cognizant Division Officer.

g.   The OOD must:

(1)   Remain aware of the status of critical noise deficiencies and operate the ship in a manner that will minimize its radiated noise signature.

(2)   Report all new noise deficiencies and the correction of existing deficiencies to the Noise Reduction Officer and the Commanding Officer. Ensure new deficiencies are recorded in the noise reduction section of the ESL.

(3)   Ensure sonar watchstanders conduct aural monitoring of own ship's noise signature upon initial dive and once per watch.

From: Noise Reduction Officer
To: Commanding Officer
Via: Executive Officer

Subj: QUARTERLY NOISE REDUCTION PROGRAM STATUS REPORT FOR PERIOD
         ENDING (DATE)

Encl: (1) Noise Reduction Section of ESL

1. The following MRCs associated with the Noise Reduction Program were not accomplished, partially accomplished, or deferred:

   MRC No., Deficiency reason or Corrective Action

2. The following noise deficiencies were identified during the current period:

   Deficiency, Source, ESL No. or Plan of Action for identification and repair

3. The following previously identified noise deficiencies were corrected during the current period:

   Deficiency or Corrective Action

4. The following noise deficiencies from the previous period are outstanding:

   Deficiency, Source, ESL No., Diagnostics and repairs performed or Plan of Action for identification and repair

5. Enclosure (1) summarizes all currently outstanding deficiencies associated with the Noise Reduction Program.

                              Submitted:_____
                                          Noise Reduction Officer

Copy to:
Engineer Officer

                                                            Enclosure (1)

NOISE REDUCTION SURVEYS

1. This enclosure contains a description of the onboard surveys conducted in support of the Noise Reduction Program. For each survey, applicable references are cited and a summary of procedures and reporting requirements are presented. Surveys included are:

Enclosure 2a   Platform Noise Survey

2b   Propeller Cavitation Noise Survey

2c   Topside Survey

2d   Housekeeping Survey

2e   Machinery and Hull Vibration Survey

2f   Isolation System Survey

2g   Damping Material Survey

2h   Sound Absorption Material Survey

Enclosure (2)

PLATFORM NOISE SURVEY

Reference: (a) Class Applicable Technical Manual for Platform Noise Monitoring Analysis for Noise Reduction

      (b) Class Applicable SO-544 MIP/MRCs

      (c) OPNAVINST 5513.5A Department of the Navy (DON) Security Classification Guidance for Undersea Warfare Programs

1. <u>Responsibility</u>. Sonar Officer.

2. <u>Procedure</u>.

    a.   Platform Noise Surveys must be conducted as specified in references (a) and (b).

    b.   Sonar supervisors must monitor each hydrophone for objectionable noises at least once each watch while underway and report results to the OOD. Problems detected must also be recorded in the Noise Reduction section of the ESL. Problem investigation and corrective action must be initiated as soon as possible within the current operations schedule.

    c.   As soon as feasible, after diving, following an inport period, accomplish the following:

        (1)   Monitor each platform hydrophone for objectionable noise while changing speed in five-knot increments up to Flank speed (monitor all frequency bands where applicable). At slow speed, monitor hydrophones nearest the rudder, stern planes and fairwater planes while each control surface is cycled. Monitor the hydrophone nearest the sail while each mast and antenna is cycled. If control surface deficiencies are found, complete the applicable portions of the Control Surface Noise Questionnaire, enclosure (3), to report control surface noise. This questionnaire assists in troubleshooting.

        (2)   Check at least one point of the propeller cavitation curve. If results are significantly different from the previous data, establish a new cavitation curve at the earliest opportunity as discussed in enclosure (2b).

        (3)   If operations preclude complete accomplishment of sub-paragraph (1) and (2), speeds and areas not monitored should be noted and carried forward in the sonar supervisor's log until they can be monitored.

        (4)   Results of this monitoring will be reported to the OOD and deficiencies recorded in the ESL.

    d.   For any abnormal noises, magnetic tape recordings should be made per reference (a). These tape recordings together with complete supporting data must be forwarded by priority registered mail second day delivery to:

For COMSUBLANT units: Carderock Division
                                     Naval Surface Warfare Center
                                     9500 MacArthur Blvd.
                                     West Bethesda, MD 20817-5700
                                     Attn: Code 711 - Fleet Support Program Manager

Enclosure (2a)

For: New London Units, data packages should be forwarded to:
NSSC NEW LONDON CT, N42

For COMSUBPAC units:

Naval Surface Warfare Center
Carderock Division
Bremerton Detachment
530 Farragut Ave
Attn: Code 713
Bremerton, Washington 98314-5215

NOTE: **SIPRNET FILES FROM SHIP SHOULD BE LIMITED TO 400KB. HUITS AND SAILOR-MAIL CAN BE UTILIZED FOR LARGER FILES. MP3 OR OTHER COMPRESSED FORMATS SHOULD BE USED TO SAVE SPACE. 10-15 SECONDS OF AUDIO IS USUALLY ADEQUATE. IF URGENT REQUEST ON EVENINGS, HOLIDAYS, OR WEEKENDS, HAVE SWO CONTACT TYCOM STEALTH OFFICERS TO EXPEDITE. DURING TYCOM WORKING HOURS, NOISE REDUCTION SUPPORT CAN BE PROVIDED VIA CHAT. SUPPORT CAN BE ARRANGED ON EVENINGS OR WEEKENDS THROUGH SWO.**

To receive immediate feedback, audio files can be sent via SIPRNET or other secure method to:

For COMSUBLANT units:

To: SUBLANT - Michael.N.Cowan@navy.smil.mil
CC: csl.swo@navy.smil.mil (if immediate response is required), ISIC, or operational commander as required.

For COMSUBPAC units:

To: SUBPAC - Jeffrey.George@navy.smil.mil
CC: swo.csp@navy.smil.mil (if immediate response is required), ISIC, or operational commander as required.

Units should request analysis and recommendations for corrective action from NSWCCD. The response will be provided by message within 72 hours of receipt of the data package. If the package needs to be expedited, contact TYCOM Noise Reduction Officer prior to submission.

e.   Platform noise hydrophone recordings are classified **CONFIDENTIAL** per reference (c), (Encl 55). If recordings include towed array signature data, then the classification is **SECRET**.

Enclosure (2a)

APPENDIX C

3. <u>Frequency</u>. Surveys will be conducted as specified within this instruction, reference (a) and applicable MRCs. Additional surveys will be conducted as required to support noise reduction efforts related to other shipboard surveys or whenever such monitoring is required for the identification of noise degradations or to verify the effectiveness of corrective actions. A comprehensive machinery survey should be conducted quarterly and a hull survey semi-annually by Ship's Force.

4. <u>Record</u>. Survey results will consist of platform noise spectra, cavitation data, and entries to the ESL and Sonar Line Log. Records will be kept as specified within this instruction, in reference (a) or as required to meet the needs of noise reduction efforts aboard ship.

5. <u>Review</u>. The Sonar Officer will review results of all surveys weekly and the Noise Reduction Officer will review all records in conjunction with Noise Reduction Board meetings monthly.

PROPELLER CAVITATION NOISE SURVEY

Reference: (a)   Class Applicable Technical Manual for Platform Noise Monitoring Analysis
for Noise Reduction

(b)   NTTP 3-54.1 Submarine Tactical Security Manual

1. <u>Responsibility</u>. Sonar Officer.

2. <u>Procedure</u>. Propeller cavitation surveys and diagnostic procedures will be conducted as specified in reference (a). Propeller cavitation curves will be developed using the procedural guidance of reference (a), for the various tactical considerations specified in reference (b).

3. <u>Frequency</u>. Since the ship's operating schedule dictates the frequency at which propeller cavitation surveys can be made, no specific frequency can be assigned. However, a complete cavitation survey should be made after any CNO Maintenance Availability or upkeep period. One point of the current cavitation curve should be verified at the beginning of each underway period. If results are significantly different, a complete new curve should be developed.

4. <u>Unacceptable Propeller Tip Cavitation Performance</u>. Propeller replacement due to poor acoustic performance is often based on unacceptable tip cavitation. Naval Surface Warfare Center, Carderock Division (NSWCCD) personnel verify the ship recorded cavitation points and provide feedback to the TYCOM and the ship. Ships with emergent poor cavitation performance should immediately record and forward cavitation curve tapes per the Platform Noise Survey Section of this Appendix.

5. <u>Reports</u>. The original and the five most recent cavitation curves will be retained and compared for trend analysis until the propeller is changed.

6. <u>Review</u>. The Sonar Officer must compare new cavitation curves to previous ones and forward the results to the Commanding Officer via the Noise Reduction Officer.

Enclosure (2b)

TOPSIDE SURVEY

Reference: (a)   MIP SO-591/901 MRC BNJ6 (R-1)

1. <u>Responsibility</u>. Noise Reduction Officer.

2. <u>Procedure</u>. The First Lieutenant must ensure that the following items are accomplished per reference (a):

    a.   Open and inspect all line lockers and free flood areas for loose gear and other sources of noise, such as loose zincs, rattling pipes, loose grates, etc.

    b.   Check all deck hatches to ensure they shut properly and will not rattle.

    c.   Check that all towed-array fairing plates are properly secured (if applicable).

    d.   Check all cleats for proper operation and ensure that they do not rattle when stowed.

    e.   Check stowage of all portable equipment topside to ensure that proper gasket material is installed, all bolts and wing nuts are present, and equipment is securely held in place when mounted.

    f.   When required, inspect sail area for loose gear and sources of rattles. Particular attention should be given to the mast bearings and operating equipment to ensure that masts will not be damaged or fouled. Before reinstalling sail plates, the sail should be inspected by the Noise Reduction Officer.

3. <u>Frequency</u>. A complete Topside Survey, including the sail, must be conducted after any major upkeep or inport period, or whenever major topside work is completed. A sail closeout inspection must be conducted by an officer prior to the reinstallation of any sail plate removed. Surveys should be completed as far in advance of underway as possible. Other inspections must be conducted as directed by the First Lieutenant.

4. <u>Reports</u>. A written report in memorandum form must be submitted to the Commanding Officer at the completion of each inspection. This report must include, as a minimum, the date the inspection was made, names of personnel conducting the inspection and uncorrected discrepancies noted in the ESL. Reports must be routed via the Noise Reduction Officer, with copies to cognizant Department Heads.

5. <u>Review</u>. A written report in memorandum form will be submitted for each inspection and will include, as a minimum, the date of the inspection, names of personnel conducting the inspection and the discrepancies noted in the Equipment Status Log. This report must be reviewed by the First Lieutenant and retained by the Noise Reduction Officer until all discrepancies are corrected.

HOUSEKEEPING SURVEY

Reference: (a)   MIP SO-591/901 MRC BNJ7 (R-2)

1. <u>Responsibility</u>. Noise Reduction Officer.

2. <u>Procedure</u>. It is the responsibility of the NRPO to inspect their division's spaces per reference (a) for sound shorts or other silencing discrepancies which may result from improper stowage of loose gear.

3. <u>Frequency</u>. Improper stowage is a continuous problem and should be monitored as such. It is the responsibility of all hands to monitor the stowage of all gear and to ensure that sound shorts are not created by improper stowage. OODs, Engineering Officers Of the Watch and all watchstanders are required by other instructions to inspect various spaces. These inspections should include monitoring for proper stowage and possible sound shorts. Prior to getting underway, all divisions must inspect their spaces for proper stowage at sea. Division Officers should acknowledge by signature on respective pre-underway check sheets that their spaces are stowed for sea.

4. <u>Reports</u>. Potential sound short discrepancies will be reported to the OOD who will inform the Commanding Officer and responsible Department Heads, to ensure that problems are corrected. Discrepancies not immediately corrected must be noted in the ESL.

5. <u>Review</u>. The Noise Reduction Officer must review all pre-underway check sheets and maintain a record of all noise discrepancy items until corrected.

Enclosure (2d)

APPENDIX C

MACHINERY AND HULL VIBRATION SURVEY

Reference: (a)   Class Applicable Technical Manual for Machinery and Hull Vibration Testing and Monitoring of SSN/SSBN/SSGN Auxiliary Machinery

       (b)   MIP 4910/Series Vibration Noise Monitoring

1. <u>Responsibility</u>. Electrical Officer.

2. <u>Procedure</u>. Machinery and hull vibration surveys must be conducted as specified in reference (a) and following applicable PMS (reference (b)). Items found to be out-of-specification will be logged in the ESL as potential noise deficiencies. Machinery and hull vibration surveys are conducted on all submarines.

3. <u>Frequency</u>. A comprehensive machinery and hull vibration survey should be conducted quarterly by Ship's Force. Results are submitted to PMT, who in turn forwards the packages to the applicable NSWC Detachment. Specific machinery and hull vibration monitoring surveys must be conducted by Ship's Force bi-weekly on selected equipment identified in the NSWC, machinery Vibration Deficiency Message and as required to support onboard noise reduction efforts.

4. <u>Reports</u>.

    a.   NSWC evaluates and maintains machinery and hull vibration data collected by Ship's Force. They report out-of-specification equipment or hull vibration levels via message.

    b.   During each machinery and hull vibration survey, a report is submitted to NSWC via the local PMT. This report must include the sound cut data and a feedback package.

    c.   For the Hull Vibration Monitoring Program, a message should be sent from the submarine to NSWC within 45 days of receipt of the NSWC hull vibration deficiency message or when operationally feasible. This message should include the results of actions taken to identify and correct the sources of excessive hull vibration levels and to identify platform noise sources.

5. <u>Noise Reduction Training</u>. Crew training in noise awareness and noise reduction is absolutely essential to maintaining a quiet ship. The Submarine Force Training Manual discusses formal training courses and requirements pertaining to noise reduction as well as materials available for onboard training.

6. <u>Review</u>. The Electrical Officer must review and forward the results of all machinery and hull vibration   measurements to the Commanding Officer via the Noise Reduction Officer and Executive Officer. This report must be submitted within five working days of the survey and must include a listing of which noise measurements have been taken and any out-of-specification equipment.

ISOLATION SYSTEM SURVEY

Reference: (a) NAVSEA S9073-AW-SNC-010/(U) Ship Acoustical Surveys
(b) NAVSEA S9073-AF-SNC-010/(C), Ship Noise Control
(c) Appropriate Noise Control Guidelines, Road Maps, and Equipment Guide Lists
(d) Appropriate System MIPs

1. <u>Responsibility</u>. Noise Reduction Officer.

2. <u>Procedure</u>. The Noise Reduction Officer must require Ship's Force to conduct a visual inspection of silencing equipment and components such as resilient mounts, flexible pipe, pipe hangers, ground straps, electrical connections, etc., to ensure they are properly installed, within periodicity, undamaged and not sound shorted. References (a), (b), (c) and (d) apply. When funded, these inspections will be conducted by a NAVSEA designated activity, however, the ship is still responsible for conducting the survey regardless of NAVSEA funding.

3. <u>Frequency</u>. An Isolation System Survey must be conducted as specified by reference (d) per reference (a). Additionally, a localized isolation system survey must be conducted in the area of sound isolated equipment change-outs and in the area of work accomplished on sound isolated systems. When requested and funded, a NAVSEA designated activity must provide training and assist in the performance of an isolation system survey.

4. <u>Reports</u>. The Noise Reduction Officer must ensure that all defects found are logged in the ESL and must report survey results to the Commanding Officer within five working days of completion of the inspection.

5. <u>Review</u>. The Noise Reduction Officer must maintain a record of all discrepancies noted until corrected.

Enclosure (2f)

DAMPING MATERIAL SURVEY

Reference: (a) NAVSEA S9073-AW-SNC-010/(U), Ship Acoustical Surveys
  (b) NAVSEA S9073-AF-SNC-010/(C), Ship Noise Control

1. <u>Responsibility</u>. Sonar Officer.

2. <u>Procedure</u>. The Sonar Officer must ensure that a thorough inspection is conducted of all damping material installed in sonar array areas, fairwater, main ballast tanks, and free flood areas, to ensure that no deterioration has taken place per the guidance provided in reference (a). Reference (b) provides specific information relating to these materials.

3. <u>Frequency</u>. A Damping Material survey must be conducted as specified at each dry-docking, per reference (a).

4. <u>Reports</u>. A written report in memorandum form must be submitted for each inspection and must include, as a minimum, the date of inspection, names of personnel conducting the inspection, and the discrepancies noted in the ESL.

5. <u>Review</u>. The Sonar Officer must review the results of each inspection and forward them to the Commanding Officer via the Noise Reduction Officer within five working days of the completion of the inspection. This report must be retained by the Noise Reduction Officer until all discrepancies have been corrected.

Enclosure (2g)

SOUND ABSORPTION MATERIAL SURVEY

Reference: (a)   NAVSEA S9073-AW-SNC-010/(U), Ship Acoustical Surveys
          (b)   NAVSEA S9073-AF-SNC-010/(C), Ship Noise Control

1. <u>Responsibility</u>. First Lieutenant.

2. <u>Procedure</u>. The First Lieutenant will ensure that a thorough inspection of the interior sound absorption and sound transmission loss material is conducted in all spaces. This inspection ensures that no deterioration of these materials has taken place. This inspection is accomplished with guidance from reference (a), while reference (b) provides specific information relating to these materials.

3. <u>Frequency</u>. A Sound Absorption Material Survey must be conducted prior to each major CNO Maintenance Availability. An inspection of any system affected by maintenance or other work must be conducted following completion of the work.

4. <u>Reports</u>. A written report in memorandum form will be submitted to the Noise Reduction Officer for each inspection and will include, as a minimum, the date of the inspection, names of personnel conducting the inspection, and discrepancies noted in the ESL.

5. <u>Review</u>. The First Lieutenant will review the results of each inspection and forward them to the Commanding Officer via the Noise Reduction Officer within five working days of the completion of the inspection. This report will be retained by the Noise Reduction Officer until all discrepancies have been corrected.

CONTROL SURFACE NOISE QUESTIONNAIRE

1. The purpose of this questionnaire is to provide more accurate and definitive information than reports of "noise in the fairwater" or "noise in the mud tank". This information can reduce troubleshooting time, prevent unnecessary maintenance, and perhaps prevent an unnecessary and unscheduled dry-docking. It can also furnish vital data to assist in the resolution of a problem and prevent its recurrence. It is very important to monitor the audio during the greasing operations; the effects of greasing for worn bearings can be short.

2. Record audio of all platform noise evaluations per reference (a).

3. Perform all evaluations in all modes (Normal, Emergency and Automatic where applicable).

4. Note how long greasing effects the noise characteristics of the control surface (minutes, hours, days or months).

Hull Number: _____   Date:_____

Check the appropriate box or fill in the blanks in response to these questions:

1. Give the date when the noise was first noticed:			
2. Which control surface is suspected of causing the noise?			
a.	Fairwater or Bow Planes	Yes ~	No ~
b.	Stern Planes	Yes ~	No ~
c.	Rudder	Yes ~	No ~
3. Was the noise observed upon leaving port?		Yes ~	No ~
a.	If not observed upon leaving port, after how many days at sea?	_____	
4. Was the noise first observed during the first high speed run?		Yes ~	No ~
5. Was any work performed on this system, associated systems, or in its vicinity during the last refit or upkeep period (including welding or sandblasting)?		Yes ~	No ~
a.	If yes, describe work ____		
6. How was the noise first detected?			
a.	Audible to crew	Yes ~	No ~
b.	Self noise monitoring system	Yes ~	No ~
(1)	If yes, which system?		
c.	Other? (Describe) _____		
7. Is the noise detected on any hydrophones?		Yes ~	No ~
a.	If so, which hydrophone displayed the highest levels?		
b.	How does this hydrophone level compare to the most recent acoustic trial report or more recent baseline?		

(CONFIDENTIAL when filled in)

Enclosure (3)

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8. Is the noise:			
a.	Barely audible?	Yes ~	No ~
b.	Moderate?	Yes ~	No ~
c.	Loud?	Yes ~	No ~
9. Since it was first detected, has the noise level:			
a.	Increased?	Yes ~	No ~
b.	Decreased?	Yes ~	No ~
c.	Remained constant?	Yes ~	No ~
d.	Fluctuated?	Yes ~	No ~
10. During cycling of the control surface, is the noise:			
a.	Constant?	Yes ~	No ~
b.	Intermittent?	Yes ~	No ~
11. If intermittent, has the frequency of the occurrence of the noise:			
a.	Increased?	Yes ~	No ~
b.	Decreased?	Yes ~	No ~
c.	Remained constant?	Yes ~	No ~
12. Describe the type of noise heard.			
a.	Clanking?	Yes ~	No ~
b.	Thudding?	Yes ~	No ~
c.	Groaning?	Yes ~	No ~
d.	Rubbing?	Yes ~	No ~
e.	Squealing?	Yes ~	No ~
f.	Chattering?	Yes ~	No ~
g.	Galloping?	Yes ~	No ~
h.	Hydraulic flow?	Yes ~	No ~
i.	Other? (Describe) _____		
13. When, during the motion of the cycle of the planes is the noise heard (check all that apply):			
a.	At start of motion towards rise or right?	Yes ~	No ~
b.	At start of motion towards dive or left?	Yes ~	No ~
c.	At the end of motion towards rise or right?	Yes ~	No ~
d.	At the end of motion towards dive or left?	Yes ~	No ~
e.	Entering the rise or right hardstop?	Yes ~	No ~
f.	Entering the dive or left hardstop?	Yes ~	No ~
g.	Leaving the rise or right hardstop?	Yes ~	No ~
h.	Leaving the dive or left hardstop?	Yes ~	No ~
i.	The entire length of travel towards rise or right?	Yes ~	No ~

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j.	The entire length of travel towards dive or left?	Yes ~	No ~
k.	At some intermediate point(s) while moving towards rise or right?	Yes ~	No ~
	(Indicate degrees of rise or right when heard):	_____	
l.	At some intermediate point(s) while moving towards dive or left?	Yes ~	No ~
	(Indicate degrees of dive or left when heard):	_____	
14. Is there any unusual hesitancy or motion during operation of the planes:			
a.	Leaving the rise or right hardstop?	Yes ~	No ~
b.	Leaving the dive or left hardstop?	Yes ~	No ~
c.	At any other point(s) in the motion cycle?	Yes ~	No ~
	(1) If yes, describe giving direction of movement and degrees of rise, dive, left, or right when noise occurs:	—— ——	
15. Does ship's speed or depth have any effect on whether or not the noise is generated?		Yes ~	No ~
a.	If yes, describe:		
16. Does ship's speed or depth have any effect on when the noise is detected during the movement cycle as described in question 13?		Yes ~	No ~
a.	If yes, describe:		
17. Is the noise audible:			
a.	Surfaced, underway?	Yes ~	No ~
b.	At periscope depth?	Yes ~	No ~
c.	Below periscope depth?	Yes ~	No ~
18. Does sea state affect the degree of noise?		Yes ~	No ~
19. Does simultaneous operation of the stern planes and rudder cause or increase the degree of noise?		Yes ~	No ~
20. Are any of the following components very warm to the touch while operating the control surface suspected of causing the noise?			
a.	Hydraulic tail rod (if installed)?	Yes ~	No ~
b.	Hydraulic piston rod?	Yes ~	No ~
c.	Through hull connecting rod?	Yes ~	No ~
21. On the control surface suspected of causing the noise, perform the appropriate quarterly greasing MRC for the components listed in question 22. Operate the control surface while greasing (except the guide cylinder). Listen to determine if greasing causes any change in the occurrence or loudness of the noise.		Greasing Performed? Yes ~	 No ~
22. Did the noise diminish after greasing the following components?			
Fairwater or Bow Planes:			
a.	Hull gland:	Yes ~	No ~

(CONFIDENTIAL when filled in)

Enclosure (3)

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b.	Lower end of connecting rod: see Note 1	Yes ~	No ~
c.	Upper end of connecting rod: see Note 1	Yes ~	No ~
d.	Port stock bearing:	Yes ~	No ~
e.	Starboard stock bearing:	Yes ~	No ~
Stern Planes:			
f.	Hull gland:	Yes ~	No ~
g.	Forward end of connecting rod: see Note 1	Yes ~	No ~
h.	Aft end of connecting rod: see Note 1	Yes ~	No ~
i.	Port stock bearing: see Note 2	Yes ~	No ~
j.	Starboard stock bearing: see Note 2	Yes ~	No ~
k.	Port pintle bearing:	Yes ~	No ~
l.	Starboard pintle bearing:	Yes ~	No ~
Rudder:			
m.	Hull gland:	Yes ~	No ~
n.	Forward end of connecting rod: see Note 1	Yes ~	No ~
o.	Aft end of connecting rod: see Note 1	Yes ~	No ~
p.	Port stock bearing: see Note 2	Yes ~	No ~
q.	Starboard stock bearing: see Note 2	Yes ~	No ~
r.	Upper rudder stock bearing: see Note 2	Yes ~	No ~
s.	Lower rudder stock bearing: see Note 2	Yes ~	No ~
t.	Rudder carrier bearing (two fittings): see Note 2	Yes ~	No ~
23.	Pump one pound of grease into the guide cylinder grease fitting while the control surface is in the neutral position. Then operate the control surface about five cycles from full rise to full dive or left to right, as appropriate, while listening for the noise. Repeat this procedure for the guide cylinder until the specified amount of grease has been applied.	Greasing Performed? Yes ~	No ~

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Enclosure (3)

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NOTE 1: **GREASE UNDERWAY IF THE APPROPRIATE ALTERATION IS INSTALLED TO PERMIT REMOTE GREASING OF THE STERN PLANES AND RUDDER CONNECTING RODS. THE FAIRWATER OR BOW PLANES CONNECTING ROD MAY BE GREASED LOCALLY WHILE UNDERWAY ON THE SURFACE EVEN IF REMOTE GREASING ALTERATION IS NOT INSTALLED.**

NOTE 2: **IF THE STERN PLANES ARE SUSPECTED OF CAUSING THE NOISE AND THE NOISE DID NOT DIMINISH AFTER GREASING THE STERN PLANE COMPONENTS, GREASE THE RUDDER COMPONENTS. IF THE GREASING DID NOT HELP A SUSPECTED NOISY RUDDER, GREASE THE STERN PLANES.**

Deliver this questionnaire to:

For COMSUBLANT units:
Carderock Division
Naval Surface Warfare Center
9500 MacArthur Blvd.
West Bethesda, MD 20817-5700
Attn: Code 711 - Fleet Support Program Manager
For: New London Units, data packages should be forwarded to:
NSSC NEW LONDON CT, N42

For COMSUBPAC units:
Naval Surface Warfare Center
Carderock Division
Bremerton Detachment
530 Farragut Ave
Attn: Code 713
Bremerton, Washington 98314-5215

The NSWCCD will provide appropriate distribution to NAVSEA PMS 350, SEA 07T, PMS 392, TYCOM, and ISIC.

(CONFIDENTIAL when filled in)

Enclosure (3)

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APPENDIX C

APPENDIX D

PREDEPLOYMENT NOISE INSPECTION

1. <u>Purpose</u>. To provide requirements for Predeployment Noise Inspections.

2. <u>Policy</u>. This Appendix establishes the requirements for the Under Hull Sound Silencing Survey of all submarines.

3. <u>Under Hull Sound Silencing Surveys</u>. Under Hull Sound Silencing Surveys of submarines (using reference (g)) will be done at the following times:

   a. Prior to the ship leaving dry-dock.

   b. Waterborne Under Hull Inspection during the first week of a scheduled upkeep, normally accomplished by the inspecting facilities divers.

   c. Waterborne Under Hull Inspection prior to deployments of 30 days or greater, normally accomplished by the inspecting facilities divers.

4. <u>Reports</u>. The Senior Hull Inspector of the inspecting facility will conduct an inspection critique for the ship's Noise Reduction Officer and ISIC Material Officer. Copies of the final survey report (a format is provided on the following page) or reference (g) data sheets will be supplied by the inspecting facility to the submarine and cognizant ISIC Material Officer.

SOUND SILENCING SURVEY REPORT

1. Inspection performed by:

    Senior Inspector: _____

    Inspector #1   _____

    Inspector #2   _____

    Inspector #3   _____

    Inspector #4   _____

2. The following deficiencies were noted:

3. Submitted by:

    _____
    Senior Inspector

APPENDIX E

SUBMARINE SILENCING PUBLICATIONS

X-Applicability

PUBLICATION Note 1	688	726	21	774	AS
PLATFORM NOISE S9073-A4-SNC-010/(C) USS *LOS ANGELES* (SSN 688) Class Acoustic Stealth Manual	X				X
NSWCCD-71-TR-2001/020 February 2001 *USS SEAWOLF* (SSN 21) Class Acoustic Stealth Manual			X		
S9073-AS-PNM-010/(C) Platform Noise Monitoring Analysis for Noise Reduction					X
S9073-AT-PNM-010/(C) Platform Noise Monitoring Analysis for Noise Reduction		X			X
NAVSEA SE 394-NO-MMA-030/(C) AN/BSQ-7 Platform Noise Manual					X
(TBD) Platform Noise Monitoring Analysis for Noise Reduction			X(4)	X(4)	
MACHINERY AND HULL VIBRATION S9073-AL-SBV-010/(C) Structureborne Noise Criteria for Auxiliary Machinery (U) Operation and Maintenance Instructions		X	X(4)	X(4)	X
S9073-AM-SBV-010/(U) Structureborne Noise Acceptance Tests and Monitoring Program for Submarine Auxiliary Machinery (U) Volume I, Procedure (U)	X		X(4)	X(4)	X
S9073-AM-SBV-020/(C) Structureborne Noise Acceptance Tests and Monitoring Program for Submarine Auxiliary Machinery (U) Volume II, Criteria	X		X(4)	X(4)	X
SUBMARINE SONAR DOMES S9165-AC-HBK-010/(U) Submarine Sonar Dome Handbook; Description and Maintenance	X	X	X(4)	X(4)	X
SE300-AY-MMA-010/(U) TRIDENT Glass Reinforced Plastic Bow Sonar Dome		X			X
SE300-AZ-MMA-010 Description, Operation and Maintenance SSN21 Class Sonar Bow Dome			X		
SE300-MA-MMA-011 Glass Reinforced Plastic (GRP) Bow Sonar Dome	X				
MISCELLANEOUS NAVSEA NOISE REDUCTION MANUALS S6360-AD-HBK-010 Special Hull Treatment, Maintenance and Repair for Submarines	X	X	X(4)	X(4)	X
S9311-AM-MME-010/(U) Micro-balancing of Ship Service Turbine Generator Sets on SSN/SSBN Submarines	X	X	X(4)	X(4)	X

X-Applicability

PUBLICATION Note 1	688	726	21	774	AS
S9561-AQ-MMA-010/(U) Low Noise Electrohydraulic Flow Control Servo Valve Model SV-438-10P; Service Instructions					X
S9073-AW-SNC-010/(U) Ship Acoustical Surveys for Submarines		X	X	X	X
S9073-AF-SNC-010/(C) Ship Noise Control	X	X	X(4)	X(4)	X
S9SSB-X9-SSM-09A/(U) SSBN 726 Class Ship System Manual, Volume II, Part IV, Monitoring Subsystem Note 2		X			X
0900-LP-060-2010(U) Electrical Machinery Repair Manual, Volume I, Electric Motor Repairs (Rev 2)					X
0900-LP-060-2020(U) Electrical Machinery Repair Manual, Volume II, Vibration Analysis and Rotor Balance					X
S0600-AA-PRO-230(U) Underwater Ship Husbandry Manual, Chapter 23, Submarine Pre-Deployment Noise Inspection	X	X	X(4)	X(4)	X
MIPs FOR NOISE MONITORING Platform Noise Monitoring MIP SO-544/902	X	SSGN Only	X	X	
TRIDENT Monitoring Subsystem 4190/911 (contains platform monitoring)		X			
Topside and Housekeeping Surveys, reference (g)	X	X	X(4)	X(4)	
Isolation System Survey, Appropriate System MIPs					
Topside and Housekeeping Surveys MIP SO-591/901			X	X	
Vibration Noise Monitoring MIP 4910/Series, See Note 3 (Machinery and Hull)	X	X	X(4)	X(4)	
NOISE CONTROL GUIDELINES 0900-LP-093-9010/(C) Noise Control Guide for SSBN 640 Class					X
Specifically Applicable Noise Road Maps (Selected Record Drawings)	X	X	X	X	X
TRIAL REPORTS NSWCCD or NSWCCD DET BREMERTON: Latest Detection & Detectability Report	X	X	X	X	
NSWCCD or NSWCCD DET BREMERTON: Latest Acoustical Trial Summary Report	X	X	X	X	

X-Applicability

PUBLICATION Note 1	688	726	21	774	AS
LETTERS AND INSTRUCTIONS NAVSEAINST C9073.2 (Series) Acoustical Surveys of Submarines (U)	X	X	X	X	X
COMUSFLTFORCOMINST 4790.3; Joint Fleet Maintenance Manual Volume VI, Chapter 23, Submarine Noise Reduction	X	X	X(4)	X(4)	X
NAVSEA SILENCING FILMS 34547 DN Training Film - Submarine Sound Shorts					X
35350 DN Training Film - Noise Control Guidelines, Running Silent					X
35050 DN Training Film - Shipboard Noise Isolation Devices					X
SAVPIN 803414 DN Sound Silencing Show (Video Tape) - consists of the three films listed.					X
SVT - ST - 9427 - Submarine Rattles	X	X	X	X	X
SVT - ST - 9429 - Submarine Sound Silencing (SSN 688)	X				X
SVT - ST - 9430 - Submarine Sound Silencing (SSBN 726)		X			X
SVT - ST - (TBD) - Submarine Sound Silencing (SSN 21)			X		X
SVT - ST - (TBD) - Submarine Sound Silencing (SSN 774)				X	X

NOTE 1: THE STOCKING OR ORDERING POINT FOR ALL PUBLICATIONS CAN BE FOUND USING MODEL BASED PRODUCT SUPPORT (MBPS)

NOTE 2: THE ORDERING POINT FOR THE ITEM WITH THIS NOTE IS SUPERVISOR OF SHIPBUILDING GROTON

NOTE 3: SPECIFIC MAINTENANCE REQUIREMENTS FOR CONSIDERATION IN THIS LISTING ARE FOR:

    A. INSPECT, CLEAN & REPLACE SOUND WASHERS.

    B. RECORD MACHINERY VIBRATION LEVELS.

    C. RECORD HULL VIBRATION LEVELS.

NOTE 4: APPLICABLE, BUT MAY NOT CONTAIN ALL APPLICABLE INFORMATION UNTIL UPDATED FOR SPECIFIC CLASS

APPENDIX F

SAMPLE PROPELLER CHANGEOUT MESSAGE

FM COMSUBRON (AS APPROPRIATE)//
TO COMNAVSEASYSCOM WASHINGTON DC//
INFO COMSUBPAC PEARL HARBOR HI//
COMSUBLANT NORFOLK VA//
USS (SHIP'S NAME AND HULL NO.)//
BT
UNCLAS //N09245//
MSGID/GENADMIN/COMSUBRON (AS APPROPRIATE)//
SUBJ/(SUBS) PROPELLER CHANGEOUT//
REF/A/DOC/COMUSFLTFORCOMINST 4790.3//
NARR/REF A IS JOINT FLEET MAINTENANCE MANUAL/VOL VI, CH 23 PROVIDES
GUIDANCE FOR MONITORING PROPELLER VIBRATION DATA AND PROPELLER
CHANGE OUT//
RMKS/1. IAW REF A, FOL PROPELLER DATA REPORTED
   A. SERIAL NO. OF PROPELLER REMOVED
   B. SERIAL NO. OF PROPELLER INSTALLED
   C. REASON PROPELLER REPLACED
       (POOR PERFORMANCE, EXCESSIVE CAVITATION, GOUGED/NICKED,
       SINGING SCREW, ETC.)
2.   REQUEST DISPOSITION INSTRUCTIONS FOR REMOVED PROPELLER//
BT

NOTE: **ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS
UTILIZED.**

VOLUME VI

CHAPTER 24

PERIODIC MAINTENANCE REQUIREMENT PROGRAM

REFERENCES.

(a)   NAVSEAINST 4790.8 - Ships' Maintenance and Material Management (3-M) Manual
(b)   NAVSUP Publication 485 - Afloat Supply Procedures
(c)   OPNAVINST 3120.33 - Submarine Engineered Operating Cycle (SEOC) Program
(d)   NAVSEA S9592-B3-MAN-010 - Dry Deck Shelter Systems Scope of Certification Notebook

LISTING OF APPENDICES.

A   Submarine Periodic Maintenance Requirement (PMR) Management Process
B   Work Package Supplement - Shipyard Planning and Feedback Report
C   Work Package - Ship's System Work Description, Part 4.13

24.1 PURPOSE. This chapter defines the functions and responsibilities of the submarine Periodic Maintenance Requirements (PMR) Program, and applies to all submarines. Details of PMR documentation are described in Appendix E of reference (a). Unrestricted Operation (URO) PMR guidance is provided in Chapter 25 of this Volume. Hull Integrity Procedure PMR guidance is provided in Chapter 38 of this Volume. Accomplishment of all PMRs is **mandatory**.

a.   The submarine Class Maintenance Plans (CMP) form the basis of a PMR Program which takes the place of the Integrated Maintenance and Modernization Planning Program for these classes and defines the planned, corrective and inactive equipment Maintenance Requirements for all levels of accomplishment.

b.   PMR work requires detailed planning and long lead-time material procurement; therefore, all PMR work has been assigned to the Fleet Maintenance Activity (FMA). Ship's Force is not expected to be called upon for PMR work other than the normal responsibilities for establishing plant conditions, authorizing shipboard work, monitoring work in process, interference removal, delivery of ship to shop items, retesting and accepting work. Ship's Force Work Center (WC) will not be assigned as Lead Work Center (LWC) for I-Level PMR work but may be assigned as an assist WC.

24.2 TYPE COMMANDER SCHEDULING SYSTEM. PMR program management has been assigned to Submarine Maintenance Engineering, Planning and Procurement Activity (SUBMEPP) who develops CMPs, Maintenance Requirement Cards (MRC), Maintenance Repair Standards (MRCs, Technical Repair Standards (TRS) and Submarine Maintenance Standards (SMS)), HIP and URO MRCs, and provides PMR configuration and scheduling information to the Submarine Force. These Inventories and Schedules aid in decisions

concerning PMR scheduling and accomplishment during upkeep, provide visibility to problem areas and facilitate auditing and assessing the material condition of a ship.

a. For Non-SSBN and SSGN 726 Class submarines. The inventories and schedules include a section of I-Level PMRs coming due within the next xxx months (number of months as requested by ISIC). Additionally, they provide a combined inventory of I and D-Level PMRs. This inventory identifies the availability for which the D-Level PMRs are planned for accomplishment.

b. For SSBN 726 and SSGN 726 Class submarines and Dry Deck Shelters. This inventory provides all I and D-Level requirements, with their due dates.

24.2.1 Periodic Maintenance Requirements Schedule. The PMR Inventories and Schedules are made available from Maintenance & Ship Work Planning Reports at https://ebusiness.submepp.navy.mil/eBusiness/index.cfm by SUBMEPP. Appendix A of this chapter provides a flow chart of the Submarine PMR Management System. In addition, scheduling files, configuration files (M79E11) and Master Job Catalog (MJC) update files are distributed to those activities using Micro-PMR for PMR or URO call-down.

24.2.2 Scheduling Periodic Maintenance Requirements Work. The PMR scheduling system is based on calendar periods starting with the month following the completion month of a scheduled Chief of Naval Operations (CNO) Availability, or starting with the month following PMR completion for Fleet availabilities. It is designed to ensure reliable equipment operation during the unit's extended operating cycle. The ISIC, in conjunction with the FMA, will have to smooth the workload by spreading the work over several availabilities by re-planning the scheduled start and completion dates of individual Job Control Numbers (JCN) to ensure they are accomplished prior to the due dates. Once the actual completion dates are reported, subsequent scheduling for the future periods will retain the same relative time frames based on the periodicity of the requirement. The current PMR Inventories and Schedules provided by SUBMEPP must be maintained by the parent ISIC.

24.2.3 Periodic Maintenance Requirements Calldown and Brokering. I-Level PMRs which are due for accomplishment are called down from Maintenance and Ship Work Planning (M&SWP) or the local scheduling system, and brokered by the ISIC. PMRs should be screened to the FMA with a Priority Level of 2.

24.2.4 Calculating Adjusted Last Maintenance Action Date.

a. If the PMR is accomplished during a period other than the maintenance period listed in sub-paragraph b, the adjusted Last Maintenance Action (LMA) date will be the first of the month following the completion date listed on the PMR data form.

b. If the PMR is accomplished during a CNO availability, Major Maintenance Period, or refit, the adjusted LMA date will be the first of the month following the availability's actual completion date.

NOTE: **IMMEDIATE SUPERIORS IN COMMAND (ISIC) OPERATING WITH THE ON-SITE PMR SCHEDULING SYSTEM MUST ENSURE THAT AVAILABILITY DATES ARE ACCURATELY MAINTAINED SO THAT COMPLETED AWR UPLINE REPORTED DATA REFLECTS THE ADJUSTED LMA DATE AND ON-SITE PMR SCHEDULING RECORDS**

CALCULATE THE PROPER NEXT DUE DATE.

24.2.5 Calculating Due Dates. Next Due Dates are calculated based on an Adjusted LMA date.
Due dates are calculated, for scheduling purposes, by taking the adjusted LMA date month and
year (number) and adding the periodicity months (number) to show the month and year due (i.e.,
an item with an adjusted LMA date of February 2003 (2/03) with a six-month periodicity would
be due in August 2003 (8/03). The PMR will be accomplished prior to midnight of the last
calendar day of the month due.

24.3 PERIODIC MAINTENANCE REQUIREMENTS ACCOMPLISHMENT. PMR
requirements are to be accomplished on or before the scheduled due date listed in the SUBMEPP
TYCOM PMR Scheduling System Inventories and Schedules. Accomplishment of all PMRs is
mandatory. Only by accomplishing PMR maintenance on schedule and following
specifications can safe and reliable operation be ensured and the period between CNO
Availabilities be extended. When PMRs cannot be accomplished by their scheduled due date,
they will appear overdue on the PMR Status web page. For overdue PMRs, the SUBMEPP
representative assigned to each ISIC must identify on the web page the reasons the PMR could
not be accomplished. The purpose of the web page is to provide increased visibility of overdue
PMRs to aid the ISIC in their PMR Management responsibilities.

24.4 MATERIAL SUPPORT FOR FLEET MAINTENANCE ACTIVITY ACCOMPLISHED
PERIODIC MAINTENANCE REQUIREMENTS.

24.4.1 Mandatory Parts. Parent FMAs requisition mandatory parts as specified on TRS, MRC
or SMS documentation for PMRs that are scheduled to be accomplished by that FMA. Material
requisitioning is accomplished by the FMA using standard supply procedures. Material is not
normally stocked by the FMA and is requisitioned from the nearest stocking point.

24.4.2 Contingency Parts. Contingency parts will not be procured in advance for PMR
requirements and will be ordered only upon determination that a contingency part is required
based on observed equipment condition. Parent FMAs may have some high usage contingency
material available in stock, as identified by the Tender Load List supplements, **(not applicable
to SSBN or SSGN 726 Class submarines)** however, low usage contingency material is stocked
only at designated stock points or not at all.

24.4.3 Requisitioning Procedures. Submarine Engineered Operating Cycle (SEOC) PMR
material requisitions must be submitted through normal channels and must use a Project Code of
"732". Appendix 6 of Reference (b) refers. Contingency material requisitions must be
forwarded by message or telephone, and must include appropriate "work stoppage" indicator or
codes. Forward Contingency Material requisitions directly to, Fleet Industrial Support Center
San Diego, Pearl Harbor or Submarine Base New London by message or telephone as
appropriate; use the phrase "SEOC Requisition" as the subject line on message requisitions.

24.4.4 Material Support Provided by the Advance Equipment Repair Program. Shore based
spares are available for replacing some critical equipment, such as seawater system pumps and
motors, during CNO Maintenance Availabilities. The Advanced Equipment Repair Program
(AERP) is managed by SUBMEPP under the direction of Naval Sea Systems Command
(NAVSEA) and both TYCOMs. AERP equipment scheduled for change-out will be specifically
authorized in the ship's Availability Work Package (AWP). Although originally intended to
support CNO Availabilities, AERP assets, when available, are used to support Casualty Reports

(CASREP). In these instances, a CASREP requisition must be submitted to Naval Inventory Control Point and the shipment of equipment is monitored and tracked until the condition "F" off-load has been returned to the refurbishment activity or vendor identified by Naval Inventory Control Point. The expedited return of an AERP off-load is essential to ensure adequate restoration turnaround time is afforded and to minimize AERP impact.

24.4.5 <u>Material Support Provided by the TRIDENT Planned Equipment Replacement Program</u>.

    a.   TRIDENT Planned Equipment Replacement (TRIPER) is a rotatable pool program for SSBN 726 and SSGN 726 Class submarines. TRIPER equipment is removed from the ship via pre-planned access routes and six-foot diameter Logistics and Escape Trunks, using specifically designed handling attachments and procedures. Removed equipment is replaced with fully interchangeable, tested, ready for issue units which can be rapidly installed and made fully operational within a refit period. Equipment replacement periodicity is determined by maintenance and reliability analysis and engineering judgments intended to preclude equipment failure or significant degradation during operational periods. Removed equipment is refurbished by approved Designated Overhaul Points, tested and returned to ready for issue condition for use on another SSBN 726 or SSGN 726 Class submarine.

    b.   Safety spares are made available for CASREPs which are considered as unplanned change outs. The TRIPER Program rotatable pool is managed by NAVSEA (PMS 392) and supported by various agencies and activities. Hull, Mechanical, Electrical, Ordnance and Electronics and Command and Control System equipment comprise the TRIPER inventory pool. Items under the cognizance of the Director, Strategic Systems Project Office and the Deputy Commander, NAVSEA Nuclear Power Directorate are excluded.

24.5 <u>CORRECTIVE MAINTENANCE OF EQUIPMENT USING PERIODIC MAINTENANCE REQUIREMENTS</u>. Scheduled restoration of equipment by the FMA or industrial activity is done following specified maintenance standards (MRC, SMS, TRS, Technical Manual, etc.). Whenever corrective maintenance is required on Hull, Mechanical and Electrical equipment, the SUBMEPP combined I and D-Level PMR inventory must be reviewed by the ISIC and FMA. The ISIC and FMA will determine whether to limit repairs to those described by the ship or to have the maintenance standard accomplished. If the corrective maintenance is to include the criteria of the MRC, SMS or TRS, the work request must be processed per paragraph 24.8.3 and 24.8.4 of this chapter.

NOTE: **IN ORDER TO RECEIVE ACCOMPLISHMENT CREDIT, THE ISIC MUST ENSURE PROMPT COMPLETION REPORTING OF THE PMR. THIS WILL ENSURE THE CORRECT SCHEDULING OF PMRs FOR FUTURE ACCOMPLISHMENT.**

NOTE: **EQUIPMENT IS CONSIDERED TO HAVE BEEN RESTORED FOLLOWING PMR CRITERIA WHEN THE FOLLOWING SOFTWARE (MRC, SMS, TRS) REQUIREMENTS HAVE BEEN SATISFIED.**

    (1)   **THE EQUIPMENT IS RESTORED TO PLAN SPECIFICATIONS.**

    (2)   **THE COMPONENTS SATISFACTORILY PASS THE TEST REQUIREMENTS WITHIN THE MRC, SMS OR TRS.**

(3) **ALL MATERIAL LISTED ON THE MRC, SMS OR TRS AS MANDATORY HAS BEEN REPLACED.**

(4) **COMPONENTS AND EQUIPMENT ARE REPLACED WITH SUPPLY SYSTEM, AERP, OR TRIPER ASSETS.**

24.6 <u>PERIODIC MAINTENANCE REQUIREMENTS ACCOMPLISHMENT DURING CHIEF OF NAVAL OPERATIONS MAINTENANCE AVAILABILITIES</u>. PMRs to be accomplished by the industrial activity will be included in the SUBMEPP PMR Inventories and Schedules.

a. For SSN 688, SSN 774 and SSN 21 Class submarines:

(1) The AWP prepared by SUBMEPP will reflect all PMRs authorized for shipyard accomplishment during the CNO Availability period at the AWP Ship Work List Item Number (SWLIN) level. The Work Package Supplement (WPS) accompanying the AWP will identify a specific PMR to the applicable AWP SWLIN paragraph. Appendix B of this chapter provides an example of the WPS format. In addition, the DMP and overhaul AWPs will contain an I-Level PMR work package cross-index. This cross-index will enable maintenance planners to readily determine the I-Level PMRs accomplished incidental to accomplishing higher D-Level PMRs or other industrial activity authorized work. The cross-index will also identify I-Level PMRs which will become overdue by availability completion plus six months. These I-Level PMRs should only be listed in the cross index as a reference and not listed in the body of the AWP. Appendix C of this chapter provides an example of the cross-index format. This ISIC will report any I-Level PMRs from the cross-index that will not be completed prior to the arrival conference for adjudication.

(2) Upon receipt of Issue Two of a 6 month or greater scheduled CNO availability AWP the ISIC will review the AWP against the schedules and inventories and add those PMRs not covered by the Work Package (WP) coming due within 6 months after availability completion that aren't assigned to shipyard to a fleet maintenance availability prior to the CNO period, to a concurrent availability, or to a future availability with TYCOM concurrence.

(3) For I-Level PMRs assigned to the depot, or I-Level PMRs covered by higher-level maintenance assigned to the depot, the ISIC will enter "Assigned to <depot name> by AWP <AWP number>" in the Remarks or Completion block of the PMR Schedule and Inventory, Part 2 Section III and in the local scheduling system.

(4) Material Condition Assessment data for PMRs accomplished by the industrial activity during CNO Availabilities will be retrieved from the appropriate maintenance database. Upon completion of the availability, the Availability Work Package will be retained by SUBMEPP to identify PMRs accomplished during the availability. The PMR Schedule and Inventory and local scheduling system will be updated by SUBMEPP.

b. For SSBN 726 and SSGN 726 Class submarines:

(1)   The Engineered Overhaul Work Package prepared by SUBMEPP will reflect all PMRs authorized for accomplishment during the CNO Maintenance Availability period at the SWLIN level. For each SWLIN, the specific PMRs will be identified to the applicable component level. The Engineered Overhaul Work Package preparation process ensures all PMRs due prior to the first availability following the subject availability period are included in the Engineered Overhaul Work Package. The preparation process also includes review and inclusion of appropriate items from the ship's Current Ship's Maintenance Project (CSMP), Ship's Force originated deficiencies, and alterations screened for industrial activity accomplishment.

(2)   Material Condition Assessment data for PMRs accomplished by the industrial activity during CNO Availabilities will be retrieved from the appropriate maintenance database. Upon completion of the availability, the Availability Work Package will be retained by SUBMEPP to identify PMRs accomplished during the availability. The PMR inventories and schedules and local scheduling system will be updated by SUBMEPP.

(3)   Completions and MCA data for PMRs accomplished by TRIDENT Refit Facility Kings Bay or NAVIMFAC PACNORWEST during CNO availabilities will be called down and reported using their local scheduling system as identified in paragraph 24.2.3 of this chapter.

c.   Operating Cycle and Interval Extension. An audit plan to assess the material condition of a ship prior to extending their operating cycles or intervals beyond PMR periodicity due to changing CNO Maintenance Availability dates is addressed in reference (c). Procedures and responsibilities are contained in Volume II, Part I, Chapter 3 of this manual.

24.7 PERIODIC MAINTENANCE REQUIREMENT ACCOMPLISHMENT DURING DRY DECK SHELTER MAINTENANCE AVAILABILITIES.

24.7.1 Regular Overhaul.

a.   The AWP prepared by SUBMEPP will reflect all PMRs authorized for accomplishment by the Industrial Activity (IA) during the regular overhaul (ROH) period. The Work Package Supplement (WPS) accompanying the AWP will identify a specific PMR to the applicable AWP SWLIN paragraph. Appendix E of this chapter provides an example of the WPS format.

b.   During the ROH, the IA must use the WPS to document completion of PMRs by annotating in the remarks block of each line item, the Task Group Instruction (work package) used to accomplish the PMR. The IA will provide a copy of the completed WPS along with all OQE to the sustaining activity at the completion of the ROH. At the end of the availability, the IA also provides a Certificate of Completion (COC) letter detailing the status of all work and testing accomplished. Within the COC, the IA must make a positive statement that each PMR identified under tasking has been completed by separate line items. If a PMR is not accomplished in its entirety or is changed, the IA must include this information by annotating the applicable line item within the COC and in the remarks block of the WPS. PMRs not accomplished in

their entirety also require an evaluation be performed to determine if a departure from specification (DFS) will be required.

c.   After completion of overhaul and upon receipt of the WPS and COC from the IA, the sustaining activity must make red-line changes to the local copy of the PMR I-level or D-level inventory and submit these updates to SUBMEPP via the ISIC.

24.7.2 Restricted Availabilities (RAV). For restricted availabilities, the sustaining activity and ISIC must identify PMRs to be assigned to the IA and forward a list to the TYCOM via formal correspondence. TYCOM will evaluate the request and may approve or modify it as necessary by issuing an endorsement letter to PMS390N who initiates the work by tasking the IA following the current contract requirements. PMR completion reporting is then accomplished following the guidelines of paragraph 24.7.1.b. and 24.7.1.c. of this chapter except the WPS is not used. In this case, the COC and supporting OQE will be the only required documents to verify completion status of each PMR.

24.8 RESPONSIBILITIES.

24.8.1 Type Commander.

a.   The TYCOM is responsible for providing an overall scheduling system for the accomplishment of PMRs for assigned ships.

b.   Perform periodic audits of ISICs and FMAs to verify full compliance with the provisions of this chapter.

c.   Provide guidance to the ISICs, obtaining NAVSEA concurrence per Volume V, Chapter 8, paragraph 8.2.4 of this manual.

24.8.2 Submarine Maintenance Engineering, Planning and Procurement Activity.

a.   Receive reports of the completion of PMRs from industrial activities and extract Maintenance and Material Management (3-M) data from NAVSEA Logistics Center, Mechanicsburg PA of all Forces Afloat accomplished PMRs containing "JC" WC.

b.   Review completion reports for any change in material condition status and analyze 3-M data for Material Condition Assessment to determine validity of requirements.

c.   Update schedules to reflect new LMA and next due dates.

d.   Ensure the PMR Inventories and Schedules are available on https://ebusiness.navy.mil/eBusiness/index.cfm.

e.   Provide quarterly or more frequent (if requested) scheduling and configuration files (M79E11) and MJC update files to each parent ISIC using a local scheduling system.

f.   Provide quarterly MJC update files to the ISIC brokering systems.

g.   Adjust the due dates for any PMRs that are accomplished within ten months of the major CNO availability start date that will come due again during the availability by the number of months of the availability duration.

h.   (SSBN 726 and SSGN 726 Class submarines) Provide Refit Work Package electronic files which reflect PMR scheduling to the TRIDENT Refit Facility Kings Bay at the arrival minus 60-day milestone.

i.   Prepare and issue AWPs in support of CNO availabilities. Ensure the I-Level PMR section of AWP (Part 4.13) is updated on each issue of the AWP.

j.   Manage AERP, Corporate Component Repair Program and TRIPER programs.

k.   Extract PMR completion verification and documentation for SEOC availabilities from the appropriate maintenance database.

l.   Update Overdue PMR Status web page (https://ebiz.submepp.navy.mil/fs/pmr_status/) with the reason for D-Level PMRs not meeting the due date.

24.8.3 Immediate Superior In Command.

NOTE: FOR DRY DECK SHELTERS, THE ISIC IS RESPONSIBLE FOR SCHEDULING AND ENSURING COMPLETION OF ALL PMR WORK.

a.   Although the responsibility for the accomplishment of PMRs must rest with the ship's Commanding Officer, the ISIC is responsible for scheduling and ensuring completion of all I-Level PMR work within the planned periodicity in the CMP. Normally, PMR work is accomplished by the FMA which maintains the unit's CSMP. However, when submarines are assigned availabilities to other than the parent FMA, and that FMA is authorized by the TYCOM to perform PMRs, an agreement between the parent ISIC and the accomplishing FMA will identify the PMRs to be accomplished and any associated logistics.

b.   For submarines, call-down all I-Level PMRs planned for accomplishment into the CSMP by availability dates. For SSBN 726 and SSGN 726 Class submarines, this must be 45 days prior to refit start. For non-726 Class submarines, 60 days prior to fleet maintenance availability. This ISIC must be proficient in these procedures to preclude erroneous or duplicate data from entering the CSMP. If the inventories and schedules contain errors or omissions, report the discrepancies to SUBMEPP.

c.   Maintain auditable records of PMR accomplishment for each submarine or DDS. These records will include the current SUBMEPP Quarterly PMR Inventories and Schedules. For submarines, this will also include the last completed AWR for PMRs completed by the parent FMA, whether or not reflected in the SUBMEPP Quarterly PMR Inventories and Schedules. At sites which have access to electronic certified Task Group Instructions, these Task Group Instructions can be used in place of completed AWRs as an auditable record of PMR accomplishment.

d.   At Naval Intermediate Maintenance Facility Pacific Northwest, PMR and non-controlled URO inspection scheduling, completion, LMA date establishment and next due date scheduling must be maintained in the appropriate automated database for SSBN 726 and SSGN 726 Class submarines. This database will contain the complete history for all occurrences (past), dates of completion, frequency of occurrence, next due dates and future scheduling data for each PMR or non-controlled URO inspection. Data will be entered from Objective Quality Evidence from refit closeout processes and the Departure and Assessment report.

e.   Notify SUBMEPP Code 1814 if unable to create PMR Inventories and Schedules from Maintenance & Ship Work Planning Reports (M&SWP) at https://ebusiness.submepp.navy.mil/eBusiness/index.cfm.

f.   Keep the local scheduling system correct and accurate. This should be done by periodically doing a check of the data against the inventories and schedules, M&SWP and, for submarines, the ship's CSMP. Ensure the SUBMEPP representative assigned to each ISIC updates the Overdue PMR Status web page (https://ebiz.submepp.navy.mil/fs/pmr_status/) with the reason for I-Level PMRs not meeting the due date.

g.   The ISIC should make every attempt to accomplish PMRs on or before the next scheduled due date that appears in SUBMEPP Inventories and Schedules. Ensure PMRs which are not accomplished by the SUBMEPP scheduled due date are rescheduled.

h.   Ensure that all I-Level PMRs, which will become due during a scheduled CNO Availability (but not authorized for industrial activity accomplishment), are scheduled for accomplishment by the FMA prior to the end of the availability. The PMRs may be assigned to an FMA concurrent availability with an end date the same as the CNO availability. This will allow for a more appropriate Adjusted LMA Date.

(1)   Any I-Level PMR that is overdue by the availability start date minus 6 months and is identified in the AWP or WPS by SUBMEPP to be accomplished by the industrial activity does not have to be done prior to the availability start. This includes I-Level PMRs for which the higher tier D-Level PMR is authorized in the AWP or WPs.

(2)   Notify the TYCOM representative at the Pre-Arrival Conference of any I-Level PMRs that will either not be accomplished prior to the availability start date or will become due during the availability.

(3)   Any PMR accomplished within ten months prior to start of a major CNO Availability that becomes due again during the availability, will have their scheduled due date adjusted by SUBMEPP by the number of months of the availability duration.

i.   Review completed AWRs or electronic certified Task Group Instructions, as applicable, prior to closeout of PMRs to resolve any discrepancies.

j.   Transferring Periodic Maintenance Requirements to other Fleet Maintenance Activities for Accomplishment. When submarine availabilities are accomplished by other than the parent FMA (whether another FMA in the same geographic area or due to deployment), the parent ISIC will take the following action:

(1)   Coordinate with the parent FMA to select only those PMRs for accomplishment for which all plans and materials will be available and ready for shipment prior to the availability or deployment of the submarine.

(2)   Dispatch a message to the submarine, the recipient squadron and FMA identifying by JCN the PMRs to be accomplished, confirming that plans and materials are being shipped or will be carried by the deploying submarine and that the submarine's total CSMP tape will be either retained by the parent ISIC or transferred to the recipient squadron, Regional Support Group or Regional Maintenance Center as mutually agreed prior to the availability or deployment.

(a)   If the CSMP is retained by the parent ISIC, an AWP tape (MM6031) will be provided to the recipient FMA which will maintain it as I-Level (only AWR completions for the tended submarine accomplished by the FMA will be passed upline). The submarine will forward all 3-M transactions to the parent ISIC.

(b)   If the total CSMP is transferred, the recipient FMA will maintain it as level II (the submarine will pass all 3-M transactions to the availability FMA). In addition, the PMR configuration and scheduling file will be transferred to the recipient FMA for URO, PMR and Calibration scheduling purposes.

(c)   When the submarine departs from the tending FMA, the CSMP and PMR data files will be updated and returned to the parent ISIC with the letter of transfer. FMAs receiving only the work package tape will create a CSMP transfer out tape and transmittal letter for return to the parent ISIC. The parent ISIC Maintenance Document Control Officer (MDCO) will reconcile the master CSMP with the returning submarine's 3-M coordinator.

(3)   Ensure that the FMA properly packages by JCN all materials, plans, drawings, etc., for dispatch to the receiving FMA or for custodial turnover to the submarine's Engineer Officer for delivery to the deployed FMA.

(4)   Ensure MDCO and Analysis, Records and Reports Section (ARRS) takes coordinated action to provide a correct CSMP tape and letter of transmittal. The parent ISIC MDCO must retain copies of transfer-out and in letters for MJC Job Sequence Number control.

NOTE: ONCE A DEFERRAL HAS INITIALLY BEEN ENTERED IN THE COMPUTER AT THE ORIGINATING FMA, IT IS AUTOMATICALLY PASSED TO THE TYCOM MASTER CSMP. SUBSEQUENT TAPE TRANSFERS BETWEEN FMAs WILL NOT CAUSE THE DEFERRAL TO PASS AGAIN TO THE TYCOM PROVIDING THAT MDCO INPUTS THE TRANSFER TAPE (MM6031) TO MAINTENANCE RESOURCE MANAGEMENT SYSTEM (MRMS) PROGRAM 173 NOT 174.

k.   Non-Scheduled Repairs of PMR components. The ISIC must add to the ship's CSMP those PMRs to be accomplished in conjunction with a repair action, in lieu of a repair action, or to be credited subsequent to a repair or replacement action. One of the following actions must be taken by the ISIC and MDCO:

(1)   When a ship's submitted deferral references a PMR for concurrent accomplishment with the repair action, or if ISIC or FMA planners recommend a PMR, the ISIC must make the decision whether or not to invoke the PMR in conjunction with or in lieu of the requested repair. This will result in two AWRs being created. The planner will have work accomplished under one JCN (EA01) and use the second JCN (EAJC) for administrative completion crediting of the PMR.

(2)   If the repair job has resulted in replacement of the PMR component or if the maintenance standard requirements were completely accomplished prior to retrieving the PMR from the MJC, call down the item from the local scheduling system. The ISIC should instruct FMA to report its completion including the added narrative to identify the originally assigned ship's JCN. Though the materials used cannot be re-identified to the PMR JCN, it is recommended that the total man hours expended also be reported on the PMR AWR or subsequent analysis of required PMR support.

l.   Training. The parent ISIC is responsible to provide assigned ship's training in the TYCOM PMR Scheduling System. Such training should include an overview of the SEOC Program, PMR scheduling products, SMS Library and PMR program accomplishment and reporting systems. Emphasis should be placed on the ship's responsibilities to the PMR program as identified in paragraph 24.8.5 of this chapter.

24.8.4 Fleet Maintenance Activity.

a.   The FMA is responsible for accomplishing all PMR work as scheduled to the required repair standards.

b.   Commence the planning and material procurement function when the PMR is called down by the ISIC from the local scheduling system and brokered to the FMA.

c.   Progress the job, ensuring that the LWC coordinates with ship superintendent and all Assist WCs and that production time and current status is reflected in the local scheduling system.

d.   Complete the job, report its accomplishment and as found material condition feedback code on the AWR. Any significant findings should also be documented on the AWR. The LWC then completes the AWR by filling in action taken codes, signing for completion and then obtains acceptance signature from Ship's Force. The AWR is then returned to ARRS. The ARRS will verify that all participating WCs have documented completion of their assigned tasks and then pass the AWR to the ISIC for review and updating of SUBMEPP inventories and schedules prior to close-out of the AWR by ARRS. The material condition feedback codes are described in Appendix C of reference (a) as part of the action taken code, and are:

NOTE: **THE MATERIAL CONDITION FEEDBACK CODES MUST DESCRIBE THE "AS FOUND" CONDITION OF THE COMPONENTS AND NOT THE AFTER REFURBISHED CONDITION OF THE COMPONENTS.**

(1)   Code "A" means the material condition of the component being refurbished could have allowed the PMR to be deferred (extend the periodicity).

(2)   Code "B" means the material condition of the component being refurbished justified the scheduled PMR.

(3)   Code "C" means the material condition of the component being refurbished should have mandated an earlier completion of the PMR (shorten the periodicity).

NOTE: **VARIATIONS TO THESE CODES MAY BE DESCRIBED IN INDIVIDUAL**

PMR MJC NARRATIVES.

e. ARRS will verify that all participating WCs have documented completion of assigned tasks, Ship's Force acceptance signature is on AWR and the final action taken code (2 characters) is entered. Prior to close-out of the AWR, ARRS will pass the AWR to the ISIC for review. For MRMS FMA sites, it is essential that ARRS verify that the MRMS Availability file has the proper scheduled completion date and code to identify that it is a scheduled availability. This is done by showing a "Y" in answer to "Is this a CNO Availability" on the appropriate screen.

f. Adjustments of scheduled start and completion dates of the PMR and factual reporting of status codes.

g. Review corrective action request submitted by Ship's Force via an OPNAV 4790/2K to determine if the corrective action is to include the criteria of MRC, SMS or TRS requirements.

h. If the PMR maintenance procedure has a material condition feedback form, fill out the form and submit following the reporting requirements defined in the procedure.

i. Report to the ISIC when PMRs are met per paragraph 24.5 of this chapter, due to the expansion of work boundaries.

j. At the conclusion of an availability (not later than the Departure and Assessment Conference), in which I-Level PMRs were screened for FMA accomplishment, provide to the ISIC, verbally or by memo, the reason that any PMRs could not be accomplished (e.g., parts, manpower not available) as scheduled.

24.8.5 <u>Submarine Commanding Officer</u>.

a. The ship's Commanding Officer is responsible for the execution of PMR work on the ship.

b. All discovered maintenance deficiencies which affect the equipment and systems covered by the PMR program should be documented to reflect the possible PMR with which the deficiency is associated. This will provide the ISIC with the alternative of simultaneously imposing repairs to the criteria of the specified Maintenance Standard and credit PMR accomplishment.

c. All maintenance deficiencies will reflect in Block 46 (TYCOM SPECIAL PURPOSE), of the OPNAV 4790/2K whether or not quality control and Quality Assurance standards are required.

d. Review Depot Availability Work Packages and provide comments to the TYCOM and SUBMEPP representatives during the work package review.

e. Review CSMP reports with parent ISICs prior to upkeep periods in order to assist in planning for accomplishment of required PMR maintenance.

f. Ensure that the current MRCs, Maintenance Requirements and TRSs applicable to the ship class are carried on board.

g. Ensure that MRCs, SMSs and TRSs, which provide detailed information and repair guidance, are referenced and used during equipment maintenance.

h.   If Ship's Force accomplishes a repair of a PMR component to an MRC, SMS or TRS, report same to the ISIC Material Officer so that the SUBMEPP can receive credit for accomplishment of PMR per paragraph 24.5.

i.   Ensure all completed AWRs for PMRs are signed as accepted by Ship's Force.

j.   At the conclusion of an availability (not later than the Departure and Assessment Conference), in which I-Level PMRs were screened for FMA accomplishment, provide to the ISIC, verbally or by memo, the reason that any PMRs could not be accomplished (e.g., parts, manpower not available) as scheduled.

24.8.6   <u>Deep Submergence System Commanding Officer</u>.

a.   Ensure all PMRs are accomplished within the required periodicity as specified by SUBMEPP.

b.   Review Depot Availability Work Packages and provide comments to the TYCOM and SUBMEPP representatives during the work package review.

c.   Review the status of PMR maintenance in the SUBMEPP Quarterly PMR inventories and schedules with the ISIC prior to upkeep periods in order to assist in planning for accomplishment of required PMR maintenance.

d.   Ensure that the current SUBMEPP Quarterly PMR Inventories and Schedules, MRCs, Maintenance Requirements and TRSs applicable to the ship class are carried on board.

e.   All maintenance deficiencies which affect the equipment and systems covered by the PMR program should be documented to reflect the possible PMR with which the deficiency is associated. Whenever possible, corrective repairs should be performed to the criteria of the specified TRS in order to credit PMR accomplishment. If Ship's Force accomplishes a repair of a PMR component to an MRC or TRS, report the repair by making redline changes to the local copy of the PMR I-level and D-level inventory and submit to SUBMEPP via the ISIC.

f.   At the conclusion of an availability, review the COC provided by the industrial activity to verify all scheduled PMR work was accomplished. Ensure that redline changes are accordingly made to the PMR I-level and D-level inventory and sent to SUBMEPP via the ISIC.

APPENDIX A

**SUBMARINE PERIODIC MAINTENANCE REQUIREMENT (PMR) MANAGEMENT
PROCESS**

NOTES:
(1) For sites with MRMS Micro-PMR installed, process
     is displayed with dotted lines. ....
(2) For sites without MRMS Micro-PMR installed,
     process is displayed with dashed lines. - - - -

USS (SHIP NAME AND HULL NO.)	PART 1	SYSTEM ID: 111A01

WP ISSUE: ISSUE THREE

WORK PACKAGE SUPPLEMENT

URO/HIP CHANGE NO: 145

SHIPYARD PLANNING & FEEDBACK REPORT   02NOV2011

SYSTEM ID: 111A01 Superstructure and Fairwater

COMP IDENT	APL/RIC	HSC	LOCATION COMPONENT DESCRIPTION	DD	MAINTENANCE STANDARD	STAT	CONDITION			REMARKS
27.0076.0666					RML SY					
Clean and spot represerve (touchup) the fairwater (interior only).										
R = Accomplish every depot availability that URO MRC 003 is not authorized.										
INTR PSVTN	NONE	1111X1022A	SYS LVL REQ-INTERIOR PRESERVATI		MS 6310-081-015 H/CHG1 Attachment 5	IS	A	B	C	
27.0076.1302					RML SY					
Perform structural inspection of the fairwater; repair as necessary (interior).										
R = Accomplish every depot availability that URO MRC 003 is not authorized.										
INTR PSVTN	NONE	1111X1022A	SYS LVL REQ-INTERIOR PRESERVATI		MS 7650-081-091 B/CHG8	IS	A	B	C	
27.0125.1302					RML SY					
Inspect; repair special hull treatment (SHT).										
R = Accomplish every depot availability that URO MRC 003 is not authorized.										
SHT	X90613RP459	1111X1000M	SOUND ISOLATION X DAMPING MATER	DD	OTHE S6360-AD-HBK-010	IS	A	B	C	
27.0320.1302					RML SY					
Inspect; repair nonwatertight access hatches, cover plates & access manhole covers.										
Note 1: Accomplish to the extent possible with removal, unless they are removed for other reasons.										
R = Accomplish whenever hatches, plates or covers are removed for other reasons.										
COVERS	X90613CM004	1111X1000Q	SYS LVL REQ-SUPER STRUCTURE (CO		MS 1510-081-004 E/CHG7	IS	A	B	C	
FAIRWATER DR	NONE	840 1111X1000R	FAIRWATER DOOR		MS 1510-081-004 E/CHG7	IS	A	B	C	

SYSTEM ID: 111A01   **PART 1**   **PAGE - 1**

APPENDIX B
WORK PACKAGE SUPPLEMENT - SHIPYARD PLANNING
AND FEEDBACK REPORT (SAMPLE)

VI-24B-1

APPENDIX B

USS (SHIP'S NAME AND HULL NO.) CHGS 010-037 WP

PART 4.13 FMA SCHEDULED PERIODIC MAINTENANCE REQUIREMENTS

CUT-OFF DATE: 1/23/2013

WORK PACKAGE STATUS
(AUTHORIZED BY)

SYSTEM ID CHG	GCMA/MRN	COMP ID MA DESCRIPTION	LMA	DUE DATE	MJC#	SWLIN SECT	ASSN
1110	**27.0040.0900**	SAFE TRACKS TEST	Apr10	Apr12	N0002WKCC6363		
1110	**27.0060.0902**	DAVIT TEST; REPAIR	Jul10	Jan13	N0002WKCC6132		
2015	**44.2380.0090**	HS-607 TEST	May06	May11	N0006EXCAC832		
2015	**44.2380.0900**	HS-621 TEST	Dec04	Dec09	N0006EXCAC832		
2030	**44.2560.0900**	HSS-037 TEST	May03	May08	N0006EXCAC830		
2040	**29.0040.1300**	SNORKL MAST INSPECT	Jul10	Jul12	N0002EACC8973		
2070	**70.0140.1627**	GMS8A01 CONDUCT VISUAL INSPECTION	Jan11	Jan12	N0002EMCC6141		
2080	**70.0380.1627**	GCF8A01 CONDUCT VISUAL INSPECTION	Jan11	Jan12	N0002EMCC6145		
2090	**37.0020.22A2**	PUMP-1 INT REPLACE INGERSOL RAND MSW PUMP PARTS (DESIGN B)	Apr09	Apr12	N0002EMCC6241		
2090	**44.2380.0900**	MSW-035 TEST	Mar08	Mar12	N0006EXCAC729		
2090	**44.2380.0900**	MSW-036 TEST	Mar08	Mar12	N0006EXCAC729		
2090		MSW-060	Mar08	Mar12	N0006EXCAC729		

PART 4.13 FMA SCHEDULED PERIODIC MAINTENANCE REQUIREMENTS (SAMPLE)

VI-24B-2

APPENDIX C

WORK PACKAGE - SHIP'S SYSTEM WORK DESCRIPTION
PART 4.13 (SAMPLE)

<u>USS (SHIP'S NAME AND HULL NO.)</u>
<u>SHIP SYSTEM WORK DESCRIPTION – ISSUE TWO</u>
<u>PART 4.13 FMA SCHEDULE PERIODIC MAINTENANCE REQUIREMENTS</u>

<u>WORK PACKAGE STATUS</u>
(AUTHORIZED BY)

CHG	WPS SWAB GCMA	MA DESCRIPTION WPS COMPID	PER	LMA VIT	DUE DATE	MJC#	SWLIN SECT	ASSN
059	5520 79.0280.2100	RESTORE ACC IND LEAD		JUL85 3		02EECC5309	552A01 79.0280.2100	SY
	REMARKS:	Restoration of contents indicator is required because lead accumulator maintenance is being replaced by AERP in Section 38.0078.2222.						
059	5520 79.0300.2100	RESTORE ACC IND PORT		JUL85 3		02EECC5309	SEE REMARKS	
	REMARKS:	No fixed periodicity. Accomplish only if accumulator maintenance is performed.						
059	5520 79.0300.2100	RESTORE ACC IND STBD		JUL85 3	JUL93	02EECC5309	SEE REMARKS	
	REMARKS:	No fixed periodicity. Accomplish only if accumulator maintenance is performed.						
059	5610 37.0320.U006	URO REQUIREMENT ASW PUMP-1	096	JUL85 1	JUL93	08EMCKC741	561A01 37.0320.U006	SY
	REMARKS: -							
059	5610 37.0320.U006	URO REQUIREMENT ASW PUMP-2	096	JUL85 1	JUL93	08EMCKC741	561A01 37.0320.U006	SY
	REMARKS: -							
059	5610 37.0320.U006	URO REQUIREMENT ASW PUMP-3	096	JUL85 1	JUL93	08EMCKC741	561A01 37.0320.U006	SY
	REMARKS: -							
059	5610 44.0020.U009	URO REQUIREMENT ASW-030	036	JAN91 1	JAN94	08EMCKC918	561A01 44.0020.U009	SY
	REMARKS: -							
059	5610 44.4285.1300	INSPECT ASW-067	012	OCT90 1	OCT92	07EMCF0004	561A01 44.4285.1300	FMA
	REMARKS:	FMA accomplish prior to ship entering the shipyard for DMP.						

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APPENDIX C

VOLUME VI

CHAPTER 25

UNRESTRICTED OPERATIONS

REFERENCES.

(a) NAVSEA 0924-062-0010 - Submarine Safety (SUBSAFE) Requirements Manual
(b) OPNAVINST 3120.33 - Submarine Engineered Operating Cycle (SEOC) Program
(c) COMSUBLANT/COMSUBPAC NOTE C3120 - Submarine Operating Restrictions and Depth Authorization

LISTING OF APPENDICES.

A   URO MRC Automated Work Request for Ship's Force Accomplishment
B   URO MRC Automated Work Request for FMA Accomplishment
C   SUBMEPP URO MRC Inventory
D   SUBMEPP URO MRC Schedule
E   Request for URO MRC Periodicity Extension Format
F   Sample Work Package Supplement

25.1 PURPOSE. This chapter provides guidance and definition for the requirements, responsibilities and actions for continued submarine Unrestricted Operation (URO) to design test depth. The URO Maintenance Requirement Card (MRC) program is invoked on all Submarine Safety (SUBSAFE) certified submarines.

25.2 UNRESTRICTED OPERATION MAINTENANCE SCHEDULING, PLANNING AND REPORTING.

25.2.1 Maintenance Requirements for Continued Unrestricted Operation to Design Test Depth. Reference (a) establishes the Maintenance Requirements and identifies the responsibilities and actions required to support continued unrestricted submarine operations to design test depth. In conjunction with reference (a), Naval Sea Systems Command (NAVSEA) has issued individual manuals containing required, periodic SUBSAFE maintenance actions for each ship or class. The URO MRCs in these publications will identify degradation of the material condition of the hull integrity boundary and of those systems affecting ship's recoverability. The requirements set forth in these publications are, in addition, defect monitoring requirements, established on an individual ship basis, for submarines in which known uncorrected deficiencies exist. SUBSAFE certification indicates that a valid recommendation for URO to design test depth can be made. Maintenance of certification is dependent on both the positive control of all re-entries into the SUBSAFE boundaries per Volume V, Part I, Chapter 5 of this manual, the satisfactory and timely completion of applicable URO MRCs as required by reference (a) and any necessary repairs. Accomplishment of the URO MRCs specified with this program identify changes within the SUBSAFE boundary which result from inadvertent error or from degradation caused by the service environment.

25.2.2 Scheduling and Reporting. In order for the Type Commanders (TYCOM) to carry out their responsibilities in the material certification of submarines and to aid in decisions

concerning operational restrictions, an auditable system of scheduling the performance and reporting of URO MRCs has been developed. This system provides visibility to problem areas, facilitates verification and provides a permanent record of URO MRC accomplishment in the ship's Maintenance and Material Management (3-M) machinery history maintained at the Naval Sea Logistical Center (NAVSEALOGCEN).

25.2.2.1 Non-SSBN 726 or SSGN 726 Class Ships. Submarine Maintenance Engineering, Planning and Procurement Activity (SUBMEPP) provided Periodic Maintenance Requirement (PMR) Inventories and Schedules and the 3-M Master Job Catalog (MJC) Programs are used for scheduling and reporting. The scheduled URO MRC requirements added to the Current Ship's Maintenance Project (CSMP) from the local scheduling system and the Automated Work Requests (AWR) produced will contain unique Job Control Numbers (JCN) consisting of ship's Unit Identification Code (five characters) plus WC (Department or Division + JC) (four characters) plus Job Sequence Number (four characters). Appendices A and B of this chapter show a URO AWR for Ship's Force and Fleet Maintenance Activity (FMA) accomplishment respectively. Appendices C and D of this chapter show examples of the SUBMEPP URO MRC inventories and schedules respectively.

25.2.2.2 SSBN 726 and SSGN 726 Class Ships. SUBMEPP provided URO MRC inventories, schedules, Master Job File, as well as the Refit Work Planning System, are used for scheduling and reporting. The scheduled URO MRC requirements added to the CSMP from the local scheduling system and the AWRs produced will contain unique JCNs consisting of ship's Unit Identification Code (five characters) plus WC (Department or Division + JC) (four characters) plus Job Sequence Number (four characters). Appendices A and B of this chapter show a URO MRC AWR for Ship's Force and FMA accomplishment respectively. Appendices C and D of this chapter show examples of the SUBMEPP URO inventories and schedules respectively.

25.2.2.3 SUBMEPP Activity Inventories and Schedules. The SUBMEPP inventories and schedules can be created from Maintenance & Ship Work Planning Reports (M&SWP) at https://ebusiness.submepp.navy.mil/eBusiness/index.cfm.

25.2.3 Baseline and Due Dates. The baseline date for determining URO MRC due dates is the Last Maintenance Action (LMA) date. LMA dates for new requirements will be based on the Change Issue Date of the URO MRC invoking the new requirement unless otherwise directed from NAVSEA. Due dates are calculated based on LMA dates per paragraph 25.2.3.2 of this chapter. It is recognized that upkeep and docking schedules for ships which are well into the operating cycle may not permit full compliance with the scheduled due dates. In such cases, a Departure From Specification (DFS) for the URO MRC will be addressed on a case-by-case basis as specified in Volume V, Part I, Chapter 8 of this manual. LMA dates and URO MRC due dates are determined in the following manner:

25.2.3.1 Last Maintenance Action Date. For new construction ships, all URO MRCs have an initial LMA date established at delivery from new construction or from Post Shakedown Availability to start the operating cycle following the applicable URO MRC manual. During the operating period between commissioning and start of Post Shakedown Availability and during the operating cycle following Post Shakedown Availability, an adjusted LMA, as discussed in sub-paragraphs a and b, is used for URO MRCs. Calculate the adjusted LMA date in the following manner:

a.   If the URO MRC is accomplished during a period other than the maintenance periods identified in subparagraph b below, the adjusted LMA date will be the first of the month following the completion date listed on the PMR data form.

b.   If the URO MRC is accomplished during a CNO availability, Major Maintenance Period, or refit, the adjusted LMA date will be the first of the month following the availability's actual completion date.

NOTE: IMMEDIATE SUPERIORS IN COMMAND (ISIC) OPERATING WITH THE ON-SITE PMR SCHEDULING SYSTEM MUST ENSURE THAT AVAILABILITY DATES ARE ACCURATELY MAINTAINED SO THAT COMPLETED AWR UPLINE REPORTED DATA REFLECTS THE ADJUSTED LMA DATE AND ON-SITE PMR SCHEDULING RECORDS CALCULATE THE PROPER NEXT DUE DATE.

25.2.3.2 Calculating Due Dates. Next due dates are calculated based on an adjusted LMA date. Due dates are calculated, for scheduling purposes, by taking the adjusted LMA date month (number) and adding the periodicity months (number) to show the month due (i.e., an item with an adjusted LMA date of February 2003 (2/03) with a six-month periodicity would be due in August 2003 (8/03)). The PMR will be accomplished prior to midnight of the last calendar day of the month due.

25.2.4 Periodicity Extensions. When determining the due date for URO MRC inspections 001, 004, and 005 for an individual submarine, inactive time (defined as the number of days pierside plus the number of days in dry-dock) may be excluded from the time elapsed since the last inspection. When determining the due date for URO MRC 002, 003 (certain portions) and 035, only the time in dry-dock may be excluded from the elapsed time. The ships' deck log, engineering log, coolant discharge log, or Drydocking records will be used to determine the number of day's pierside or the number of days in drydock. Ship's Force will perform this review and provide the applicable dry-dock or inactive time via official correspondence to the ISIC. Extensions of periodicity from the next due date identified in the SUBMEPP PMR inventory for these URO MRCs can be authorized by the TYCOM without further NAVSEA approval. However, they are not automatic and such requests must be submitted by letter, in the format of Appendix E of this chapter, to SUBMEPP via the TYCOM. Upon receipt of TYCOM authorization, SUBMEPP will reflect the periodicity extension and the revised due date in the next issue of the ship's PMR inventories and schedules.

25.2.5 Scheduling, Planning and Reporting Unrestricted Operation Accomplishment at Ship or Fleet Maintenance Activity Level.

25.2.5.1 Scheduling. The TYCOM PMR Scheduling System Inventories and Schedules can be created from Maintenance & Ship Work Planning Reports (M&SWP) at https://ebusiness.submepp.navy.mil/eBusiness/index.cfm. Except at NAVIMFAC PACNORWEST, along with the Inventories and Schedules, electronic update files are provided to keep the local scheduling systems up to date with the Class Maintenance Plan (CMP). As a minimum, ISICs will schedule applicable URO MRCs 40 days (SSBN 726 and SSGN 726 Class submarines) or 40 days (non-SSBN726 or SSGN 726 Class submarines), as applicable prior to refit fleet maintenance availability. Those URO MRC AWRs requiring work packages or other planning are forwarded to the FMA Planning Section.

25.2.5.2 Planning. FMA Planners will requisition materials, obtain plans and drawings, prepare Formal Work Packages or Controlled Work Packages and coordinate the scheduling with the Ship Superintendent, Production Officer and ISIC Material Office. Then the job will be turned over to the production WC for accomplishment.   The Maintenance Document Control Office (MDCO) will adjust the scheduled start and completion date within the local scheduling system.

25.2.5.3 Reporting. Each URO MRC AWR contains specific instructions on reporting the completed action and on use of a special feedback code to identify the material condition, or that a change in inspection frequency is required. In order to ensure URO MRCs are correctly accomplished and reported to SUBMEPP, action is to be taken prior to close-out of the AWR by Analysis, Records and Reports Section (ARRS). FMA Lead Work Centers (LWC) completing URO MRC AWRs must ensure that all assist WCs have completed their work. The LWC then completes the AWR by filling in action taken codes, signing for completion and obtains acceptance signature from Ship's Force. The AWR is then returned to ARRS. The ARRS will verify that all participating WCs have documented completion of their assigned tasks and then pass the AWR to the ISIC for review and updating of SUBMEPP inventories and schedules prior to close-out of the AWR by ARRS.

25.2.6 <u>Unrestricted Operation Maintenance Requirement Card Accomplishment During Chief of Naval Operations Maintenance Availabilities</u>.

   a.   The Availability Work Package (AWP) prepared by SUBMEPP will reflect all URO MRCs authorized for accomplishment during the availability at the AWP Ship Work List Item Number (SWLIN) level. The Work Package Supplement (WPS), accompanying the AWP, will identify a specific URO MRC requirement to the applicable AWP SWLIN paragraph. Appendix F of this chapter provides an example of the WPS format.

   b.   For URO MRCs assigned to the depot, the ISIC will enter "Assigned to <depot name> by AWP <AWP number>" in the Remarks or Completion block of the URO MRC Schedule and Inventory and in the local scheduling system.

   c.   URO MRC completions by an industrial activity during CNO Availabilities will be, for non-SSBN 726 or SSGN 726 Class submarines, retrieved from the shipyard information system by SUBMEPP. For SSBN 726 and SSGN 726 Class submarines, completions will be retrieved from the appropriate maintenance database. The WPS, or comparable report, annotated by SUBMEPP to show URO PMR completions and material condition feedback categories, will be retained by SUBMEPP upon completion of the availability. The ISIC will verify that all URO MRCs assigned to the shipyard were reported and subsequently updated by SUBMEPP.

25.2.7 <u>Unrestricted Operation Maintenance Requirement Card Completion Reporting</u>.

   a.   Within 30 days after the completion of an availability the activity accomplishing the URO MRC is required to provide a report of accomplishment to SUBMEPP and the ship's ISIC as well as other technical codes as designated in the URO MRC. Specific information to be included in the report is identified in the applicable URO MRC. The accomplishing activity must retain a legible copy of the most current inspection report until the ship is disposed of or stricken from the Naval Register.

b.   Prior to Fast Cruise for CNO Availabilities, the industrial activity is required to provide the ship and ISIC with a letter of certification (including final inspection categories A, B, or C when applicable) that certifies all required inspections have been satisfactorily completed. For items which must be accomplished in dry-dock, the industrial activity is required to provide such certification prior to undocking.

c.   Upon identifying a material condition that would result in a reduced inspection periodicity if not restored to Category A condition during the availability in which the condition was found, a special report is required to be submitted by the accomplishing activity per the applicable URO MRC and, if applicable, the AWP. This special report must be provided immediately to NAVSEA (SEA 07), TYCOM, ISIC, and SUBMEPP indicating:

    (1)   Applicable MRC.

    (2)   Equipment component identification.

    (3)   Inspection category.

    (4)   The reduced or deferred periodicity of each equipment component that should be inspected at less than its normal periodicity. This reduced periodicity report requirement is in addition to the completion reporting requirements of paragraphs 25.2.7.a and 25.2.7.b.

25.2.8 <u>Operating Cycle and Interval Extensions</u>. An Audit Plan to assess the material condition of ships prior to extending their operating cycle or intervals beyond URO MRC periodicities due to changing CNO Availability dates or operational schedules is addressed in reference (b). Additional guidance and responsibilities are contained in Volume II, Part I, Chapter 3 of this manual.

25.3 <u>RESPONSIBILITIES</u>.

25.3.1 <u>Type Commander</u>.

a.   Perform periodic audits of the ISICs and FMAs to verify full compliance with the provisions of reference (a), Volume V, Part I, Chapter 9 of this manual and this chapter.

b.   Provide guidance to the ISICs, obtaining NAVSEA concurrence as necessary, when deviations in the scheduling or accomplishment of maintenance or repairs are required by a DFS request and resolution per Volume V, Part I, Chapter 8 or this manual.

25.3.2 <u>Submarine Maintenance Engineering, Planning and Procurement Activity</u>.

a.   Receive reports of completion of URO MRCs from all completing activities.

b.   Review completion reports for compliance with the scheduled periodicity requirements and any change in the status category.

c.   Establish an LMA date per paragraph 25.2.3.1 of this chapter.

d.   Revise the periodicity and next due dates in ship URO MRC inventories and schedules to reflect any NAVSEA approved periodicity change, TYCOM approved periodicity extensions for URO MRCs 001 through 005, and 035 as allowed for in paragraph

25.2.4 of this chapter and NAVSEA approval of Major DFSs for extending URO MRC requirements.

e. Notify the TYCOM via the on-site SUBMEPP Representative of any URO MRC beyond periodicity for TYCOM resolution.

f. Provide updated:

(1) For SSBN 726 and SSGN 726 Class ships, provide Refit Work Package electronic files which reflect URO MRC scheduling to the Trident Refit Facility at the arrival minus 60-day milestone.

(2) For those ISICs using Micro-PMR, provide scheduling and configuration files to process in the local scheduling system and FMA database quarterly.

(3) Provide MJC update files which reflect URO MRC changes to the ISIC or TYCOM at least quarterly or upon request.

g. Quarterly provide a list of URO MRCs that appear overdue in the schedules and a list of URO MRCs that have been reported complete by the fleet but Objective Quality Evidence has not been received by SUBMEPP.

h. Receive and review URO MRC Objective Quality Evidence for technical accuracy and maintain URO MRC completion history.

25.3.3 <u>Immediate Superior In Command</u>.

a. Maintain auditable records of URO MRC accomplishment for each submarine. These records must consist of:

(1) SUBMEPP Quarterly Schedules and Inventories.

(2) The last copy of letter of completion and inspection report for each O Level URO MRC.

(3) The last copy of letter of completion and inspection report for each I and D Level URO MRC. These may be disposed of once accomplishment is captured electronically on ISIC provided SUBMEPP Schedules and Inventories.

b. Conduct periodic audits of assigned FMAs and units to verify full compliance with the provisions of reference (a), Volume V, Part I, Chapter 9 of this manual and this chapter.

c. In addition to the records of audits, maintain a file, by ship, of the current URO MRC inventories and schedules as provided by SUBMEPP. The schedules (Appendix D of this chapter) for each ship must be annotated with the Job Sequence Number (JSN), the new adjusted LMA date and the next due dates for the completions and any periodicity extensions authorized.

(1) Although the responsibility for the accomplishment of URO MRCs must rest with the ship's Commanding Officer, the nature and scope of the URO MRCs dictate that the ISIC coordinate the accomplishment of URO MRCs following the SUBMEPP provided PMR inventories and schedules. Accordingly, the ISIC must assist in the preparation of, and approve each submarine's URO MRC performance schedule. Monitor the URO MRC, Deep Submergence

System and Hull Integrity Procedure Status Web Site periodically to identify potentially overdue URO MRC, Deep Submergence System or Hull Integrity Procedures. The SUBMEPP representative assigned to each ISIC must add information, in the form of a comment to the web Site, addressing any overdue or potentially overdue items. Upon completion of a Ship's Force accomplished URO (e.g., 016, 019, 022, 025, 026, 029, 036), the ISIC URO Coordinator must update the SUBMEPP URO status web site by creating a comment, located at https://ebusiness.submepp.navy.mil/eBusiness/index.cfm, with the following information until the correct information is reflected on the web page:

(a)   Name of person entering data

(b)   URO completion date

(c)   New LMA Date

(d)   New Due Date

(2)   In addition, the ISIC must:

(a)   Unless previously notified by SUBMEPP of delays, notify the SUBMEPP Representative at TYCOM of the non-receipt of schedules and reports.

(b)   Upon printing a new URO MRC Inventories and Schedules, perform a line-by-line verification of each ship's new URO MRC Inventory and Schedule against the URO MRC Inventory and Schedule report held by the ISIC. At a minimum, this verification will include a review of each URO MRC LMA, Due Date, and Periodicity to ensure any recent completion data or rescheduling data that has been submitted to SUBMEPP has been accurately incorporated into the new Inventory and Schedule. PMRs accomplished during the month preceding the quarterly report may or may not be reflected in the issue received. Similarly, upon receipt of URO MRC changes, audit the individual URO MRC procedural and schedule information against each ship's PMR Inventory and Schedule held by the ISIC to verify that the component or equipment and periodicity has not changed and that provided changes do not impact current schedules. Resolve identified deficiencies through the SUBMEPP Representative at TYCOM.

(c)   Review the enclosures to the PMR procedural inventories and the schedule forwarding letter and advise SUBMEPP of the completion dates and JSNs for URO MRCs listed. Forward copies of completed Data Report Forms for these and any other URO MRC completions identified by SUBMEPP as having missing Data Report Forms.

(d)   Quarterly, the ISIC must provide a copy of the individual ship's URO MRC Inventory and Schedule that has been customized by the ISIC, as necessary, to reflect the most current URO MRC status.

d.   Control input of the SUBMEPP scheduling file (M79EII) to the local scheduling system and resultant calldowns to the CSMP, which will produce the JCN and products for job completion.

e.   Ensure that all URO MRC requirements with the appropriate screening (Ship's Force, FMA) are in the CSMP for subsequent development by SUBMEPP of forthcoming CNO Availability AWPs.

f.   In the event that deviations from required periodicities or full requirements of the URO MRCs are required, request approval from the TYCOM by submitting a DFS request per Volume V, Part I, Chapter 8 of this manual. Such DFS requests will be a Major DFS for URO MRC program deviations. DFS requests are also to be submitted when repairs arising from the URO MRC inspections cannot be completely accomplished. Periodicity extension requests for URO MRC 001, 002, 003, 004, 005 and 035 must be submitted per paragraph 25.2.4 of this chapter.

g.   Establish procedures to affect routing of completed AWRs from the FMA ARRS through the ISIC for all URO MRC transactions. The ISIC should ensure proper documentation has been completed as described in the special reporting procedures of the AWR. This must include the material condition feedback code as part of the final action, if required. A rejection series code (6A-6I) should not be accepted unless the FMA Repair Officer cannot accomplish the URO MRC at that site. Delays in accomplishment are to be reported as status changes so that the job remains in the production system and is visible as a "to-be-done" requirement. If the URO MRC requirement cannot be accomplished at the site, the ISIC must ensure update (re-screening) of the CSMP concurrently with DFS notification, if necessary. Each processed AWR is to be validated with the PMR Special Report described in the Maintenance Resource Management System section of Volume II, Part I, Chapter 2 of this manual and, if satisfactory, passed to the Automated Data Processing Center for computer input. Upon receipt of the report of maintenance action accomplishment from an assigned unit or the FMA, review the report for completeness, consistency, acceptability of conditions and material trends. Where unsatisfactory conditions are found, direct repairs. Where repairs cannot be made, submit a DFS per Volume V, Part I, Chapter 8 of this manual. Ensure SUBMEPP inventories and schedules are updated per paragraph 25.3.3(c) of this chapter. Clear URO MRC major DFS upon TYCOM or NAVSEA approval and upon printing of the SUBMEPP Quarterly PMR inventories and schedules, and ensure they accurately reflect the new due date of the URO MRC as stated in the approved DFS.

h.   Upon identifying a material condition that would result in a reduced inspection periodicity, ensure the accomplishing activity immediately reports the condition found via faxed letter to NAVSEA (SEA 07), the TYCOM and SUBMEPP per paragraph 25.2.7.c of this chapter.

i.   Monitor the timely submission of URO MRC data report forms and the report of accomplishment for URO MRCs completed by the FMA and Ship's Force to ensure required documentation is submitted per paragraph 25.2.7 of this chapter. Ensure data report forms are submitted to report component replacement, repair or operation out of

specification. Review all Ship's Force accomplished URO MRC data for compliance with the requirements of the URO MRC Program prior to submittal to SUBMEPP.

j.   Prior to a ship's underway period, review the ship's certification continuity report, if submitted, to ensure the ISIC and ship's records (including the CSMP) accurately reflect URO MRC status.

k.   The Parent ISIC of deploying ships will:

    (1)   Ensure that any URO MRC due for accomplishment by the ship during its deployment period is identified in the CSMP transfer file and that the ship possesses the URO MRC data report forms (if applicable) for reporting job completion.

    (2)   Provide a message to the applicable deployed FMA or Squadron identifying any URO MRC expected to be accomplished by the deployed FMA and the status of required materials for each submarine deploying to cover the period of the deployment.

    (3)   Provide a copy of the marked up URO Inventories and Schedules to the applicable deployed squadron prior to out-chop. Inform the deployed squadron if any changes have occurred from the time the URO Inventories and Schedules was sent to the actual out-chop date.

l.   Deployed Squadrons will:

    (1)   Review the URO MRC status of deployed submarines upon in-chop. Perform the function of the Parent ISIC in ensuring all URO MRCs are accomplished and reported within the required periodicity while the submarine is deployed.

    (2)   Provide a copy of the marked up URO Inventories and Schedules to the parent squadron. Inform the parent squadron if any changes have occurred from the time the URO Inventories and Schedules was sent to the actual out-chop date.

NOTE: **THIS IN NO WAY RELIEVES THE PARENT ISIC OF THE RESPONSIBILITY TO ENSURE THAT THE REQUIRED URO MRCs ARE ACCOMPLISHED WITHIN THE SPECIFIED PERIODICITIES.**

m.   Prior to the start of a CNO availability, ISIC URO coordinators will:

    (1)   Assign JCNs to URO MRC items assigned to Forces Afloat in the AWP and screen them to an availability prior to the start of the CNO availability or to the concurrent availability following the directions in the AWP. Forces Afloat items are accomplished by Ship's Force or Performance Monitoring Team. Care must be taken to appropriately assign URO MRC items to the correct accomplishing activity.

    (2)   ISIC URO coordinators will not assign JCNs to URO MRC items assigned to the shipyard in the AWP. In the URO MRC inventories and schedules, in the remarks or completion information area, enter "assigned to (name of shipyard) by AWP (name and number of availability)". The shipyard is responsible for performing, auditing and reporting all URO MRC items assigned by the AWP.

    (3)   URO MRCs assigned to Forces Afloat by the AWP for accomplishment prior to the start of the depot period, but for some reason were not completed, will be reassigned to a concurrent availability or formally reassigned to the shipyard via a supplemental work request.

n.   During a CNO availability, URO MRCs assigned to the shipyard by the AWP which are not accomplished during the depot period will be placed on the guarantee list or reassigned to a fleet availability by the TYCOM following the depot period provided the URO MRC does not exceed its due date. The ISIC will be notified of this reassignment by formal correspondence which will include justification and reason why the scheduled and planned requirements were not met.

o.   Prior to CNO availability completion, ISICs will audit URO MRCs assigned to Forces Afloat by the AWP and ensure all have been satisfactorily completed and documented within the required periodicity. The ISIC audit will also verify that all URO MRC items coming due within six months of availability completion are complete or assigned to a follow-on fleet availability. Under no circumstances are URO MRC due dates to be exceeded. ISIC Quality Assurance Officers will not be responsible for auditing URO MRCs assigned to the depot in the AWP.

p.   Following CNO availability completion, the ISIC URO coordinator will ensure that all URO MRCs assigned to the shipyard were reported and subsequently updated by SUBMEPP. ISICs will only upline the closed JCNs for URO MRCs completed by Forces Afloat.

25.3.4 <u>Submarine Commanding Officer</u>.

a.   Ensure all URO MRCs are accomplished within the required periodicity as specified by reference (a), Volume V, Part I, Chapter 5 of this manual and this chapter.

b.   For visual inspections in between URO MRC 003 inspections, see Volume V, Part I, Chapter 5, paragraph 5.4.3.c. of this manual for a description of requirements to inspect submarine hull structure in between the periodic URO MRC 003 inspections.

c.   Maintain auditable records of the accomplishment of URO MRCs to permit verification of compliance with reference (a), Volume V, Part I, Chapter 10 of this manual, and this chapter. These records must consist of:

    (1)   A copy of the TYCOM and NAVSEA SUBSAFE Material Certification message from new construction, Depot Modernization Period or overhaul until the ship's current status is reflected in reference (c). When the ship's current status is reflected in reference (c) the messages may be destroyed and the current notice will be retained.

    (2)   Copies of letter of completion for all URO MRC work accomplishment by other activities, including most recent FMA URO Accomplishment Letter. These may be disposed of once accomplishment is captured electronically on ISIC provided SUBMEPP Schedules and Inventories.

    (3)   Copies of letters of completion and inspection reports for work accomplished by Ship's Force. The ship must retain a legible copy of the most current inspection report (or required Data Report Form), until the ship is disposed of

or stricken from the Naval Register. The required report forms are located at the end of the individual URO MRCs. A copy of each completed report must be submitted to the ISIC for review a minimum of 24 hours prior to underway.

(4)   One copy each of the current Quarterly URO MRC inventories and schedules by SUBMEPP via the ISIC. Annotate the URO MRC Inventory Report when accepting completed work requests from the FMA or Ship's Force (LWC 991). It is the ship's responsibility for ensuring that the reports reflect the actual configuration, especially with regards to the equipment identity and the Allowance Parts List.

APPENDIX A

URO MRC AUTOMATED WORK REQUEST FOR SHIP'S FORCE ACCOMPLISHMENT

```
IER622                    *** AUTOMATED WORK REQUEST ***              03 DEC 92 (92338)
OPNAV 4790/2R/Q DEFERRAL                                    AVAIL: P106 (01JAN93-31MAR93)
************************SECTION I.  IDENTIFICATION**************************
1. UIC: 05152        2. OWC: EAJC        3. JSN: 3171      4. APL: 520175132      AILSN: 5520
A. NAME: FINBACK       5. EQUIP: ACCUMULATOR-HYD         13. IDENT: ACCUM MNA FC
B. HULL:  SSN 670        14. EIC: TV01          16. LOCATION:        15. SAFE: NO
6. WHEN DISC: 0     7. EQ STAT: 0      8. CAUSE: 0     9. DEF REA: 6      10. :     11. :     12. :
18. CAT SHIP ALT # RN     PC     F$          19. PI    20. INSURV #  21. SUF  22. MDG  23. SAF  24. P/F
18A. MJC: N0008EAEACKS026
**********************SECTION II.  DEFERRAL ACTION**********************
26. DEF DATE: 23 NOV 92 27. OMA MHR REM: AUTO  28. DEALN DATE: 31 JAN 93  9. DEF REA: 6
********************SECTION III  COMPLETED ACTION************************
29. A/T: _____                  30. OMA MHR EXP: 0000           31. DATE COMP:
SELECT EQUIPMENT              32. AMT: _____     33. TI: 0     34. METER READING:
*********************SECTION IV.  REMARKS/DESCRIPTION********************
35. REMARKS:      CHECK HYD SYS FLOOD CONTROL ACCUMULATORS IAW URO MRC 026 XXX
                  LAST COMPLETED 90001 NEXT DUE DATE 93001
                  MDCO PASS TO SHIP'S FORCE. S/F COMPLY WITH URO 026, COMPLETE
                  BLOCKS 102-104 AND RETURN THIS AWR TO MDCO FOR ADP PROCESS.
                  CONSULT THE TYCOM PMR SCHEDULING SYSTEM FOR SHIP OR COMPONENT
                  SPECIFIC INFO SUCH AS "DD", SPECIAL REQ-MTS, PERIODICITY
                  OR LEVEL OF ACCOMPLISHMENT.
37. CSMP SUMMARY: ACCOMPLISH URO MRC 026
38. 1ST CON:                   39. 2ND CON:
41. PRI: 2          42. T/A: 2        43. INT PRI:   44. IUC SCRN: 2    45. TYC SCRN:
46. SPECIAL PURPOSE:   A-   B-   C-   D-   E-   F-   G-   H-   I-   J-   K-   L-
E. CO _____      F. TYCOM
********************SECTION V.  SUPPLEMENTARY INFORMATION***************
48. REP TM:  MRC URO MRC 026          ON BRD:  NO
49. PREARV:
50. PLNRMK:  MRC URO MRC 026
              *** COMPLETE INSPECTION FINDINGS AND FORWARD IAW URO 026 ***
50A. IUCRMK:
50B. TYCRMK:
50C. IMARMK:
***************************SECTION VI.  PLANNING************************
51. PMR:  URO MRC 026  52. PER:  000     53. ISS:  7512      54. SPEC DATA: HP JC008638
QLV:  55. QA S/S: YES     NUC LI:          1NUC WPR:     SP CLN:     SPECID:     RADCON:
             LI:    NON DT:             SAE DIV:      SP TST:    NOISE:      OTHCON:
56. SR K E: 0091     SP INT: YES         D/D REQ:      PREOVH:    AFTOVH:    DEPART:
K.E.: UROS DUE                           K.E. DATE:                NORMALLY DONE BY:
*********SECTION VII.  REPAIR ACTIVITY  PLANNING/SCHEDULING ACTION*********
57. L/A RWC  58. SKD STRT 59. SKD COMP  60. PMHR 61. K/O  62. TASK
     L 991   01 JAN 93   30 JAN 93      008       001

93. RAUIC: 05851 L Y SPEAR      94. WK RTN #: _____      99. JOB ORDER NO:
95. EST M/D: _____      96. EST M/D $: _____   97. EST MATL $:
98. EST TOT $: _____ 100. LEAD P&E: _____ 101. DATE OF ESTIMATE: 23 NOV 92
102. FAT: _____      103. ACT MHRS EXP: _____ 104. DATE COMP: _____
G. COMPLETED: _____      H. ACCEPTED BY:
****************************SECTION VIII.  SUPPLY DATA*****************
PRI            DOC NUM        NIIN/PART#        DESC          QTY  STATUS
```

APPENDIX B

URO MRC AUTOMATED WORK REQUEST FOR FMA ACCOMPLISHMENT

```
IER622                        *** AUTOMATED WORK REQUEST ***                    03 DEC 92 (92338)
OPNAV 4790/2R/Q DEFERRAL                                           AVAIL: A015* (04JAN93-07FEB93)
***********************SECTION I.  IDENTIFICATION**************************
1. UIC: 05152        2. OWC: EMJC      3. JSN: 3170     4. APL: 884305120        AILSN: 2090
A. NAME: FINBACK          5. EQUIP: VALVE B 3.00 IPS     13. IDENT: MSW-108
B. HULL:  SSN 670    14. EIC: FB08        16. LOCATION:      15. SAFE: NO
6. WHEN DISC:  0      7. EQ STAT:  0       8. CAUSE:  0      9. DEF REA:       6     10.  :    11.  :    12.  :
18. CAT SHIP ALT #RN         PC     F$     19. PI       20. INSURV #      21. SUF      22. MDG 23. SAF 24. P/F
18A. MJC: N0008EMCKC918
*********************SECTION II. DEFERRAL ACTION**********************
26. DEF DATE: 23 NOV 92 27. OMA MHR REM: AUTO28. DEADLN DATE:       9. DEF REA: 6
*********************SECTION III COMPLETED ACTION**********************
29. A/T: _____            30. OMA MHR EXP: 0000               31. DATE COMP: _____
SELECT EQUIPMENT           32. AMT: ___             33.    TI: 0    34. METER READING: _____
*********************SECTION IV. REMARKS/DESCRIPTION*******************
35. REMARKS:     INSPECT BALL VALVE STEM IAW URO MRC 009
                 LAST COMPLETED 90001            NEXT DUE DATE 93001
                 CONSULT THE TYCOM PMR SCHEDULING SYSTEM FOR SHIP OR
                 COMPONENT SPECIFIC INFO SUCH AS "DD", SPECIAL REQ-MTS,
                 PERIODICITY, OR LEVEL OF ACCOMPLISHMENT
37. CSMP SUMMARY:  ACCOMPLISH URO MRC 009
38. 1ST CON:      LPO              39. 2ND CON:
41. PRI:  2       42. T/A:  2      43. INT PRI:  44. IUC SCRN: 2   45. TYC SCRN:
46. SPECIAL PURPOSE:   A-     B-     C-    D-    E-    F-    G-    H-    I-    J-    K-    L-
E. CO _____       F. TYCOM
*******************SECTION V.  SUPPLEMENTARY INFORMATION***************
48. REP TM:  MRC URO MRC 009         ON BRD: NO
49. PREARV: *** COMP INSP FINDINGS AND FORWARD IAW URO/LID MRC 009 ***
50. PLNRMK:
        THIS DEPOT JOB IS ASSIGNED TO IMA BY TYCOM
        *** REPORT INSPECTION FINDINGS AND FORWARD IAW URO 009 ***
50A. IUCRMK:
50B. TYCRMK:
50C. IMARMK:
**********************SECTION VI.  PLANNING**************************
51. PMR:  URO MRC 00952. PER: 000   53. ISS: 7302   54. SPEC DATA: HP1JC006547
QLV:   55. QA S/S: YES       NUC LI:NUC WPR:   SP CLN: SPECID:      RADCON:
         LI:         NON DT:     SAE DIV:     SP TST:    NOISE:    OTHCON:
56. SR K E: 0091          SP INT: YES  D/D REQ:       PREOVH:    AFTOVH:   DEPART:
K.E.: UROS DUE           K.E. DATE:                  NORMALLY DONE BY: 1 DEP
**********SECTION VII.  REPAIR ACTIVITY PLANNING/SCHEDULING ACTION********
57. L/A RWC   58. SKD STRT  59. SKD COMP 60. PMHR    61. K/O  62. TASK
    L 10C        04 JAN 93     18 JAN 93    0002         001      PACKAGE
    A 38A  04 JAN 93    18 JAN 93    0027         001      INSP
    A 93A  04 JAN 93    18 JAN 93    0008         001      INSP
    A 93B  04 JAN 93    18 JAN 93    0002         001      QA
93. RAUIC:  05851 L Y SPEAR        94. WK RTN #: _____        99. JOB ORDER NO: _____
95. EST M/D: _____       96. EST M/D $: _____       97. EST MATL $: _____
98. EST TOT $: _____       100. LEAD P&E: _____       101. DATE OF ESTIMATE: 23 NOV 92
102. FAT: _____      103. ACT MHRS EXP: _____      104. DATE COMP: _____
G. COMPLETED: _____       H. ACCEPTED BY: _____
*************************SECTION VIII.  SUPPLY DATA******************
PRI              DOC NUM          NIIN/PART#         DESC   QTY    STATUS
```

PERIODIC MAINTENANCE REQUIREMENTS

REPORT DATE: 10 APRIL 2003

URO CHANGE NO: 119 Mar 2003

INVENTORY URO/HIP SORTED BY SYSTEM

SSSU NLON

NSSF NLON 68316

COMPID HSC	LINE ITEM RIC	COMP SERIAL EIC	R MJC NO	M PROC TYPE	MAINTENANCE INSTRUCTION DOC	STAT	ML	DD	LAST WRK CTR JSN	CC	LMA DATE	DUE DATE	PER	ALT	JSN	REMARKS/COMPLETION INFO DATE
SYSTEM: 0611 AUDITS AND CERTIFICATION																
SOE DOCUMENT	005716	P10001	N0008EXCKS036	URO	036	IS	O		EXJC1967A		Sep 2002	Sep 2006	48M/R			
0611X5000B	X90613CM140	UE0000							R=T34 Complete at the end of each depot availability but not to exceed 48 months.							
VITAL EQUIP	001252	P10001	N0008EXCKS029	URO	029	IS	O			X	Jan 2001	Jan 2005	48M/R			
0611X1000A	X90613V0001	IC03000							R=T34 Complete at the end of each depot availability but not to exceed 48 months.							
SYSTEM: 1110 SUPERSTRUCTURE AND FAIRWATER																
FAIRWATER	001257	P1005	N0007WKCKC920	URO	003	IS	D	D			Feb 1994	Feb 2004	120M			
1111X1000J	X90613V0001	A600000														
SYSTEM: 1310 PRESSURE HULL																
ASW1/2	007333	P10035	N0007WKCKC920	URO	003	IS	D	D		X	Jan 2001	Jan 2007	72M			
1311XAB11C	X90613CM027	1108000														
ASW29/30 INS	007334	P10034	N0007WKCKC920	URO	003	IS	D	D		X	Jan 2001	Jan 2007	72M			
1311XAB12C	X90613CM027	1108000														
ASW80/81	007335	P10033	N0007WKCKC920	URO	003	IS	D	D		X	Jan 2001	Jan 2007	72M			
1311XAA73C	X90613CM027	1108000														
CD 35 INSR	007336	P10031	N0007WKCKC920	URO	003	IS	D	D		X	Jan 2001	Jan 2007	72M			
1311XA781C	X90613CM027	1108000														
CD 4 INSR	007337	P10032	N0007WKCKC920	URO	003	IS	D	D		X	Jan 2001	Jan 2007	72M			
1311XA711C	X90613CM027	1108000														
CD 1/2 INSR	007338	P10029	N0007WKCKC920	URO	003	IS	D	D		X	Jan 2001	Jan 2007	72M			
1311X8980C	X90613CM027	1108000														

APPENDIX C
SUBMEPP URO MRC INVENTORY

VI-25C-1

APPENDIX C

PERIODIC MAINTENANCE REQUIREMENTS

INVENTORY URO/HIP SORTED BY SYSTEM

REPORT DATE: 10 APRIL 2003

CUTOFF DATE: 01 OCT 2003

URO CHANGE NO: 119 Mar 2003

SSSU NLON

NSSF NLON 68316

COMPID HSC	LINE ITEM RIC	R COMP SERIAL EIC	MJC NO	M PROC TYPE	MAINTENANCE INSTRUCTION DOC	STAT	M L	D D	LAST WRK CTR JSN	C C	LMA DATE	DUE DATE	PER	ALT	JSN	REMARKS/COMPLETION INFO DATE
SYSTEM: 5182 STEERING AND DIVING (STRUCTURAL, MECHANICAL, AND ELECTRICAL CONTROL)																
LKG STDIV DR	003361	P12140	N0008EACKS016	URO	016	IS	O/		EAJC1962A		Sep 2002	Sep 2003	9M/R	12M		
5182X1811B		X90613CM100	TL06000						R=260 Complete at the end of each depot availability but not to exceed 9 months from the last accomplishment							
SYSTEM: 5400 NORMAL AND EMERGENCY BALLAST TANK BLOW (TITLE FOR 688 CLASS IS EMBT BLOW)																
RISE BLOW	003813	P12548	N0008EACKS022	URO	022	IS	O		EAJC1963	X	Jan 2002	Jan 2003	12M			
5401X0101A		X90613BL001	TF01000													
STATBLOW LOC	003814	P12546	N0008EACKS022	URO	022	IS	O		EAJC1963	X	Jan 2002	Jan 2003	12M			
5401X0105A		X90613BL001	TF01000						R=260 Complete at the end of each depot availability but not to exceed 12 months from the last accomplishment.							
STATBLOW REM	003815	P12547	N0008EACKS022	URO	022	IS	O		EAJC1965	X	Jan 2001	Jan 2007	72M			
1311XAB11C		X90613CM027	1108000						R=260 Complete at the end of each depot availability but not to exceed 12 months from the last accomplishment.							
SYSTEM: 5520 MAIN AND VITAL HYDRAULIC (TITLE FOR 688 CLASS IS SHIP'S SERVICE HYDRAULICS)																
HULL CLOSURE	004440	P13205	N0008EACKS025	URO	025	IS	O		EAJC2188	X	Jan 2002	Jun 2003	72M			
1311XAB12C		X90613CM027	1108000						R=261 Complete at the end of each depot availability but not to exceed 7 months from the last accomplishment.							

APPENDIX D
SUBMEPP URO MRC SCHEDULE

APPENDIX E

REQUEST FOR URO MRC PERIODICITY EXTENSION FORMAT

4790
Ser

From: Commander, Submarine Squadron
To: Commanding Officer, Submarine Maintenance Engineering, Planning and
         Procurement (SUBMEPP) Activity
Via: Commander Submarine Force, (Atlantic or Pacific Fleet)

Subj: REQUEST FOR EXTENSION OF PERIODICITY FOR URO MRC(S) _____ ON
         USS (Ship's Name and Hull No.)

Ref: (a)   Applicable URO MRC
         (b)   COMUSFLTFORCOMINST 4790.3; Joint Fleet Maintenance Manual,
                Volume VI, Chapter 25
         (c)   COMSUB(LANT or PAC) ltr 4790 Ser ____ of (previous letter granting
                extension of periodicity)

1. Per references (a) and (b), request extension of URO MRC periodicity for USS (Ship's Name
and Hull No.) to coincide with Selected Restricted Availability, Overhaul, Depot Modernization
Period or Interim Dry-Docking using the data in this table:

URO MRC	Equipment Guide List Item Number or Component Ident	LMA Date	Current Due Date	Inactive Time		Extension Required	Required Next Due Date
				Pierside Days *	Drydock Days		
001	All	June 82	Apr 91	200 days	100 days	7 months	Nov 91
002	All	June 82	Aug 91	N/A	100 days	3 months	Nov 91
003	4.b	June 82	Aug 91	N/A	100 days	3 months	Nov 91
004	INT Welds	June 84	Apr 91	200 days	100 days	7 months	Nov 91
005	INT Welds	June 84	Apr 91	200 days	100 days	7 months	Nov 91
035	All	June 84	Aug 91	N/A	100 days	3 months	Nov 91

    * Credit for pierside days is awarded for days the ship is tied to the pier. No credit is given if
    the ship is underway anytime during the day.

2. Inactive time identified for the URO MRCs listed in paragraph 1 is the actual allowable time
accrued to date since URO MRC was last accomplished or previous extension of periodicity was
granted by reference (c).

Copy to:
COMNAVSEASYSCOM (SEA 07) (080)
Commanding Officer, USS (Ship's Name and Hull No.)

APPENDIX F

SAMPLE WORK PACKAGE SUPPLEMENT

OWP ISSUE: PROPOSED
URO CHANGE NO. 076
SWLIN 131A01: PRESSURE HULL

USS JACKSONVILLE (SSN 699) SRA 1-2
WORK PACKAGE SUPPLEMENT
SHIPYARD PLANNING & FEEDBACK REPORT

PART 1 - SWLIN 131A01
22OCT92

WP ALIGN REMARKS	COMP IDENT	APL/RIC	HSC	COMPONENT DESCRIPTION	SS DD PMR NUMBER	MAINTENANCE STANDARD	R/D CONDITION

SURVEILLANCE OF ITEM NO. 12 HULL WELDS

WP   WP SECTION: 27.0136.U001   PERFORM NDT SURVEILLANCE INSPECTION OF SELECTED HULL WELDS (URO MRC 001)   SS DD URO-001   LVL: SY   LOWEST LVL: I   URO MRC 001   A B C

ITEM-12   NONE

EXTERNAL FRAME HULL WELD DISCONTINUITIES

WP   WP SECTION: 27.0144.U005   PERFORM ULTRASONIC MONITORING INSPECTION OF HULL WELDS WITH KNOWN DISCONTINUITIES (URO MRC 005)   SS DD URO-005   LVL: SY   LOWEST LVL: I   URO MRC 005   A B C

EXT WELDS NONE

PRESSURE HULL (VISIBLE FROM DRYDOCK)

WP   WP SECTION: 27.0165.U003   CONDUCT HULL STRUCTURAL SURVEY (URO MRC 003)   SS DD URO-003   LVL: SY   LOWEST LVL: I   URO MRC 003   A B C

P/H VIS DD NONE   EGL ITEM 13A

TAPPED HOLES FOR DRY DOCK CONNECTIONS & STRAINER PLATES

WP   WP SECTION: 27.0305.1302   INSPECT: REPAIR   131-0006-01   LVL: SY   LOWEST LVL: D   TRS 7650-086-001   A B C
SECT 4.2

TAPPED HOLES NONE

SYSTEM ZINCS

WP   WP SECTION: 74.0020.1303   INSPECT: REPLACE   DD 131-0095-02   LVL: IMA   LOWEST LVL: MRC 087-0021-02   A B C

ZINCS   NONE

SWLIN 131A01   PART 1 PAGE - 1

VOLUME VI

CHAPTER 26

OPERATING DEPTH POLICY

REFERENCES.

    (a)   NAVSEA S9086-DA-STM-000 - NSTM Chapter 100 (Hull Structures)
    (b)   COMNAVSUBFOR OPORD 2000
    (c)   NAVSEAINST C9094.2 - Submarine Valve Operation Requirements for Builders and Post Overhaul Sea Trial Test Dives

26.1 PURPOSE. To provide Type Commander (TYCOM) policy with respect to the maximum allowable operating depths during trials, evolutions to be performed at the various depths, and the prescribed maximum water depth applicable in each case. Some deep diving submarines are limited to depths less than designed test depth pending accomplishment of certain hull and system modifications prescribed by Naval Sea Systems Command (NAVSEA) as necessary to permit certification to design test depth. As these modifications are accomplished during the availability, the integrity of the ships will be certified and they will be permitted to operate down to their design test depth either periodically or without restriction.

    a.   The sequence of events leading to authorization for operations at the maximum operating depth during postindustrial availability or new construction trials for SUBSAFE ships is:

        (1)   Upon completion of the authorized industrial facility work, NAVSEA reviews the scope, degree and manner of accomplishment and recommends to the TYCOM that the submarine be authorized to test hull strength and integrity at an appropriate maximum keel depth during trials. This depth may be the designed test depth or a lesser depth.

        (2)   Based on this recommendation the TYCOM will normally authorize operation to the NAVSEA recommended keel depth by message to the ship, information to the applicable Immediate Superior In Command (ISIC), Supervising Authority or Industrial Activity (as applicable), NAVSEA, Fleet Commander and Chief of Naval Operations.

    b.   In every instance where the maximum authorized operating depth is exceeded, a report must be made per reference (a). In addition to those addressees listed in reference (a), an information copy must be provided to the applicable TYCOM and ISIC.

26.2 INITIAL TIGHTNESS DIVE. The initial tightness dive following an industrial availability or new construction will be conducted following carefully planned procedures.

    a.   The initial tightness dive will be an especially deliberate, planned, step-by-step evolution using conservative angles and moderate speed, or slower, following the approved Sea Trial Agenda. Caution is required not only because the material condition of the ship is untested at any depth following major industrial facility work, but also because of the crew's lack of recent submerged operational experience. Reference (b) applies.

b.   The maximum water depth allowable during the initial tightness dive will be as specified by reference (b). The approved Sea Trial Agenda and reference (c) describe those events to be conducted during the initial tightness dive and provide the requirements of the initial tightness dive. The approved Sea Trial Agenda also describes those events immediately following the initial tightness dive. The maximum operating keel depth will be 200 feet.

26.3 <u>DEEP DIVE OR CONTROLLED DIVE</u>. After demonstrating satisfactory hull strength and integrity during the initial tightness dive, the requirement exists to test the hull at submerged depths down to the maximum operating depth. The first approach to these depths subsequent to the repair of major hull or sea connected systems work will be made per the following subparagraphs 26.3.1 through 26.3.4.

26.3.1 <u>Depth Limitations</u>. The Deep Dive or Controlled Dive must be made to the maximum operating depth in water specifically designated for such trials and under specific water depth restrictions per reference (b), and as promulgated in the appropriate TYCOM or ISIC Operation Order.

26.3.2 <u>Conduct of Deep Dives or Controlled Dives</u>. Deep Dive or Controlled Dive depth changes should be conducted in no greater than 200-foot increments when above one-half the maximum operating depth and in no greater than 100-foot increments when below one-half the maximum operating keel depth. Moderate speeds (within the limits of the submerged operating envelope) and angles must be used. Trim must be continually adjusted to provide neutral buoyancy.

26.3.3 <u>Deep Submergence Bill</u>. The Deep Submergence Bill must be in effect with systems in the maximum secure condition and all unnecessary sea connected systems isolated. The main ballast tank blow system must be lined up with all banks within 200 psi of full pressure. Cycling of the rudder and planes through full travel should be limited to the maximum authorized operating depth minus 100 feet at a moderate speed.

26.3.4 <u>Valve Operation</u>. Seawater system valve operations during postindustrial availability and new construction Sea Trials will be per reference (c).

VOLUME VI

CHAPTER 27

**SCHEDULED PRESERVATION UPKEEP
COORDINATED EFFORT**

REFERENCES.

(a)   NAVSEA S9510-AB-ATM-010 - Nuclear Powered Submarine Atmosphere Control
       Manual, Volume 1
(b)   NAVSEA S9510-AB-ATM-020 - Nuclear Powered Submarine Atmosphere Control
       Manual, Volume 2
(c)   NAVSEA S9086-VD-STM-010 - NSTM Chapter 631 (Preservation of Ships In-
       Service - General)
(d)   SMS 6310-081-015 - Submarine Preservation General Painting
(e)   OPNAVINST 5100.19 - Navy Occupational Safety and Health (NAVOSH) Program
       Manual for Forces Afloat
(f)   SOBT Video SVT-GT-9336 - Submarine Preservation

LISTING OF APPENDICES.

A   SPRUCE Key Event Schedule
B   SPRUCE Report Form
C   SPRUCE Check List

27.1 PURPOSE. The Scheduled Preservation Upkeep Coordinated Effort (SPRUCE) program
has been established to ensure internal preservation is maintained at the highest possible level
throughout the life of the ship. As a result of increased intervals between submarine Chief of
Naval Operations Maintenance Availabilities, effective SPRUCE upkeeps are of prime
importance. SSBN 726 and SSGN 726 Class submarines are exempt from SPRUCE upkeeps.
Under special circumstances, requests for SPRUCE upkeeps on SSBN726 or SSGN 726 Class
submarines will be considered and must be conducted per this chapter.

27.2 SCHEDULING.

a.   Immediate Superiors In Command (ISIC) must schedule a three-week SPRUCE below
      decks every 48 months. The SPRUCE must contain a 14-day production period which
      will not be scheduled to commence sooner than two days following an underway
      period. Per references (a) and (b), underway periods must not be scheduled within
      five days of completion of the production period. In summary:

Ship returns to port	0 days
Preparation period	2 days
Production period	14 days
Gas off period	5 days
TOTAL	21 days

b.   ISICs must utilize every effort to accomplish a full three week SPRUCE consisting of 14 days of production. ISICs may approve a shorter SPRUCE below decks of 5 to 14 days of production time on a case-by-case basis due to operational requirements. Total allotted time for SPRUCE will at no time be less than 12 days to encompass preparation and gas off periods. A shorter production period will equate to a corresponding reduction in the overall amount of square footage accomplished during the scheduled period. When a shorter period is executed for below decks SPRUCEs, meticulous attention should be given toward the accomplishment of additional below deck SPRUCE periods to ensure sufficient preservation is achieved to facilitate 33+ years hull life. SPRUCEs not meeting three weeks in duration must be properly documented by ISICs to ensure a complete history of ship's preservation is available.

Ship returns to port 0 days

Preparation period 2 days

Production period XX days

Gas off period 5 days

TOTAL 7+XX days

c.   ISICs must schedule a one-week SPRUCE for the sail interior every 24 months. Sail SPRUCEs can be coincidental with routine availabilities.

d.   A SPRUCE must not be scheduled during other Ship's Force or Fleet Maintenance Activity (FMA) upkeeps with the exception of the five-day gas off period which may be scheduled during a follow-on upkeep. A SPRUCE should not be scheduled within the six-month period prior to a Chief of Naval Operations Maintenance Availability. A SPRUCE should not be scheduled within six months after a Depot Modernization Period (DMP), Engineered Refueling Overhaul, or Engineered Overhaul because of the industrial activity's preservation programs.

e.   The initial base date for scheduling is the official completion date of the ship's last DMP, Engineered Refueling Overhaul or Engineered Overhaul.

27.3 RESPONSIBILITIES.

27.3.1 Type Commander.

a.   Administer the SPRUCE program.

b.   Maintain a file of SPRUCE lessons learned and distribute to ensure that all commands concerned have the latest information available.

27.3.2 Immediate Superior In Command.

a.   Schedule and coordinate SPRUCE upkeeps per the Key Event Schedule of Appendix A of this chapter.

b.   Coordinate submarine crew training.

c.   Monitor the effectiveness of the SPRUCE program.

d. Chair a SPRUCE debrief with Ship's Force and FMA to review the effectiveness of the SPRUCE and generate lessons learned. The results of this meeting will be included in the Ship's SPRUCE completion letter.

27.3.3 Fleet Maintenance Activity.

a. Provide training, tools, consumables, services, and required support personnel.

b. Provide technical guidance consisting of around the clock coverage by a coatings inspector trained to the requirements of reference (c) and reference (d), as applicable. The coatings inspector will perform all inspections necessary to ensure proper preservation is accomplished and will complete Appendix B of this chapter for each area preserved. All completed forms from Appendix B of this chapter will be submitted to the ship for inclusion into their SPRUCE completion letter.

27.3.4 Submarine Commanding Officer.

a. Ensure preservation is performed by Ship's Force using the procedures contained in references (c) and (d), as applicable, through (f).

b. Ensure Ship's Force personnel are relieved of all requirements other than those necessary to maintain the safety and security of the ship during the SPRUCE.

c. Designate an officer or Chief Petty Officer (CPO) to serve as the SPRUCE Manager.

d. Ensure the ship is divided into preservation zones. Each zone will have an officer or CPO in charge during the SPRUCE. Conduct a thorough preservation inspection of each zone, assisted by an FMA coatings inspector (if possible) at least 90 days prior to the start of the SPRUCE to determine and prioritize the preservation to be accomplished. Appendix C of this chapter must be reviewed as part of this inspection.

e. Submit completion letter to the Type Commander (TYCOM) via the chain of command. This letter must report results of the SPRUCE, problems encountered, lessons learned, and must contain completed forms from Appendix C of this chapter.

APPENDIX A

SPRUCE KEY EVENT SCHEDULE

1. The ISIC is responsible for ensuring adherence to the following schedule to assure the effective planning of a SPRUCE upkeep. The ISIC will act for the ship to complete items should an underway period preclude timely accomplishment. The ISIC will alert the ship's Commanding Officer and the TYCOM in the event that any of the following time frames will be exceeded.

DAY	ACTION
-90	ISIC ensure SPRUCE is on the ship's operating schedule. Schedule the SPRUCE with the FMA. Notify TYCOM (N3, N4, or both) of planned SPRUCE dates.
-90	Commanding Officer assign SPRUCE manager and zone supervisors. Ship and FMA conduct preservation inspection.
-90	Commanding Officer submit OPNAV 4790 2K or 2L requests for powder coating services. Ships must make effective use of these services to enhance the effectiveness of preservation for components located in hostile environments.
-90	ISIC and Commanding Officer arrange for respiratory protection physicals, initial respiratory training for the ship's Hospital Corpsman, and respirator fit-checks for crew by FMA Occupational Safety and Health personnel. The crew must be trained in respirator use by the ship's Hospital Corpsman.
-90	ISIC and Commanding Officer make plans for crew technical training.
-30	Commanding Officer establish painting "Tiger Team" and ensure adequate number of personnel are assigned to accomplish the upkeep commensurate with ship checks. The Tiger Team should include personnel not necessary to maintain the safety and security of the ship. Issue a SPRUCE watchbill.
-30	Commanding Officer review and conduct training with assigned personnel and Work Center Supervisors. Establish a General Military Training program incorporating requirements of references (c) and (d), as applicable, (e), and (f) and the ship's paint schedule. Provide the SPRUCE Plan of Action and Milestone to the ISIC for review.

2. Conduct a 21-Day SPRUCE in the following manner:

DAY	ACTION
-2	Tiger team make preparations for SPRUCE.
1-2	Ship's Force preparations for SPRUCE.
3-16	Ship's Force execute SPRUCE preservation work.

DAY	ACTION
16	ISIC, Commanding Officer, FMA conduct SPRUCE debrief. Commanding Officer submit SPRUCE completion letter.
21	Ship's first available underway date.

APPENDIX B

SPRUCE REPORT FORM

SPRUCE REPORT FORM 4790.3   INSPECTOR

Ambient Conditions	Location Fr#	Date	Time	Date	Time	Date	Time
Air Temperature							
Wet Bulb Temperature							
Relative Humidity							
Surface Temperature							
Dew Point							
Hours Left Uncoated (Bare Metal)							

Coat #	Paint Manufacturer's Name and Description	Batch Number	Application Method	Time Allowed to Cure	DFT Before this coat	WFT Measurements		M i n	M a x	DFT Measurements		M i n	M a x

Coat #	Mixing		Holidays	Defects/Comments

Surface Preparation

Pre-Inspection Comments _____

_____

Defects Corrected _____

_____

Pre-Cleaning Method _____

Comments _____

_____

APPENDIX C

SPRUCE CHECK LIST

1.   Has a Navy Occupational Safety and Health or Environmental Protection Agency representative been onboard to ensure compliance with occupational health and environmental regulations?

2.   Is the ship aware of all required training (Hazardous Material, Respirator, Technical)?

3.   Assess level of effort required to accomplish SPRUCE. Assess type and quantity of tools and paint required. FMA informed for planning purposes.

4.   FMA coatings inspector review SPRUCE report form (Appendix A of this chapter) of this chapter requirements with the ship. Discuss why, how, and when these inspections are required.

5.   Does the ship have a copy of Submarine On Board Training Video SVT-GT-9336 (Submarine Preservation)?

6.   Does the ship hold the most recent revisions to NSTM Chapter 631 (Preservation of Ships In-Service - General) and reference (d)?

7.   Is the ship aware of the appropriate uses of powder coatings?

8.   Does the ship hold the most recent "lessons learned" distribution from the TYCOM?

VOLUME VI

CHAPTER 28

CABLEWAY ASSESSMENT

REFERENCES.

    (a)   NAVSEAINST 9304.1 - Shipboard Electrical Cable and Cableway Inspection and Reporting Procedures

    (b)   DOD-STD-2003 - Military, Standard, Electric Plant Installation Standard Methods for Surface Ships and Submarines

LISTING OF APPENDICES.

    A   Sample Cableway Assessment Message

28.1 PURPOSE. The Cableway Assessment Program is a comprehensive inspection of shipboard electrical and fiber optic cables, conducted by Fleet Maintenance Activity (FMA) cableway assessment teams. The requirements for cableway assessments are contained in reference (a), which defines the training requirements, assessment criteria, and reporting procedures relevant to the assessments.

28.2 HAZARD CATEGORIES. The surface force ships and aircraft carriers electrical cable and cableway assessment program is designed to identify and correct cable and cableway safety hazards in a prioritized, orderly manner, consistent with ship and personnel safety. The three categories of deficiencies are defined as:

    a.   Category 1 - IMMEDIATE HAZARD: Deficiencies which are, or have the immediate potential to be, personnel safety hazards, electrical fire hazards, or which negate firebreak integrity.

    b.   Category 2 - POTENTIAL HAZARD: Deficiencies which require corrective action to ensure continued reliable safe performance or to maintain watertight integrity, but are not an immediate danger to personnel or equipment.

    c.   Category 3 - NON-HAZARDOUS: Deficiencies which are not hazardous to personnel or equipment but are not in compliance with approved standard installation practices.

28.3 DEFICIENCY CORRECTION. The intent of this program is to ensure that deficiencies classified as Category 1 are corrected immediately. Deficiencies classified as Category 2 should be scheduled for repair during the ship's next regularly scheduled industrial availability as work priority permits. Category 3 deficiencies should be corrected whenever such repairs can be accomplished in conjunction with other scheduled repairs or alterations involving the cables or cableway in which the deficiencies exist.

28.4 ASSESSMENT SCHEDULING.

28.4.1 Initial Assessment. Initial cable and cableway assessments are conducted on each ship to establish a baseline configuration to ensure compliance with reference (b).

28.4.2 <u>Follow-up Assessments</u>. Follow-up assessments must be conducted within 12 months prior to a major or minor Chief of Naval Operations availability. The purpose of this assessment is to validate the integrity of ship's cableways, identify discrepancies that require depot or commercial level work effort, and to train responsible Ship's Force personnel to meet requirements of paragraph 28.6.5 of this chapter. Both the initial and follow-up assessments will be comprehensive, complete ship assessments.

28.4.3 <u>Partial Assessments</u>. Following availabilities which modify shipboard cableways, ships may request partial assessments to validate the quality of the modified or newly installed cableways.

28.5 <u>CABLEWAY ASSESSMENT ASSIST TEAM COMPOSITION AND PROCEDURES</u>.

a. FMA Electrical Cableway Assessment shops ideally consist of 12 FMA personnel. The recommended shop manning is six certified personnel and six personnel in training. Certified personnel must have satisfactorily completed a cableway assessment or repair training course and satisfactorily demonstrated their practical knowledge based on enclosure (1) of reference (a). Personnel in training may assist in cableway assessments after satisfactorily completing the classroom training modules per reference (a) and satisfactorily demonstrating their practical knowledge to an FMA appointed certifying assessor. Assessors should be E5 or above, with shipboard experience, and from the following source ratings: AE, EM, ET, EW, FC, FT, GM, GSE, IC, IT, STG, and STS.

b. For assessment or assist visit purposes, the FMAs should establish sub-teams of one certified assessor, one trainee, and one Ship's Force member. Assign as many sub-teams as necessary to assess the entire ship. The assessed ship will assign a minimum of one Ship's Force person per FMA sub-team from the source ratings in sub-paragraph a, for the purpose of training, and to assist in shipboard assessment and repairs. Each FMA will assign one HT (qualified welder) to assist during shipboard cableway repairs.

c. In addition to technical training, all team members must be trained to administer Cardio-Pulmonary Resuscitation.

d. Upon completing the assessment of the entire ship, assessment teams will assist in the correction of cableway deficiencies as time and schedules permit. Repair efforts will concentrate on removal of dead-ended cables, correction of watertight integrity items, and Category 1 discrepancies.

28.6 <u>RESPONSIBILITIES</u>.

28.6.1 <u>Immediate Superior In Command</u>. Ensure assigned ships are scheduled to receive required cableway assessments and training.

28.6.2 <u>Regional Maintenance Center</u>. Schedule assigned ships for cableway assessments or assist visits and coordinate the training effort of Ship's Force personnel by the FMA.

28.6.3 <u>Fleet Maintenance Activity</u>.

a. Establish the following to support the Electrical Cableway program:

(1) Electrical Cableway Assessment and Repair Teams for the accomplishment of scheduled cableway assessments.

(2) Training program to support FMA training needs as specified in Part II of enclosure (1) of reference (a).

(3) Training program for ship's personnel. Training of Ship's Force personnel will include classroom training before the assessment and shipboard practical training during the assessment.

b. Give daily progress reports (briefing, if possible) to ship's Commanding Officer, identifying Category 1 findings and any other areas of concern.

c. Upon completion of the assessment, submit a final report per Appendix A of this chapter to the applicable Type Commander (TYCOM) (N434), info the Immediate Superior In Command (ISIC) and the Regional Maintenance Center. The final report should contain a list of Ship's Force personnel trained as cableway assessors or repairmen, including names and rate and rank.

28.6.4 <u>Cableway Assessment Team</u>.

a. Locate, identify, and categorize electrical cableway discrepancies on ships.

b. Train Ship's Force to assess, repair, and maintain shipboard cableways.

c. Correct identified discrepancies which are beyond Ship's Force capability, or document discrepancies for future correction.

d. Provide guidance for the repair of deferred discrepancies.

28.6.5 <u>Ship Commanding Officer</u>.

a. Assign Ship's Force personnel (E4 or above) from source ratings listed in paragraph 28.5.a of this chapter for FMA cableway assessment repair training. After completing training, they will serve as quality assurance personnel to minimize future discrepancies by contractors and electrical installation teams. They should identify, track, and repair cableway discrepancies within their departments.

b. Correct outstanding discrepancies listed in the final cableway assessment report.

c. Within 30 days of completion of the assessment, enter all unrepaired Category 1 discrepancies in the Current Ship's Maintenance Project. Schedule these items for corrective action at the earliest opportunity.

28.7 <u>REPORTS</u>. Upon completion of the cableway assessment, the assessing agency must submit a final report using the format of Appendix A of this chapter.

APPENDIX A

SAMPLE CABLEWAY ASSESSMENT MESSAGE

FM (FMA)//
TO USS (SHIP'S NAME AND HULL NO.)//
INFO ISIC//(AS APPROPRIATE)
RSG/RMC//(AS APPROPRIATE)
BT
UNCLAS//N04790//
MSGID/GENADMIN/(ORIGINATING FMA)//
SUBJ/ ELECTRICAL CABLEWAY ASSESSMENT REPORT FOR USS (SHIP'S NAME
AND HULL NO.)//
REF/A/DOC/COMUSFLTFORCOMINST 4790.3//
AMPN/REF A IS JOINT FLEET MAINT MAN/VOL VI CH 28 PROVIDES GUIDANCE IN
CABLEWAY INSPECTIONS//
RMKS/1. CABLEWAY ASSESSMENT OF USS (SHIP'S NAME AND HULL NO.) WAS
CONDUCTED PER REF A FROM (START DATE) TO (COMPLETION DATE) BY
(INSPECTING UNIT). RESULTS ARE:

	CAT 1	CAT 2	CAT 3	TOTAL
ITEMS IDENTIFIED	_____	_____	_____	_____
ITEMS CORRECTED	_____	_____	_____	_____
ITEMS REMAINING	_____	_____	_____	_____
ITEMS DOWNGRADED	_____	_____	_____	_____

2. CABLE/CABLEWAY DISCREPANCIES.

	QUANTITY	PERCENTAGE
DEAD-ENDED CABLES	_____	_____
IMPROPER EQUIPMENT/BULKHEAD PENETRATIONS	_____	_____
COLLARS/CHAFING RINGS WITHOUT FIRE STOP	_____	_____
MISSING CABLE HANGERS	_____	_____
TUBES NOT PACKED	_____	_____
TUBES NOT BLANKED	_____	_____
CHAFED CABLES	_____	_____
EQUIPMENT IMPROPERLY MOUNTED	_____	_____
CONNECTERS MISSING TEMPSEAL	_____	_____
IMPROPER SPLICES	_____	_____
EXCESSIVE SLACK IN CABLES	_____	_____
INCORRECT BEND RADIUS	_____	_____
MISSING COVERS	_____	_____

IMPROPER BANDING	_____	_____
IMPROPER CABLE RUNS	_____	_____
FIRE BOUNDARIES MISSING FIRE PROTECTIVE COATING	_____	_____

3. THE FOLLOWING ITEMS WERE CORRECTED:

	QUANTITIES
DEAD ENDED CABLES	_____
DEAD ENDED CABLES PROPERLY END SEALED	_____
NEW CABLES INSTALLED	_____
IMPROPER EQUIPMENT PENETRATIONS DOWNGRADED WITH APPROVED METHODS	_____
FIRE BOUNDARIES TREATED WITH FIRE PROTECTIVE COATING	_____

(LIST ANY OTHER TYPES OF DISCREPANCIES AND QUANTITIES CORRECTED)

4. FIRE PROTECTIVE COATING (TYPE) HAS BEEN APPLIED TO ALL ELECTRICAL PENETRATIONS THROUGH DESIGNATED FIRE ZONE BOUNDARIES (IF ALL DESIGNATED BOUNDARIES WERE NOT COATED, IDENTIFY REMAINING BOUNDARIES TO BE COATED).

5. ELECTRICAL CABLE/CABLEWAY INSPECTION IS COMPLETED (OR) ELECTRICAL CABLE/CABLEWAY INSPECTION IS COMPLETE WITH THE FOLLOWING EXCEPTIONS (LIST COMPARTMENTS OR IDENTIFY BOUNDARIES).

6. THE FOLLOWING SHIP'S FORCE PERSONNEL WERE TRAINED AND HAVE SATISFACTORILY DEMONSTRATED THEIR PRACTICAL KNOWLEDGE IN CABLEWAY INSPECTION AND REPAIR TECHNIQUE. PERSONNEL HAVE BEEN INFORMED OF THEIR RESPONSIBILITY FOR QUALITY ASSURANCE OF CABLEWAYS INCLUDING INSPECTION AND MAINTENANCE OF CABLEWAYS:

NAME	RATE/RANK	DOD ID#
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

BT

NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS UTILIZED.

VOLUME VI

CHAPTER 29

**HEAT STRESS CONTROL AND REPAIR OF
THERMAL INSULATION**

REFERENCES.

  (a) NAVSEA S9086-VH-STM-010 - NSTM Chapter 635 (Thermal, Fire and Acoustic
       Insulation)
  (b) OPNAVINST 5100.19 - Navy Occupational Safety and Health (NAVOSH) Program
       Manual for Forces Afloat
  (c) NAVSEA S9086-RQ-STM-010 - NSTM Chapter 510 (Heating, Ventilation, and Air
       Conditioning Systems for Surface Ships)

LISTING OF APPENDICES.

  A   Inspection Guide for Excessive Heat

29.1 PURPOSE. To provide guidance for reducing excessive heat generation and the control of
asbestos lagging and insulation material.

29.2 HEAT STRESS.

  a.   Excessive temperatures not only cause discomfort to personnel and the risk of burns
        from hot surfaces, but also lead to inattentive or inefficient watch standing, and the
        inability to perform maintenance. They also lead to jury-rigging of ventilation
        systems, often making the situation more severe. While the principal problems are
        centered in the engineering spaces, these conditions also exist in other heat producing
        spaces (i.e., laundries, sculleries, and auxiliary machinery spaces).

  b.   The causes of excessive temperatures in ship machinery spaces are:

        (1)   Radiant heat from steam piping valves and machinery which has missing,
              water-soaked, or deteriorated insulation.

        (2)   Steam and water leaks.

        (3)   Boiler air casing leaks.

        (4)   Ventilation system deficiencies, such as, inadequate cleaning, improper
              maintenance or grooming, and design inadequacies.

  c.   Several steps have been taken toward correcting the problem of heat stress.

        (1)   Fleet Maintenance Activities (FMA) have increased their capability to
              accomplish lagging of piping and machinery.

        (2)   Special teams have been set up in some FMAs to aid ships in inspecting for
              insulation deficiencies.

        (3)   FMAs are outfitted with hand held pyrometers.

        (4)   Fire room lagging repairs are priority items during Chief of Naval Operations
              Maintenance Availability.

29.2.1 <u>Measurement of Insulation Surface Temperatures</u>.

    a.   Check and calibrate the pyrometer per the instrument directions. Checking for the proper emissivity setting is particularly important. The following emissivities apply to this procedure:

        (1)   Navy white paint (clean) - 0.9

        (2)   Navy aluminum paint (clean) - 0.4

    b.   Sight the pyrometer on the object to be inspected. Record pyrometer readings for each location tested. Measure and record ambient dry bulb readings in proximity to the surface being inspected for each location being inspected. When inspecting piping systems, scan the pipe run with the pyrometer. When a location with deteriorated insulation, producing a hot spot, is passed, the readings will increase significantly. Record this location as requiring insulation replacement.

        (1)   Items or systems being inspected must be at normal operating conditions and temperatures.

        (2)   If the pyrometer acts erratically (i.e., zero not adjustable), place the instrument in a cool air stream until the instrument stabilizes and then proceed with the readings.

        (3)   When not in use, store the pyrometer in an area having an ambient temperature of less than 100 degrees F.

    c.   Determine the maximum allowable surface temperature, as shown in reference (a). If the recorded temperature exceeds the maximum allowed per reference (a), corrective action must be taken.

    d.   Appendix A of this chapter is a checklist guide to be used in locating areas of excessive heat generations.

29.2.2 <u>Heat Stress Area Stay Times</u>. Heat stress is measured with a Wet Bulb Globe Thermometer per the instructions contained in reference (b). Using the Wet Bulb Thermometer readings, calculate stay times from the Stay Time Tables of reference (b).

29.3 <u>INDUSTRIAL AVAILABILITY LAGGING PLAN</u>. For any industrial availability period where major lagging work is expected, prepare an overall lagging plan, and schedule repairs that permit coordination with other planned work. The plan must show which areas to be repaired contain asbestos. Visual inspection and use of a pyrometer, when underway, is normally sufficient to reveal areas needing repair or replacement. For each piping system inspected, mark up a copy of the system piping diagram to show specific repairs needed, and attach the marked up diagram to an OPNAV 4790/2K work request.

29.4 <u>ASBESTOS LAGGING AND INSULATION</u>.

29.4.1 <u>Asbestos Control and Safety</u>. All personnel must understand and adhere to the policies and procedures provided in references (a) and (b) regarding the handling of asbestos. Those persons that meet the criteria in reference (b) must be enrolled in the Asbestos Medical Surveillance Program.

29.4.2 Repairs to Asbestos Lagging or Insulation. Exposed asbestos thermal insulation poses a danger to personnel who may breathe in the airborne fibers. Damaged asbestos insulation must not be left unattended. Corrective measures include:

    a.   Application of ARABOL (MIL-A-3316) for minor insulation damage.

    b.   Use of aluminized fibrous glass to protect insulation in high traffic area.

    c.   Use of chafing gear and other protection to reduce damage.

    d.   Training work center or work party personnel who may be contributing to excessive insulation damage.

    e.   Alerting all shipboard personnel to report any insulation damage.

29.4.3 Removal of Asbestos Lagging or Insulation.

    a.   If removal of asbestos lagging is required to carry out equipment repairs, request that the Type Commander arrange for a special asbestos handling team. The team will be assigned from either an FMA or contractor, depending on the size of the job.

    b.   If the ship is away from its homeport and damage occurs, remove minor areas of defective asbestos insulation using the methods specified in reference (a). Ship's Force must be made aware of the health hazards involved in removing asbestos, and know the measures required for personnel safety.

    c.   To simplify cleanup and reduce health hazards from dust, collect any debris from removed asbestos lagging in containers, per the requirements of reference (a).

APPENDIX A

INSPECTION GUIDE FOR EXCESSIVE HEAT

1. Insulation.

   a.   Visually check piping, lagging pads, and bulkhead insulation for:

          (1)   Deteriorated (crushed or frayed) lagging or pads.

          (2)   Wet or oil soaked lagging or pads.

          (3)   Missing pads. This is also a burn hazard!

          (4)   Surface temperature.

2. Valves.

   a.   Visually check valves for:

          (1)   Leaking bonnet or spiral wound metal gaskets.

          (2)   Proper packing adjustment.

          (3)   Damaged or worn valve stems.

          (4)   Proper lagging.

3. Boiler Casing Joints.

   a.   Visually check casing for leaks.

4. Drains.

   a.   Visually check steam drains for leakage and system misalignment.

   b.   Check funnel drains for overflow conditions or missing contamination covers.

   c.   Periodically check orifice plates for oversize conditions.

   d.   Inspect for leaking or bypassed steam traps.

5. Bilge Levels.

   a.   Dry bilges. Visual, no water present.

   b.   Wet bilge. Visual, minimize bilge levels to control humidity levels.

6. Deck Plates.

   a.   Ensure proper deck plate types (solid or open grate) are in place. Ensure proper airflow pattern.

7. Ventilation.

   a.   Visually inspect for system cleanliness per reference (c). Particular attention must be paid to clogged exhaust screens, dirty ventilation ducting, missing or mutilated ductwork and misdirected terminals.

   b.   Check system for breaks or openings due to corrosion. The system must be intact to deliver the proper velocity (minimum 250 Cubic Feet per Minute at each station).

Check for closed or partially closed "Circle William" dampers and inoperative fan motors and controllers.

c.   Main spaces should have a negative air pressure differential of 1/4" to 1/2" (water) with supply and exhaust systems running at normal settings.

VOLUME VI

CHAPTER 30

PORTABLE TOOL ASSISTANCE PROGRAM

30.1 <u>PURPOSE</u>. To provide guidance in the acquisition of portable tools, not normally carried onboard ship, and the priorities for loaning these tools to a ship in an availability.

30.2 <u>PORTABLE TOOL INVENTORY POLICY</u>. Shipboard preservation conducted during a Chief of Naval Operations Maintenance Availability requires an inventory of power tools beyond a ship's daily needs or normal allowance. Ships in Naval industrial activities can borrow the necessary tools directly from the activity's tool inventory under the Fleet Support Program. Such service is not routinely available to ships undergoing availabilities in a private industrial activity, because the private activity cannot legally be funded to perform this function. For ships undergoing availabilities in private facilities, tools are available in varying degrees from most Fleet Maintenance Activities (FMA).

30.2.1 <u>Distribution Priorities</u>. The FMAs should maintain an adequate inventory to meet anticipated needs of assigned ships. When the demand exceeds the availability, the distribution of portable tools will be based on the following priority:

    a.   Priority I - Ships in availabilities in private industrial activities.

    b.   Priority II - Ships in Fleet Maintenance Activity Availabilities.

    c.   Priority III - Ships in availabilities in Naval industrial activities.

    d.   Priority IV - All other ships.

30.2.2 <u>Borrowing Procedures</u>.

    a.   The borrowing unit advises the lending FMA of the type, quantity, and date tools are required and the scheduled availability completion date.

    b.   FMA personnel assemble a tool package in the variety and quantity requested.

    c.   When the tools are picked up, an inventory receipt must be signed by an authorized representative from the borrowing command. The borrowing unit is financially responsible for the tools.

30.2.3 <u>Borrowing Ship's Responsibilities</u>.

    a.   The borrowing unit is financially responsible for the tools.

    b.   Routine maintenance (electrical safety check, fitting replacement, etc.) must be accomplished by the borrowing command.

    c.   Tools and equipment must be returned promptly upon job completion or no later than the due date.

    d.   Upon return and inspection of the tools, charges will be levied to the borrowing ship in the following manner:

        (1)   Lost Tools (to include tools not returned when due). Ships that fail to return tools when due will be reminded by letter or message that they have overdue

tools. If no response is received within 30 days, the ship will be charged for the missing tools.

(2)   Damaged tools (to include missing parts).

VOLUME VI

CHAPTER 31

SURFACE FORCE SHIP MAINTENANCE PLACEMENT
AND OVERSIGHT BUSINESS RULES

REFERENCE.

(a)   NWP 1-03.1 - Naval Warfare Publication Operational Report

LISTING OF APPENDICES.

A   RMC Spotlight Reports

31.1   PURPOSE. The purpose of this chapter is to provide procedures and guidance regarding ship maintenance placement and oversight business rules. These procedures and guidance affect Regional Maintenance Centers (RMC), Type Commanders (TYCOM) and Ship Maintenance Teams.

31.2   BACKGROUND. Current directives demand a culture of readiness. The process described here addresses the need for a flexible maintenance support system that increases efficiency without compromising effectiveness, and defines a common planning process for ship maintenance and modernization. These processes need to be disciplined with objective measurements and institutionalized with a continuous improvement methodology.

31.3   SHIP MAINTENANCE FUNDING MANAGEMENT BUSINESS RULES.

31.3.1   Scope. The goals of the entitled funding process are to reduce premiums paid for maintenance while simultaneously improving the ability to respond to maintenance and operational requirements. The funding business rules establish the central role of the Ashore Ship's Maintenance Manager working with the ship's Commanding Officer to manage the funds required to support all maintenance for a given ship. Starting with the submission of an overall Maintenance and Modernization Business Plan (MMBP), the Ashore Ship's Maintenance Manager will establish the quarterly distribution of controls from the established annual maintenance target needed to accomplish the ship's maintenance in the most efficient manner. The process provides the ship with a level of funding stability that will provide for the execution of an effective maintenance plan.

31.3.2   Ship and Maintenance Team Business Responsibilities.

a.   Each ship's Maintenance Team is led by the Ashore Ship's Maintenance Manager. The Ashore Ship's Maintenance Manager coordinates with the RMC to execute maintenance following Fleet and TYCOM maintenance policies and directives. The TYCOM must ensure that each ship's Business Plan is tailored to fit unique geographic and business climate situations.

b.   The Maintenance Team (primarily the ship's Commanding Officer working with the Ashore Ship's Maintenance Manager) supports the Fleet Maintenance Officer and TYCOM in identifying budget needs based on well documented requirements in the Current Ship's Maintenance Project (CSMP), the Class Maintenance Plan, the Baseline Availability Work Package, the class Technical Foundation Paper and historical data. The Ship's MMBP identifies the total funding budgeted to support the

ship during the execution year, along with advance planning funding for availabilities to be executed in future years. The TYCOM determines how much of the Ship's MMBP they can fund (controls) of the total requested, and how much money per quarter (phasing plan) they can provide for executing the Ship's MMBP. The following guidelines are not all-inclusive but should be considered when structuring the phasing plan:

    (1)   The Maintenance Team will receive their actual spending levels or controls from the TYCOM. The RMC, with the TYCOM's approval, may adjust controls between maintenance teams as required during the course of the execution year. The goal is to establish controls before the execution year starts and then maintain these controls fixed throughout the execution year.

    (2)   The Maintenance Team provides the RMC and TYCOM with a quarterly spending or phasing plan based on their Ship's controls. The plan should be consistent with the ship's operational cycle and predefined maintenance periods. For example, deployments and underway periods in a given quarter should cause the displacement of Continuous Maintenance (CM) controls to other quarters where the maintenance is likely to occur.

    (3)   Funds will be provided to Maintenance Teams early enough to avoid premiums associated with late contract award, definitization or assignment of work.

c.   Significant deviations from the final negotiated MMBP or controls will be documented in a Summary of Events. It is recognized that the drivers for MMBP changes are often outside the direct control of the Maintenance Team and will be documented as such. The fundamental guidelines for executing at MMBP financial control levels are:

    (1)   Follow the guidance in Volume II, Part II, Chapter 1 of this manual regarding screening and brokering of work candidates.

    (2)   During the execution of an availability, growth and new work should be authorized only if the Business Case Analysis indicates that this is the best course of action, taking into consideration all applicable business and operational risks and factors.

d.   The Maintenance Team, with the TYCOM's approval, may shift controls between the Chief of Naval Operations (CNO) availability and CM budget lines in order to most efficiently accomplish required maintenance and modernization.

e.   The Maintenance Team must schedule continuous maintenance availabilities per Volume II, Part II, Chapter 2 of this manual. Adjustment of Continuous Maintenance Availability dates must be coordinated with the RMC and requested from the Immediate Superior In Command via naval message. Date changes must be minimized in order to realize the maximum benefit from advance planning work. The Maintenance Team may not change CNO availability dates. The Maintenance Team must resolve CNO availability scheduling issues with the TYCOM via the RMC. The TYCOM must include Program Executive Office (PEO) Ships in any discussions resulting in availability date changes when Program Alterations are scheduled for the availability.

f. The Maintenance Team must review proposals for fair and reasonable costs, work scope and applicable technical aspects prior to the Technical Analysis Report (TAR) process.

g. The Maintenance Team has the authority to adjust the MMBP in response to changes in ship operations, planned maintenance periods, and other business case reasons provided the intended distributions do not exceed the total remaining annual budget requirement allocated for that ship. This redistribution will be documented via a revised quarterly phasing plan, a Summary of Events prompting the change, and a formal recovery plan, which will be submitted to the TYCOM via the RMC for approval and adjustment of the Maintenance Team controls. Over the course of the fiscal year, some minor adjustments to the phased funding requirement can be expected. The cognizant RMC, with approval from the TYCOM, will establish funding redistribution limits below which a formal recovery plan would not be required, however, the revised quarterly phasing plan and Summary of Events would still be needed for approval. Ship's Commanding Officers must ensure that their Immediate Superior In Command is advised of any proposed changes to their MMBP which may affect operational schedules or planned modernization.

h. The Maintenance Team may not unilaterally adjust the MMBP when the adjustments would exceed the total remaining funding controls allocated for the ship. Any requirement in excess of the total MMBP currently approved will require the submission of a revised quarterly phasing plan, a Summary of Events related to the change, and a formal recovery plan. The RMC will evaluate the increased requirement and will make their recommendation for approval to the TYCOM based on total controls available. The RMC may not exceed an individual ship's total funding controls.

i. Depot level maintenance will normally be screened to the Private Sector Industrial Activity (PSIA) contractor. The Maintenance Team may go to other contracting vehicles when:

   (1) The PSIA contractor and government cannot agree on cost and scope.

   (2) The PSIA contractor does not have the capability or capacity.

   (3) Indefinite Delivery, Indefinite Quantity or Commercial Industrial Services (or Simplified Acquisition Purchases and a qualified vendors list) is available.

   (4) Other organic RMC assets are available and have the capability for the work.

   (5) Work is to be accomplished outside of homeport area.

   (6) Work is to be accomplished by an Alteration Installation Team (AIT).

j. During the execution of a maintenance availability, it is anticipated that deficiencies will be identified that could be accomplished as either growth or new work on the existing contract. The Maintenance Team must perform a Business Case Analysis to decide whether or not to add the work to the current availability or schedule it during another maintenance opportunity.

k. When work deferral reduces the total cost of the job or maintenance completes with a cost under-run and funds can be recaptured, the funding controls will normally remain under the control of the respective Maintenance Team. If the funds are needed for critical work on another ship or to cover a funding shortfall at the TYCOM or Fleet level, the TYCOM will redistribute as necessary. The change will be documented in a revised quarterly phasing plan and the Maintenance Team(s) should provide to the RMC an impact statement and recommended plan to mitigate the effects of the plan change.

l. The RMC coordinates with the Maintenance Teams to comply with their approved ship's MMBPs. The RMCs must make a monthly MMBP execution report to the TYCOM.

m. Maintenance Teams will issue funds to the appropriate executing activity by submitting a planning estimate to the TYCOM (via the RMC) and the TYCOM will issue the actual funding document.

n. PSIA contractors normally submit cost reports to Maintenance Teams on a bi-weekly basis. The Maintenance Team will utilize these reports to assess the cost performance of the PSIA contractor and address items of concern to the RMC or TYCOM.

31.3.3 Regional Maintenance Center Business Responsibilities.

a. The RMC Commander has the authority to execute Surface Force Ship maintenance and must do so following Fleet and TYCOM policies and directives.

b. The RMC Commander develops an execution year spending plan for the TYCOM's approval based on the TYCOM approved MMBPs.

c. The Fleet Commander spending controls are issued to the TYCOM who then assigns spending controls to each Maintenance Team, informing the RMC. The RMC issues quarterly spending controls to all of the Maintenance Teams following the TYCOM's final TYCOM approved MMBP for each ship.

d. The RMC Commander will evaluate MMBP adjustment requests based on the Summary of Events, recovery plan, and quarterly adjustment provided by the Maintenance Teams. If the RMC supports the request, the RMC will forward the issue to the TYCOM for approval.

e. The RMC Commander must request approval from the TYCOM whenever redistribution of annual ship funding is required. The RMC must provide the TYCOM a record of all control changes for tracking purposes. Redistribution of funds between Active Fleet and Reserve Fleet funding lines or between different TYCOMs requires approval by the Fleet Commander.

f. In the event of significant program wide control changes the RMCs must:

(1) Provide an impact statement to the TYCOM regarding the effect on the execution of maintenance.

(2) Provide a recommendation to minimize the impact on Force readiness.

g. The RMC must evaluate the financial status of each of the Maintenance Teams on a monthly basis.

h. The RMC must submit monthly financial summary reports to the respective surface TYCOM. This report provides a comparison of actual versus planned funding execution. The last report for the execution year will include an annual summary showing how the funds were utilized, sorted by Naval Operations resource sponsor.

i. C3 and C4 Casualty Reports (CASREP), or a C2 CASREP with reasonable potential to become a C3 or C4 CASREP, are identified as emergent maintenance and will be funded with emergent dollars. Emergent work will be scheduled to minimize premiums in as much as the operational schedule will permit. C2 CASREPs will normally be corrected using the CM Process. Consideration will be given to schedule all maintenance, including emergent, at an opportune time to reduce premiums. The RMC Commander may, with the respective TYCOM's prior approval, convert Emergency Maintenance funds to execute CNO availability or CM maintenance.

j. Except as stated in paragraph 31.3.3i. of this chapter, C2 CASREPs will be corrected during CM periods (both scheduled Continuous Maintenance Availabilities and maintenance Windows of Opportunity) using CM funds. C2 CASREPs discovered during a CNO availability or Continuous Maintenance Availability will be addressed as new work. C2 CASREPs may be allowed to "age" until the appropriate repair opportunity. The RMC Commander has the responsibility to request TYCOM authorization when Emergency Maintenance funds should be used for the correction of C2 CASREPs or other non-CASREP related, but nonetheless urgent maintenance. The RMC is required to approve any planned delay of action on a CASREP. In the event that the delay effectively constitutes a CASREP deferral per reference (a), the RMC will forward the deferral recommendation to the TYCOM for approval.

k. The RMC Commander will generate monthly maintenance availability metrics for all assigned ships planning for a CNO availability and ships in a CNO availability. These metrics will be briefed at least monthly to the TYCOM at Surface Team 1 Maintenance and Modernization Continuous Improvement Team meetings. The business rules for preparation of these forms are included in Appendix A.

31.3.4 Type Commander Responsibilities.

a. The TYCOM establishes Force maintenance policies and directives, consistent with Fleet Commander guidance, and authorizes the Maintenance Team and RMC to act as the principal agent to execute those policies and directives.

b. The TYCOM will provide a list of Fleet Alteration requirements for the execution year as input to the ship's business plan no later than 15 February in the year prior to execution. To assist with business plan development, the TYCOM will identify which alterations are scheduled for accomplishment and will provide the Maintenance Team and RMC with the cost estimates for accomplishment.

c. When the Fleet issues the spending controls to the TYCOM, the TYCOM will in turn issue spending controls to the RMC and update those spending controls on a quarterly basis.

d.   The TYCOM has the authority to recapture spending controls previously issued to the Maintenance Teams and RMCs in response to unforeseen Force budget requirements. This will be used as a last resort, as the goal is to maintain stable funding plans in support of ships' MMBPs.

e.   If it is determined that the best course of action is not to fund a CNO availability, the TYCOM must (with concurrence from United States Fleet Forces or Commander, Pacific Fleet, whichever is appropriate) approve the removal of funds before the RMC initiates this action. The TYCOM must ensure PEO Ships is included in the decision process to not fund any availability where Program Alterations are scheduled for accomplishment during that availability.

f.   The TYCOM will evaluate MMBP adjustment requests forwarded by the RMC based on the Summary of Events, recovery plan, and quarterly adjustment provided by the Maintenance Team. If the TYCOM supports the request but lacks spending "controls" required, the TYCOM will forward the issue to the Fleet for approval and additional controls.

g.   The TYCOM will evaluate the RMC's end of month financial status reports to assess the degree of conformance to the approved RMC consolidated spending plan.

31.4   <u>MAINTENANCE PROPOSAL REVIEW</u>. The maintenance process must be flexible enough to be able to respond to changing operational requirements. The key to this flexibility is to reduce the cycle time involved prior to the actual execution of the maintenance. The Continuous Estimating, Incremental Planning Review Process guidelines will be utilized by the Maintenance Team to approve all proposed maintenance actions within time and budget constraints. The guidelines apply equally to Advance Planning, Long-Lead-Time Material, CNO, CM and Emergent Maintenance work.

31.4.1   <u>Concept</u>. The entitled process concept enables the Maintenance Team to review planned work items and estimates on a continuous basis as they are received. The Ashore Ship's Maintenance Manager is empowered to shift work items from CNO to CM or vice versa to optimize work scheduling and reduce premium exposure and overall cost.

31.4.2   <u>Business Rules</u>.

a.   The Ashore Ship's Maintenance Manager, with support from the Maintenance Team and Government Availability Planning Managers, must analyze the work package against the availability schedule. In general, Maintenance Teams should consider scheduled availability lengths fixed and attempt to adjust the work package to ensure it can be completed within the scheduled dates. When justification exists, the Maintenance Team should recommend availability length adjustments to the TYCOM to minimize premiums.

b.   The Ashore Ship's Maintenance Manager, with support from the Maintenance Team and Government Availability Planning Managers, must analyze the work package against potential CM windows of opportunity to maintain the scheduled dates of the availability, to best level load the contractor, and to minimize premiums.

c.   The Maintenance Team may not change CNO availability dates and must resolve scheduling issues with the TYCOM via the RMC. The TYCOM must include PEO

Ships in any discussions resulting in availability date changes when Program Alterations are scheduled for the availability.

d.   Work packages must be developed on a continuous basis in order to realize cost savings and avoid premiums associated with late identification of work following the business rules contained in Volume II, Part II, Chapter 2 of this manual.

e.   When capability and capacity allow, work must be brokered to the Fleet Maintenance Activity, otherwise, Depot level maintenance will normally be screened to the PSIA contractor. The Maintenance Team may go to other contracting vehicles when:

(1)   The PSIA contractor and government cannot agree on cost and scope.

(2)   The PSIA contractor does not have the capability or capacity.

(3)   Other organic RMC assets are available and have the capability for the work.

(4)   Work is to be accomplished outside of homeport area.

(5)   AIT or Indefinite Delivery, Indefinite Quantity has been identified by the Naval Supervisory Authority (NSA) as the preferred provider.

f.   The Maintenance Team must review proposals for fair and reasonable costs, work scope and applicable technical aspects prior to the TAR process.

31.4.3 Continuous Estimating Incremental Planning Review Process. The Continuous Estimating Incremental Planning Review Process (CEIPRP) is the process by which the Maintenance Team continuously compares PSIA contractor work item estimates to independently developed government work item estimates throughout the development of the work package. Completion of package development and submission of the 100% Work Package Proposal is followed by the Technical Cost and Scope analysis, proposal revisions, TAR, establishment of the Prorate, Pre- and Post-Business Clearance, and signing of the bi-lateral contract modification (definitization).

31.4.3.1 Concept. Use of the CEIPRP is intended to achieve flow of work items into the work package up to 100% lock while continuously comparing government to contractor estimates to avoid last minute surprises due to estimate differences. This process also allows for flexibility up to the 100% lock in order to develop a package that best addresses the material condition of the ship as it begins the availability. Following the planning activity specification development, the PSIA contractor continuously submits a Class C Planning Estimate. Simultaneously, the government Maintenance Team continuously develops the Independent Government Estimate (IGE). These two estimates are then compared and any differences in scope and price (generally those in excess of 10% difference) are resolved. Resolving these differences during work package development also reduces the amount of time required for the TAR process. Following the 100% package lock, the planning activity completes planning, the PSIA contractor assembles and submits the 100% package proposal. Based on the 100% package proposal, an estimate of prorates is communicated to resource sponsors along with a final funding notification (as early as possible but no later than 14 days prior to the need date) in order to ensure on-time funding. This is followed by accomplishment of the TAR and business clearance processes.

31.4.3.2 Business Rules.

a.   The contractor must continuously submit Class C estimates for each work item as a bottom line work item cost. The Planning Estimate provides a budget level tracking and establishes a basis for determining cost reasonableness. Paragraph cost estimates will be provided by the PSIA contractor when requested by the government to resolve differences between the contractor's Planning Estimate and the IGE.

b.   The IGE is the government's detailed estimate to the trade and paragraph level. The IGE provides budget level tracking and establishes a basis for determining cost reasonableness allowing the government to validate the Planning Activity Estimate and resolve any differences in scope or cost estimates.

c.   The package will be assessed at the 50% and 80% budget to ensure that work has been brokered to planning activities continuously. These milestones also reinforce timely identification of work by Ship's Force. Following the 50% and 80% milestones, the planning activity will complete planning and estimating for all work brokered to date.

d.   Upon completion of the Planning Activity Estimate, that estimate will be compared to the IGE to gage whether the government and the Planning Activity are estimating a similar scope of work. If the individual work item Class C estimates vary by more than 10% or $10,000 (whichever is higher), the government Program Manager will establish a scoping conference to discuss or resolve the scope of work.

e.   The 100% package lock is the official milestone to mark identification of 100% of the work requirements for an availability based on the MMBP budget. All work added to or deleted from the package after the 100% lock will be via an errata, addendum or inducted as new work via the Request for Contractual Change Process.

f.   The Final Funding Notification with Estimates of Prorates will be a formal communication with resource sponsor (E-mail or Naval Message) with funding requirements. Estimate prorates based on Basic Work Package Proposal man-hour estimates, historical prorate data and sponsor requirements. The Maintenance Team should ensure that estimates provided to various sponsors throughout the planning process include anticipated prorate amounts.

g.   The TAR will include all necessary information to develop a negotiation strategy, pricing recommendation and rationale to support a scope conference, if necessary, and subsequent work package cost definition. It must include background information, essential contractor proposal information, method of evaluation, scope of work, analysis of work items with rationale to support questionable costs and summary of pricing recommendations.

h.   A scoping conference, if necessary, must include the appropriate members of the Project Team, Technical Analyst, Administering Contracting Officer (ACO) or Contract Negotiator and contractor. All work items with unsubstantiated differences identified in the TAR are discussed to reach agreement on the scope of work and contractor's proposal. When all differences have been resolved, the conference must end with an agreement on labor hours, subcontracts and materials between the contractor and ACO or Contract Negotiator.

i. The ACO or Contract Negotiator will take the work scope conference results and ensure correct application of indirect rates, fees and prepare appropriate documentation for signature and cost definition.

j. The ACO representative will negotiate target costs for new work.

k. The Project Team will minimize growth and overtime. Prior to definitization, growth items that cannot be settled by the Project Team must be forwarded to the Technical Analyst to be settled in the TAR process. For Surface Force ships only, the NSA Chief Engineer will review requested growth and new work items for technical compliance.

31.4.3.3 <u>Schedule Modification</u>. Operational commitments, port loading or other reasons may require modification to availability schedules and milestones may need to be adjusted accordingly as discussed in further detail in Volume II, Part II, Chapter 2, paragraph 2.5 of this manual.

31.5 <u>GUIDANCE FOR FIRM FIXED PRICE CONTRACTS</u>.

31.5.1 <u>Overall Process</u>. Unless specifically noted otherwise, the following are common practices in both the PSIA and Firm Fixed Price (FFP) contracting environments:

a. Validation, screening, and brokering process.

b. Maintenance Teams.

c. Planning Board for Maintenance.

d. MMBPs.

e. Movement of work between CNO and CM.

f. Maintenance Team metrics.

31.5.2 <u>Firm Fixed Price Planning</u>. Government activities must accomplish FFP planning with the goal of compiling a complete, clear, concise and well-defined work package. The Ashore Ship's Maintenance Manager must work with the Maintenance Team to define the work scope and solicitation in a FFP environment. The following points must be considered in the planning process for FFP contracts:

a. Assessments are an important part of the planning phase of any availability. The Ashore Ship's Maintenance Manager must ensure assessment results are considered for inclusion into the work package. The Ashore Ship's Maintenance Manager must also determine if additional assessments should be accomplished so that the material condition of critical systems and equipment can be determined prior to the work package lock date.

b. Proper work screening between CNO and CM availabilities is critical in order to reduce costs and premiums.

c. Work placed in a CNO FFP Availability should be limited to work requiring a facilitated shipyard, work that cannot be accomplished in short CM availabilities, or work that must be accomplished in the availability to support operational readiness.

d.   When work, following the guidelines identified in paragraph 31.4.2b. of this chapter, cannot be accomplished in the designated time period without excessive premiums or with a low probability of success, the RMC Commander must be informed. Conversely, the RMC Commander must also be informed when there is insufficient work to justify a CNO availability.

e.   The use of Master Specification Catalog (MSC) Templates by Planning Activities and Maintenance Teams is the normal expectation, not the exception. If a MSC Template does not exist for the Expanded Ship Work Breakdown Structure (ESWBS) being addressed by a tasked Work Notification, previously executed Work Items for the same or similar work may be reviewed as a starting point. Investigate changes to the Work Item, by reviewing associated Request for Contract Change (RCC) and Contractor Furnished Reports (CFRs). Previously executed Work Items, regardless of their source, shall never be used without reviewing for current applicability. Regulations, processes and procedures frequently change.

f.   Ashore Ship's Maintenance Manager with assistance from the Maintenance Team must review all contract work specifications prior to issue, and specification review changes must be recorded and tracked by the planning activity.

31.5.3 Firm Fixed Price Placement. When building the availability package in preparation for contract placement, consideration must be given to risk mitigation to avoid premiums during execution due to late work identification. The use of Reservations and Option Items builds in flexibility to FFP contracts when it is impossible or impractical to adequately define all requirements.

a.   Option Item guidelines:

(1)   Option Items are to be utilized in a contract solicitation when there is a strong expectation the work will be accomplished if the prerequisite conditions requiring the work are met as a result of an event, inspection, or milestone.

(2)   Prior to solicitation, the availability schedule must be evaluated to ensure each Option Item can be accomplished during the contract performance period.

(3)   Material status must be confirmed to ensure Option Item material will be available to support the production schedule.

(4)   Funding for Option Items will be managed by the Project Manager within the ship's designated annual funding allowance under their MMBP, by either designating Reservations in the availability budget or by using CM funds.

(5)   Option Items must be invoked as early as possible, preferably during the period between contract award and the start of the availability. The later an option is exercised, the greater the probability that premiums will be paid for its execution.

(6)   A listing of all Option Items, including their respective "Not Later Than" invocation dates, must be provided to the RMC by the planning activity in the turnover letter. The Project Manager must be made aware of all Option Items and invocation dates well in advance of the availability start date. (The

Maintenance Team provides the Option Items and invocation dates. This is discussed in the contract solicitation review board.)

(7) Option Items are not to be used as a "shopping list", and are reserved for work with a high expectation of being required. Lack of funds for a specific work item must not be used as justification for including that work as an Option Item.

b. During FFP solicitation, bidder's questions may be submitted to the Procurement Contracting Officer. The following processes related to bidder's questions should be followed:

(1) The Maintenance Team must not respond directly to bidder's questions. There must be a single point of contact for bidder's questions and answers. If queried directly, the Maintenance Team must refer the bidder to the Advance Planning Manager.

(2) The RMC Procurement Contracting Officer must ensure the Maintenance Team is provided with e-mail notification of all bidder's questions.

(3) The Maintenance Team and Government Availability Planning Managers must provide inputs to bidder's questions to the Procurement Contracting Officer within 24 hours (unless the response is required immediately, or another time period is agreed upon).

(4) The Maintenance Team and Government Availability Planning Managers input must be considered when formulating the Government's response.

(5) The final answer to bidder's questions must be made available to the Maintenance Team and Government Availability Planning Managers via e-mail or other electronic means.

c. FFP Oversight. During FFP availability execution, oversight of contract changes is critical to managing costs and reducing premiums. Processes that assist in the management of funds and reduction of premiums include:

(1) Conduct a business case for all growth and new work to determine the most efficient and cost effective time to execute the work.

(2) Recognize that late work premiums exist, and account for these premiums when it is necessary to add growth or new work to the availability.

(3) The RMC Project Manager must identify and record all validated Delay and Disruption charges paid by the Government using growth codes as a result of Navy actions. Discuss each Delay and Disruption event during Planning Board for Maintenance to prevent repeat occurrences.

(4) Project Manager, with the Maintenance Team, must document "lessons learned" during availabilities and provide these to the RMC for proper distribution and training of other Maintenance Teams.

(5) Departure Reports must be provided to the Maintenance Team, ensuring all applicable safeguards are in place to handle Business Sensitive Information.

APPENDIX A
RMC SPOTLIGHT REPORTS

1. <u>PURPOSE</u>. Establish guidelines for preparing an RMC Spotlight Presentation. This presentation is applicable to all ships undergoing planned (CNO or CMAV) availabilities.

2. <u>SCOPE</u>.

    a.   This business rule describes the format and processes required to compile an RMC Spotlight Presentation.

    b.   Applies to all Regional Maintenance Centers (RMC).

    c.   Implements the standardized process to be used by all RMCs.

3. <u>GENERAL REQUIREMENTS AND BACKGROUND</u>.

    a.   The RMC Spotlight Presentation consists of six sections: Project Spotlight Chart, Premium Performance Chart, Package Build Chart, Hot Wash Status Report and Global Hot Wash Data.

    b.   The Project Spotlight Chart is a snapshot of the planning milestone status and execution performance for the RMC's CNO availabilities. Examples of FFP and PSIA Spotlight Charts are given in this appendix.

    c.   The Premium Performance Chart is a snapshot of the performance with regard to premiums and churn for a specific ship in the execution phase of a CNO availability. An example Premium Performance Chart is given in this appendix.

    d.   The Package Build Chart is a snapshot of the relationship between the value of the work package, as it is being developed, to the planned and budgeted limits for a specific ship in the planning phase of a CNO availability. It is extracted from the budget tab in Navy Maintenance Database (NMD). An example Package Build Chart is given in this appendix.

    e.   The Hot Wash Status Report is a snapshot of an RMC's local and global Hot Wash issues from past CNO availabilities. An example Hot Wash Status Report is given in this appendix.

    f.   The Global Hot Wash Data Report provides amplifying information regarding current global Hot Wash issues. An example Global Hot Wash Data Report is given in this appendix.

4. <u>PROCESS</u>.

    a.   This appendix defines the RMC Spotlight Presentation, but additional slides may be included for amplification on a conservative basis. The RMCs must comply with standard formats.

    b.   Project Spotlight Chart.

        (1)   The left column of the chart must list all upcoming CNO availabilities for the port within the A-360 window and the next availability to reach A-360 at a minimum.

(2)   The columns for the milestone will be populated and colored using the following guidelines:

   (a)   The top row contains the scheduled milestone date.

   (b)   The bottom row is populated with the actual date the milestone was accomplished.

   (c)   The top row is colored red, yellow and green after the milestone has been accomplished.

       <u>1</u>   Green – milestone met on schedule.

       <u>2</u>   Yellow – milestone 1-7 days late.

       <u>3</u>   Red – milestone >7 days late.

   (d)   The bottom row is colored with a Red, Yellow and Green hash pattern depending upon impact to the next milestone. The bottom row is only colored for accomplished milestones and the follow-on milestone. It may be acceptable to color a future milestone if there exists substantial evidence that it will not be accomplished on time and will have a significant impact on the follow-on milestone.

       <u>1</u>   Green hash – next milestone will be met.

       <u>2</u>   Yellow hash – moderate risk for next milestone.

       <u>3</u>   Red hash – high risk for next milestone.

(3)   Comment blocks or balloons may be used to provide amplifying information as necessary.

c.   Premium Performance Chart.

(1)   The Premium Performance Chart is developed by exported data from NMD to an Access database. Commander, Navy Regional Maintenance Center metrics division is the point of contact for the procedure.

(2)   Premium Performance Charts are ordered in the sequence listed on the Project Spotlight Chart.

(3)   Comment blocks or balloons may be used to provide amplifying information as necessary.

d.   Package Build Chart.

(1)   The Package Build Chart is developed with the package build data from NMD. The information is available in the planning side of NMD under planning budget.

(2)   Package Build Charts are ordered in the sequence listed on the Project Spotlight Chart.

(3)   Comment blocks or balloons may be used to provide amplifying information as necessary.

e.   The Hot Wash Status Report is maintained by the RMC Hot Wash Coordinator.

f.   The Global Hot Wash Data Report is to include the following, at a minimum, for the reporting period in which input is received:

(1)   Discussion of best practices.

(2)   Discussion of global issues including resolutions.

(3)   Premium goal vs. actual (and if exceeded, an explanation as to why).

(4)   Identification of premium drivers.

PROJECT SPOTLIGHT CHART

SHIP/HULL	Scheduled CNO Avail Dates (Start/Compl)	Controls $M (TYCOM/Program)	Issue HMP/LOA incl AITs (Sched/Actual)	Task/Fund SID Developmt (Sched/Actual)	Issue/Deliver SIDs to NSA for Contractors and AITs (Sched/Actual)	FFP Level Package Locked (Sched/Actual)	TYCOM and Program Funding Verified (Sched/Actual)	FFP SHAPEC Package Turnover (Sched/Actual)	FFP Solicit Bids (Sched/Actual)	Provide Availability Funding for Modern-ization to RMC	FFP Award (Sched/Actual)	Actual CNO Avail Dates (Start/Compl)	Churn Percent (TYCOM/Program)	Growth & New Work $K (TYCOM/Program)	Premium Percent (TYCOM/Program)
			SPM/ NAVSEA/ TYCOM	SPM/NSA/ AIT/TYCOM RMC Mgr	Planning Yard	MT	TYCOM	SHAPEC	RMC	SYSCOMS /PEO/ TYCOM	RMC				
			A-360	A-330	A-180	A-170	A-120	A-135	A-120	A-75	A-60				
DESTROYER	15-Jun-05	$2.9	20-Jun-04	20-Jul-04	17-Dec-04	27-Dec-04	15-Feb-05	31-Jan-05	15-Feb-05	1-Apr-05	16-Apr-05	15-Jun-05	19.8%	$616	15.1%
DDG-XX	7-Sep-05		1-Jun-04	6-Jul-04	1-Dec-04	18-Jan-05	1-Oct-05	16-Feb-05	18-Mar-05	1-Apr-05	11-May-05	7-Sep-05	0.6%	$14	0.2%
CRUISER	2-Feb-06	$8.9	7-Feb-05	9-Mar-05	6-Aug-05	16-Aug-05	5-Oct-05	20-Sep-05	5-Oct-05	19-Nov-05	4-Dec-05				
CG-XX	2-Apr-06		11-Jan-05	7-Dec-04	23-Jun-05	15-Oct-05									

EXPLANATION OF LATE MILESTONE

LEGEND

	MILESTONE MET ON SCHEDULE
	MILESTONE 1-7 DAYS LATE
	MILESTONE >7 DAYS LATE
	NEXT MILESTONE WILL BE MET
	MODERATE RISK FOR NEXT MILESTONE
	HIGH RISK FOR NEXT MILESTONE

PROJECT SPOTLIGHT CHART													
SHIP/HULL	Scheduled CNO Avail Dates (Start/ Compl)	Controls $M (TYCOM/ Program)	Issue HMP/ LOA incl AITs (Sched / Actual)	Task/Fund SID Developmt (Sched/ Actual)	Issue/ Deliver SIDs to NSA for Contractors and AITs (Sched/ Actual)	Provide Avail Funding for Modern. to RMC (Sched/ Actual)	PSIA 100% D-Lvl maint work pkg 2K's locked (Sched /Actual)	PSIA Contractor Publish pkg in NMD (Sched/ Actual)	PSIA Definitize Work Package (Sched/ Actual)	Actual CNO Avail Dates (Start/ Compl)	Churn Percent (TYCOM / Program)	Growth & New Work $K (TYCOM/ Program)	Premium Percent (TYCOM/ Program)
			SPM/ NAVSEA/ TYCOM	SPM/NSA/ AIT/TYCOM RMC Mgr	Planning Yard	SYSCOM/ PEO/ TYCOM	MT	PSIA Contractor	RMC				
			A-360	A-330	A-180	A-75	A-75	A-60	A-45				

LEGEND	
	MILESTONE MET ON SCHEDULE
	MILESTONE 1-7 DAYS LATE
	MILESTONE >7 DAYS LATE
	NEXT MILESTONE WILL BE MET
	MODERATE RISK FOR NEXT MILESTONE
	HIGH RISK FOR NEXT MILESTONE

VI-31A-5

Premium Performance Chart

# USS CRUISER Package Build Chart
9/05-1/06
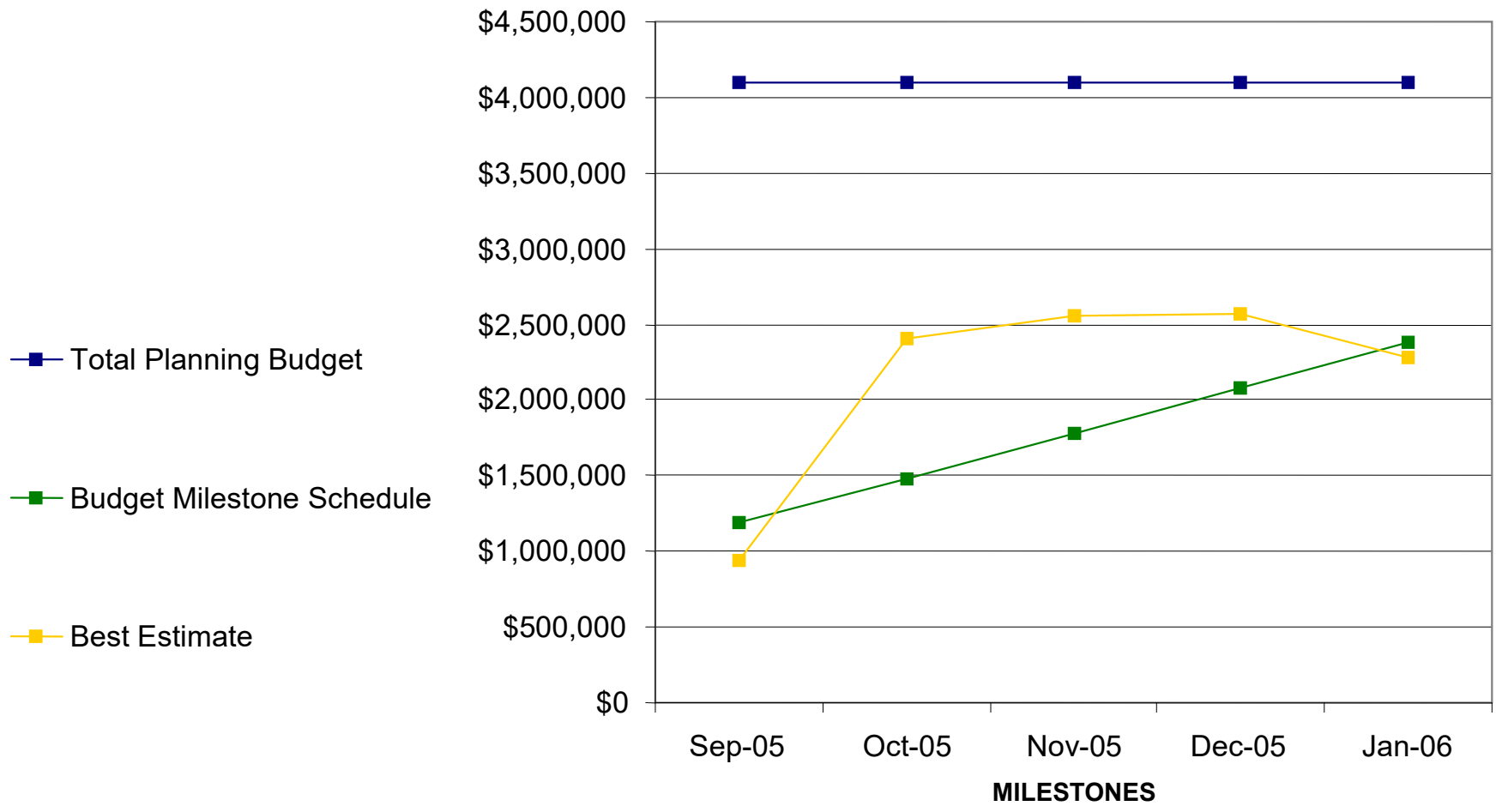
Hot Wash Status Report

HRMC FEEDBACK ISSUE METRICS									
Ship / Hull		USS PORT ROYAL (CG 73)	USS R JAMES (FFG 57)	USS RUSSELL (DDG 59)	USS CROMMELIN (FFG37)	USS SALVOR (ARS 52)	USS HOPPER (DDG 70)	Totals	Total Resolved
EOA		9/8/04	12/1/04	12/15/04	3/23/05	6/15/05	9/7/05		
HW Mtg Date		10/7/04	1/25/05	1/26/05	3/31/05	7/11/05	9/28/05		
Global Shipmain Issues	Req'ts (CFT1)	0	1	2	0	0	0	3	3
	PP/P&O CFT23	0	1	1	3	4	2	11	11
	Alts & Mods (CFT4)	1	1	3	0	0	5	10	10
	Total	1	3	6	3	4	7	24	24
Global Non-Shipmain Issues	Technical	0	0	0	0	0	0	0	0
	Modernization	0	0	1	0	0	0	1	1
	Project Team	0	0	0	0	0	2	2	2
	Total	0	0	1	0	0	2	3	3
Local Issues	Alts & Mods	2	0	0	1	2	5	10	5
	Modernization	0	0	0	0	0	0	0	0
	P&O	3	2	1	3	2	3	14	7
	Technical	0	0	0	0	3	0	3	2
	Req'ts	5	5	1	2	4	0	17	12
	Project Team	16	10	8	8	13	22	77	41
	Package Prep	5	4	2	2	5	1	19	12
	Total	31	21	12	16	29	31	140	79

Global SHIPMAIN Feedback Issues (XXRMC)

Global Non-SHIPMAIN Feedback Issues (XX RMC)

Local Feedback Issues (XX RMC)

VI-31A-8
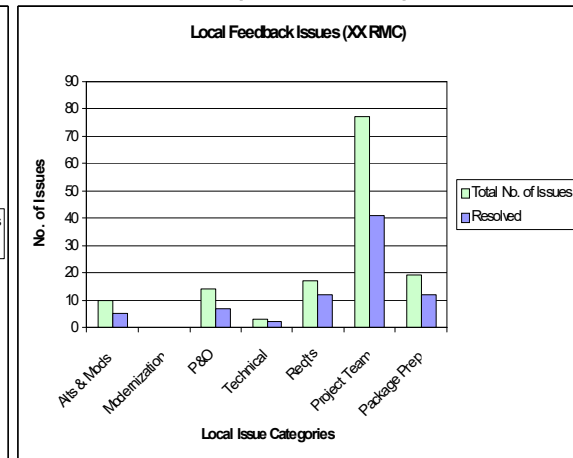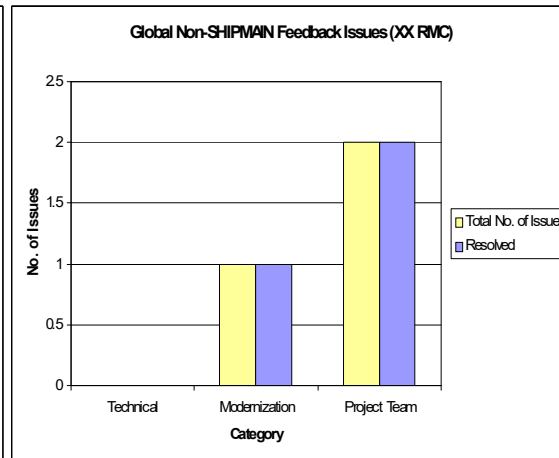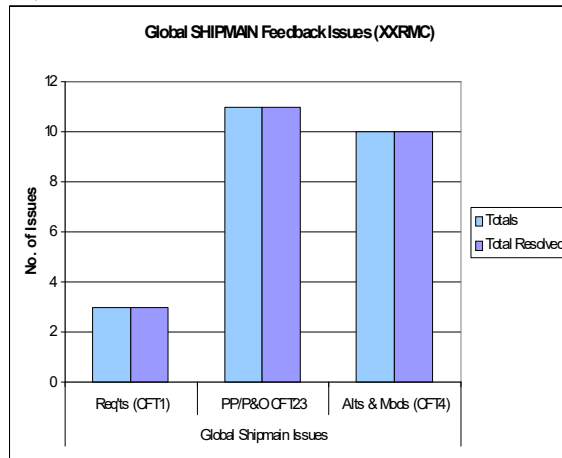
Global Hot Wash Data

Bullets include as a minimum:

- Discussion of best practices.

- Discussion of global issues.

- Premium goal vs. actual
  (and if exceeded, an explanation as to why).

- Identify premium drivers.

VOLUME VI

CHAPTER 32

TOP MANAGEMENT ATTENTION
TOP MANAGEMENT ISSUES

REFERENCES.

(a)   OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
(b)   OPNAVINST 3000.12 - Operational Availability of Equipments and Weapons Systems

LISTING OF APPENDICES.

A   Top Management Attention and Top Management Issues Flowchart

32.1 PURPOSE. Reference (a) provides Chief of Naval Operations (CNO) Maintenance Policy for U.S. Navy Ships, which includes the Top Management Attention and Top Management Issues (TMA, TMI) program for addressing chronic maintenance problems. Commander, United States Fleet Forces Command (COMUSFLTFORCOM) is tasked with developing and forwarding Hull, Mechanical and Electrical (HM&E) and Combat System (CS) Technical Ticklers to identify common maintenance issues between Fleets. This chapter provides USFLTFORCOM policy, procedures and standardized metrics for selecting systems and equipment for inclusion in the TMA- TMI process.

32.2 BACKGROUND. The TMA-TMI process is the Navy's priority corrective action process for USFLTFORCOM, Fleet Commanders, Type Commanders (TYCOM), Systems Commands (SYSCOM) and Office of the CNO (OPNAV) Resource Sponsors. This process is the means to identify top material readiness and cost problems and develop solutions that effectively and efficiently achieve approved levels of performance while realizing near-term returns on investment.

32.3 APPLICABILITY AND SCOPE.

a.   The TMA-TMI process encompasses all surface force, aircraft carrier and submarine installed equipment and systems, including aviation-oriented items that are integral parts of the ship. This process supports Navy goals and initiatives that improve fleet material readiness and increase the operational availability of those items that are identified by the fleet as needing primary attention and action. The TMA-TMI process excludes equipment under the responsibility of Director, Strategic Systems Programs and Director of Naval Nuclear Propulsion Program.

b.   The TMA-TMI process uses data from diverse sources to:

(1)   Objectively identify critical fleet problems that impact material readiness, maintenance cost and manpower or skill requirements, and warrant top-level attention.

(2)   Focus management attention and resources needed to correct these problems.

(3)   Enhance communication among CNO Resource Sponsors, Fleet Commanders, TYCOMs and Systems Command Program Offices.

(4)   Execute the TMA-TMI process following the TMA-TMI Process Flowchart in Appendix A.

c.   The TMA-TMI process is the Navy's priority corrective action process for Fleet Commanders, SYSCOMs and OPNAV Resource Sponsors. This process is the means for the Fleet, OPNAV, and SYSCOMs to identify top material readiness and cost problems and develop solutions that effectively and efficiently achieve approved levels of performance while realizing near-term Returns on Investment (ROI).

d.   The TMA candidate selection process uses a variety of sources including Maintenance and Material Management (3-M) data prepared by the TMA-TMI Analysis Center to objectively identify critical fleet HM&E and CS problems that impact material readiness, maintenance cost and manpower or skill requirements and warrant top-level attention. Fleet and TYCOMs use this data to aid in the selection of their TMA-TMI candidate systems or equipment. Fleet and TYCOMs may also solicit topic input from subordinate Commanders for problems having significant negative impact on readiness.

e.   Candidate systems or equipment metrics are forwarded from the TYCOMs to Naval Sea Systems Command (NAVSEA) for inclusion in the TMA process. The candidate selection process is a semi-annual process commencing immediately after TMA Fleet Week and culminating at Mid-Cycle with the nomination of new systems or equipment.

f.   TMI topics are selected by the TMA panel from the topics presented at TMA which require flag level attention.

32.4 RESPONSIBILITIES.

32.4.1 Commander, United States Fleet Forces Command. COMUSFLTFORCOM Maintenance Officer (N43) is the Staff Officer responsible for implementation of this chapter and may direct HM&E and CS or equipment be included in the TMA-TMI process. TYCOM Maintenance Officers must:

a.   Develop TYCOM HM&E and CS Technical Ticklers and identify common issues between ships every six months. Establish a priority ranking of systems based on selected attributes (e.g., man-hours, cost, readiness). Forward TYCOM HM&E and CS Technical Ticklers to Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) 05 for surface force ships. For submarines, provide TMA issues to COMNAVSEASYSCOM 07, with copy to OPNAV Resource Sponsors and other cognizant SYSCOMs as appropriate, via a coordinated or joint cover letter.

b.   Coordinate TMI Panel agendas and dates with TMA-TMI Working Group Chair(s).

c.   Participate on TMA panels and chair TMI Panels.

d.   Chairs the TMI panel at least annually either through established Enterprise Board of Directors meetings or as a separate TMI panel.

e.   Coordinate Fleet participation in the TMA and TMI process (TYCOMs and Regional Maintenance Center Supports).

32.4.2 Naval Sea Systems Command. NAVSEASYSCOM coordinates overall SYSCOM participation in the TMA. Specifically, SEA 07 coordinates the efforts for submarine platforms. SEA 05 coordinates efforts for surface and carrier platforms.

32.4.2.1 Commander, Naval Sea Systems Command (05). COMNAVSEASYSCOM (05) for surface force ships and aircraft carriers must:

a.   Form the TMA-TMI Working Groups and Panels and staff with appropriate representatives.

b.   Receive and disseminate the TYCOM HM&E and CS or C4I Surface Force Ship Technical Ticklers to the appropriate TMA-TMI Working Groups.

c.   Review and forward Plan of Action and Milestones and ROIs, or other technical presentations from TMA-TMI Working Groups to Fleet and TYCOMs.

d.   Chair the surface force ships and aircraft carrier TMI Panel and establish the NAVSEA response to Fleet identified TMI issues.

32.4.2.2 Naval Sea Systems Command 07 and Program Executive Officer Submarines. SEA 07 and Program Executive Officers (PEO) Sub must:

a.   Form the TMA-TMI Working Groups and Panels and staff with appropriate representatives.

b.   Receive and disseminate the TYCOM HM&E and Nuclear Planning and Execution System TMA issue letter to the appropriate program offices for action.

c.   Review and forward Plan of Action and Milestones, Business Case Analyses or other appropriate technical presentations to Fleet and TYCOMs.

32.4.2.3 Commander, Naval Sea Systems Command Program Offices.
COMNAVSEASYSCOM Program Offices (and Commander Space and Naval Warfare System Command for subparagraphs b. through f. of this paragraph) must:

a.   Chair TMA Panels per paragraph 32.4.2.1.5 of this chapter.

b.   Participate on TMA and TMI Panels as requested.

c.   Develop Plan of Action and Milestones and Business Case Analyses to address TYCOM HM&E and CS Technical Tickler issues.

d.   Coordinate other activities as required to determine root causes and develop corrective actions.

e.   Review minutes from TMA and TMI Panels and take action as appropriate.

f.   Work with TYCOMs for resolution of HM&E and Nuclear Planning and Execution System Technical Issues and Action Items.

32.4.2.4 Program Executive Officers and Direct Reporting Program Managers. PEO and Direct Reporting Program Managers must:

a.   Assign representatives to the appropriate TMA-TMI Working Groups.

b.   Chair the applicable submarine TMI Panels as described in paragraph 32.4.2.1.5 of this chapter.

c.   Review minutes from TMA-TMI Panels and take action as appropriate.

32.4.3 <u>Top Management Attention-Top Management Issues Panels</u>. The TMA-TMI Panels must:

a.   Review, discuss, and agree on the course of action to resolve each technical issue presented.

b.   Publicize minutes of the Panel Meetings.

32.4.3.1 <u>Top Management Attention Panels</u>. TMA Panels meet every six months, to assess the applicability of Plan of Action and Milestones and ROIs, and monitor the progress of issues. TMA panels are meetings chaired at the O-6 level. In general, TMA Panels discuss those issues that can be handled within the SYSCOM organizations. The TMA Panel will identify top issues based on specific attributes (e.g., man-hours, cost, readiness) for presentation at TMI.

a.   TMA Panels: TMA Panel composition and agendas are coordinated between applicable TYCOM staffs, Fleet staffs and SYSCOM Program Offices. Attendees to the appropriate TMA Panels include, but are not limited to, the following:

    (1)   COMNAVSEASYSCOM (05) representative as chairman for the Surface Force, Aircraft Carrier and CS panels and COMNAVSEASYSCOM (SEA 07) representative as chairman for the Submarine Force panel.

    (2)   CNO (N43) and applicable Resource Sponsor (N8, N6) representative(s).

    (3)   Maintenance and Supply representatives from Fleet, TYCOMs, and Regional Maintenance Centers (RMC).

    (4)   COMNAVSEASYSCOM Program Offices, engineering codes and logistics codes representative(s).

    (5)   Commander, Space and Naval Warfare Systems Command (COMNAVWARSYSCOM) Program Office representative(s) as requested.

    (6)   Commander, Naval Air Systems Command (COMNAVAIRSYSCOM) Engineering representative(s) as requested.

    (7)   In-Service Engineering Agent representatives.

    (8)   Naval Inventory Control Point (NAVICP) representative.

    (9)   Training Command representative.

    (10)   Naval Research Laboratory representative.

    (11)   Board of Inspection and Survey representative.

b.   Submarine Force TMI Panel: The Submarine Force TMI Panel is chaired by COMSUBFOR. The TMI is normally conducted as a part of the Undersea Enterprise Board of Directors meeting. COMSUBFOR and COMSUBPAC Directors for Maintenance and Material Readiness coordinate the agenda with the COMSUBFOR Enterprise office. Panel Members may include, but are not limited to, the following:

        (1)   COMSUBFOR, SEA 07, PEO SUBS.

        (2)   CNO (N43) and applicable Resource Sponsor (N8, N6) representative(s).

        (3)   COMSUBFOR and COMSUBPAC Maintenance and Supply Officers.

        (4)   COMNAVSEASYSCOM program offices, engineering code and logistics code representatives.

        (5)   COMNAVWARSYSCOM representative.

        (6)   COMNAVAIRSYSCOM representative.

        (7)   In-Service Engineering Agent representative(s).

        (8)   Commander, Navy Regional Maintenance Center and RMC representatives.

        (9)   NAVICP representative.

        (10)   Chief of Naval Education and Training representative.

c.   Surface Force Ship and Aircraft Carrier TMI Panels: The Surface Force Ship or Aircraft Carrier TMI Panel is chaired by NAVSEA 05. NAVSEA 05, PEO Theater Surface Combatants, PEO Expeditionary Warfare, PEO Mine and Undersea Warfare, PEO CARRIERS and PEO Surface Strike jointly coordinate the agenda. Attendees of the appropriate TMI Panels include, but are not limited to, the following:

        (1)   PEO Expeditionary Warfare, PEO Theater Surface Combatants, PEO CARRIERS (Surface and Carrier), PEO Mine and Undersea Warfare, PEO Surface Strike, SEA 07 (Submarine).

        (2)   CNO (N43), and applicable Resource Sponsor (N8, N6) representative(s).

        (3)   COMLANTFLT, COMPACFLT, COMNAVSURFLANT, COMNAVSURFPAC, COMNAVAIRLANT, COMNAVAIRPAC, COMSUBLANT, and COMSUBPAC Maintenance and Supply Officers.

        (4)   COMNAVSEASYSCOM program offices, engineering code and logistics code representatives.

        (5)   NAVWARSYSCOM representative.

        (6)   COMNAVAIRSYSCOM representative.

        (7)   In-Service Engineering Agent representative(s).

        (8)   RMC and RMC representatives.

        (9)   NAVICP representative.

        (10)   Chief of Naval Education and Training representative.

        (11)   Naval Research Laboratory representative.

        (12)   Board of Inspection and Survey representative.

d.   Combat Systems: The CS Troubled Systems Process supports the TMA-TMI process with selected inputs for the COMLANTFLT or COMPACFLT CS Technical Tickler.

32.4.3.2 Top Management Attention-Top Management Issues Working Groups. The TMA-TMI Working Groups must:

a.   Receive TYCOM HM&E and CS Technical Ticklers or Issues White Papers as appropriate from NAVSEA 05 for surface force ships and aircraft carriers or from NAVSEA 07 for submarines and identify common and platform specific issues as appropriate.

b.   Review TYCOM HM&E and Nuclear Planning and Execution System Technical Ticklers, White Papers or Action Items. Verify applicability of Fleet-recommended actions and achieve agreement with appropriate Fleet and TYCOM staff(s) as appropriate.

c.   Notify appropriate COMNAVSEASYSCOM Program Offices and other SYSCOMs when equipment or systems under their care are identified as fleet material readiness issues.

32.4.3.3 Review. TMA-TMI Working Groups, comprised of SYSCOM representatives designated by NAVSEA 05 and 07, PEO SUBS, PEO Ships, PEO Integrated Warfare Systems, and PEO CARRIERS, review Fleet inputs to determine common and platform specific issues and assign issues to the appropriate SYSCOM Program Offices.

32.4.4 Top Management Attention-Top Management Issues Analysis Center.

32.4.4.1 Candidate Identification. The TMA-TMI Analysis Center will provide a combined Ranking Matrix to help determine the relative ranking of systems and equipment on a Navy wide basis. The TMA-TMI Analysis Center, using the TYCOM input plus RMC and TYCOM technical experts, will prepare a preliminary set of Fleet generated system problems and potential solutions, the Technical Tickler, for the systems and equipment chosen for inclusion in the TMA-TMI process. The TMA-TMI Analysis Center, using 3-M data, also provides the TYCOMs with a Ranking Matrix, Figures 32-1 and 32-2, and Impact Chart, Figure 32-3, by Allowance Parts List (APL) and Equipment Identification Code (EIC) for their review. The Ranking Matrix will be TYCOM specific, using the Ranking Matrix as a guide. The TYCOMs select systems or equipment for further evaluation and possible induction into the TMA-TMI process.

32.4.4.2 Candidate Expanded Metrics. The TMA-TMI Analysis Center provides the TYCOMs with a tailored TMA Report for their identified systems or equipment. This report contains a Balanced Score Card (BSC), Problem Free Time, Failure Rate, Parts Ranking and modified Ship's Logistics Indicator Computerized Report (SLICR) for the specific candidate system or equipment defined by APL or EIC nominated by the TYCOM. These are 3-M based reports that require no special data collection or analysis efforts.

32.4.5 Type Commanders. The TYCOMs, using the data provided in the TMA Report and other (RMC, SYSCOMs, etc.) Casualty Report (CASREP), maintenance, logistics or training inputs will determine which systems or equipment to nominate for inclusion into the TMA-TMI process. The nomination should include the TMA Metrics plus additional justification including the TYCOM's initial Root Symptom Analysis as to the causes of poor performance. Systems and equipment will be nominated at the lowest component level that can be identified as the reliability or cost driver. When multiple APLs or EICs from the same "System" appear at or near the top of the Ranking Matrix, the entire "System" can be nominated.

32.5 <u>METRICS</u>. Metrics used are generated directly from the 3-M database via Open Architecture Retrieval System (OARS) and require no subsequent data collection or analysis efforts. All Navy systems and equipment that generate maintenance data are included and considered as part of this methodology. This is a three-month process, starting after Fleet Week and culminating at the Mid-Cycle review that gets new systems nominated by the Fleet to TMA. Systems not selected for TMA can be re-nominated by a TYCOM Representative at least 4.5 months prior to any future Fleet Week.

32.5.1 <u>Top Management Attention-Top Management Issues Candidate Selection</u>. There are two methods used to select topic candidates for TMA-TMI. TYCOMs may use any combination of the two methods to select topic candidates.

a. The first method entails soliciting fleet commanders, maintenance officers and TYCOM staff members for candidate topics. Candidate topics are then reviewed by both TYCOM maintenance officers and selected or rejected as TMA topics.

b. The second method is by a ranking matrix where costs, man-hours, CASREP volume and other attributes are measured and a "top ten" selection process is then employed.

32.5.1.1 <u>Top Management Attention-Top Management Issues Ranking Matrix Method</u>. Six attributes are used to rank systems and equipment as TMA-TMI Program candidates. Data for five of the attributes are downloaded directly from the 3-M database via OARS. The CASREP Volume data is extracted and sanitized from the NAVICP CASREP Database. The attributes are:

a. <u>2-Kilo Volume</u> - Total number of Maintenance Actions (2-Kilos) generated by the system or equipment.

b. <u>Man-hours</u> - Total Ship's Force and Intermediate Maintenance Activity (IMA) man-hours expended on system or equipment maintenance.

c. <u>Parts Cost</u> - Total net cost of repair parts used to support the system or equipment.

d. <u>Hi-Priority Failures</u> - Total number of 2-Kilos that are Status 2 or 3 and Priority 1, 2 or 3 2-Kilos generated for a system or the equipment.

e. <u>Hi-Priority Down Time</u> - Total days of down time for the system or equipment based on hi-priority failures.

f. <u>CASREP Volume</u> - Number of CASREPs generated by the system or equipment.

32.5.1.2 <u>Data on each attribute is collected over a two-year period</u>. The Ranking Matrix is a multivariable Pareto ranking technique that avoids the distortion inherent in ordinary ranking schemes where variables representing different aspects of a system or equipment may have different units of measurement with widely differing scales. The technique gives full visibility to systems where even only one of the descriptive attributes has a high impact level. As a result, the "top ten Pareto" of each of the attributes winds up on or near page one of the overall ranking. The process is easily automated in MS Excel or MS Access. This method is applied to approximately 43,000 APL and 4,200 EIC systems and equipment. The resultant Ranking Matrix provides Fleet decision makers a list of potential TMA-TMI candidates.

32.5.1.3 <u>Ranking Matrix Calculation</u>. Data for each attribute are scaled, normalized or standardized (depending on the language in your field of study) in a way that creates unit vectors

(0 to 1, with a few high outliers > 1) in statistical units (Standard Deviation multiples sometime referred to as "Z" scores). The scaling used results in the 3-sigma value of the data being scaled to equal one. The 99.86th percentile of the data is used to locate that value in the ranked raw data, which is a percentile commonly used for "normal" distributions with a single tail as being equivalent to the 3-sigma value. Although the five attribute distributions are not "normal", they are close to being "log normal" so the percentile technique works. The percentile technique works well regardless since the data is a 100% sample and the statistical distribution (which should be known if samples are used for estimating) is not a critical issue. After scaling the attributes, the vector equivalents are then combined using vector addition to create a balanced rank value that can be used for final ordering of the ranking. The vector addition technique is straightforward (Pythagorean). For over three years this has produced a tight pattern of the top ten for each attribute falling within the top 50 fleet-wide. The method is objective, repeatable, and robust and uses the "actual data", not a representation of the data.

Figure 32-1 Sample TMA APL Ranking Matrix

FUNCTIONAL AREA (L1)	EIC	EIC NOMENCLATURE (L2)	APL	APL NOMENCLATURE (L3)	apl_population	jcn_count	jcn_rank	total_man	tmh_rank	total_rep	trrc_rank	hi_priority	hpf_rank	hi_priority	hpfdt_ran	casrep_vc	casrep_ra	BAL_VEC	BAL_RANK	MDT	MTBF	A(o)	R(m)	P(mf)	$/Failure
GUN SYSTEMS	GV	WEAPON SYSTEM, CLOSE-IN, MK 15 (PHALANX)	006090237	MK7MOD0,RADAR ASSEMBLY,MODULE	237	6721	1	172335	3	18715213	1	1463	1	64977.77	2	471	1	17.18	1	44	79	64.0%	10.2%	89.8%	$17,504
GENERATION SYSTEMS, ELECTRIC POWER	37	GENERATOR SYSTEM, 100KW, STEWART AND STEVE	667780010E	ENGINE DSL 16 114D001 1600 1800RPM	106	3016	2	258700	1	3501167	20	809	2	56992.98	3	122	3	9.71	2	70	64	47.5%	6.0%	94.0%	$17,119
PROPULSION SYSTEM, MAIN GAS TURBINE, M	D1	GAS TURBINE MODULE, PROPULSION	052050008	GAS GENERATOR ASSY&GTURB MN PROSN 7LM2500PB1	137	1794	9	156811	4	15281673	2	456	6	34540.58	9	115	4	8.85	3	76	146	65.9%	29.2%	70.8%	$47,268
GENERATION SYSTEMS, ELECTRIC POWER	35	GENERATOR SET, GAS TURBINE	052090005	ENG ASSY GAS TURB MDL 501K34	117	1249	27	59905	14	11631984	4	189	32	10109.13	136	76	17	5.69	4	53	301	84.9%	55.0%	45.0%	$74,223
NAVIGATION SYSTEMS (ELECTRONIC AND NON	LB	GYROCOMPASS (CIRCUIT LC AND XLC)	262000010	AN/WSN-2 SET,GYROCOMPASS,STABLIZED	62	242	446	5592	699	12665477	3	72	238	4821.532	508	36	68	5.48	5	67	419	86.2%	65.1%	34.9%	$179,016
GUN SYSTEMS	GV	WEAPON SYSTEM, CLOSE-IN, MK 15 (PHALANX)	006090238	MK20MOD0,ELECTRONIC ASSEMBLY,ENCLOSURE	237	2019	8	52239	21	4025599	17	482	5	18453.1	38	143	2	5.02	6	38	239	86.2%	47.2%	52.8%	$12,687
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	78298233SA	OJ-194(V)4/UYA-4(V) LESS IP-1091	192	595	103	178318	2	1469130	73	144	63	6989.946	277	14	268	4.95	7	49	649	93.0%	75.8%	24.2%	$59,735
MISSILE SYSTEMS, SURFACE	51	FIRE CONTROL SYSTEM, GUN/MISSILE, MK 92 MOD 2	006080059	MK92MOD2,FIRE CONTROL SYSTEM (BASELINE)	18	1350	18	34045	47	4320047	14	590	9	35400.09	6	97	7	4.88	8	61	15	19.8%	0.0%	100.0%	$9,813
HULL STRUCTURE	AD	DOORS, HATCHES, MANHOLES, SCUTTLES AND CLOS	319990011	WATERTIGHT DOORS, HATCHES, SCUTTLES NO OTHER AP	3364	2057	6	36801	36	202509	537	243	20	75146.83	1	1	3073	4.77	9	309	6741	95.6%	97.4%	2.6%	$6,691
GUN SYSTEMS	G6	WEAPON SYSTEMS, GUN	006040508	MK46MOD0,OPTICAL SIGHT	34	246	434	15632	180	10683899	5	79	195	6291.344	335	58	27	4.76	10	80	210	72.5%	42.4%	57.6%	$143,154
AUXILIARY SYSTEMS	TF	AIR SYSTEMS, COMPRESSED	061430285E	COMPRESSOR AIR HIGH PRESSURE 20CFH 3000PSI	57	1299	23	61519	13	1947981	47	520	1	28820.28	13	88	9	4.35	11	55	53	49.1%	3.4%	96.6%	$8,478
GENERATION SYSTEMS, ELECTRIC POWER	31	PLANTS, GENERATING, SHIPS SERVICE	052090002	ENGINE GAS TURBINE SHIPS SER GEN	78	1297	24	81095	5	4969783	11	317	13	12899.61	83	85	10	4.16	12	41	120	74.6%	22.3%	77.7%	$25,910
PROPULSION SYSTEM, MAIN GAS TURBINE, M	D1	GAS TURBINE MODULE, PROPULSION	052050018	GAS GENRATOR ASSEMBLY MDL L25250G12	66	664	88	41219	33	8613557	6	160	50	11454.33	107	42	56	4.12	13	72	201	73.7%	40.8%	59.2%	$64,139
COMMUNICATION AND DATA SYSTEMS	QF	CRYPTOGRAPHIC EQUIPMENT	88633651	TA-970/U, TELEPHONE SET	4786	2832	3	17859	141	482109	220	427	7	21960.75	29	0	5983	3.77	14	51	5457	99.1%	96.8%	3.2%	$2,802
DISTRIBUTION SYSTEMS, ELECTRICAL POWER	45	DISTRIBUTION SYSTEM, AC LIGHTING	249990001	FIXTURE LGTG FLRSNT MS17179-77.4	109040	2549	4	44648	29	927524	105	359	10	25459.73	21	0	5979	3.61	15	71	147890	100.0%	99.9%	0.1%	$7,558
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	MED15664	AM-6900/SPY-1A CG47T58, AMPLIFIER,RADIO FREQ	48	1151	32	72676	9	4080218	15	326	12	13133.13	79	19	169	3.45	16	40	72	64.0%	8.1%	91.9%	$21,433
GENERATION SYSTEMS, ELECTRIC POWER	31	PLANTS, GENERATING, SHIPS SERVICE	668880044L	ENGINE DIESEL GEN. 36SS8V-AM MDL 2894F01-GEN 6CY	36	1490	14	36978	37	3982757	19	237	21	14655.93	62	92	8	3.42	17	62	74	54.5%	8.8%	91.2%	$23,046
DISTRIBUTION SYSTEMS, ELECTRICAL POWER	45	DISTRIBUTION SYSTEM, AC LIGHTING	249990138	LANTERN ELEC 115VAC SYM 101.2	71182	2221	5	31077	57	325997	343	395	25	23916.33	25	2	1982	3.39	18	61	87745	99.9%	99.8%	0.2%	$3,972
PROPULSION SYSTEM, MAIN DIESEL, MECHAN	B1	ENGINE AND CONTROLS, DIESEL	668860032L	ENGINE DIESEL 36SS6V-AM MDL 2894F01 6CYL	48	1538	13	36021	41	4013172	18	179	36	15643	55	80	14	3.20	19	87	131	59.9%	25.2%	74.8%	$30,469
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	ME403291	AM-7158/SPY-1B DDG51T90, AMPLIFIER,RADIO FREQ	120	833	62	16563	162	6525954	8	156	52	3220.242	910	46	41	3.19	20	21	375	94.8%	61.8%	38.2%	$46,079
ADMINISTRATION HABITABILITY, OUTFIT/FURNIS	1A	EQUIPMENT AND FURNISHINGS, UTILITY SPACE	439990247	PLASTIC PROCESSOR MELT UNIT 593-6961200	390	1064	40	46175	26	1045396	91	259	17	28559.29	14	71	19	3.04	21	110	733	86.9%	78.2%	21.8%	$11,168
RADAR AND IFF SYSTEMS	P3	RADAR, AIR SEARCH	59226806	AS-3263/SPS-49(V), ANTENNA	77	240	450	6509	431	6943212	7	47	435	3554.825	796	24	127	3.03	22	76	798	91.3%	79.8%	20.2%	$154,970
RADAR AND IFF SYSTEMS	P1	RADAR, SURFACE SEARCH	57041000	AN/SPS-55, RADAR SET	81	813	64	17709	145	2216016	38	219	23	13163.55	78	112	5	2.98	23	60	180	75.0%	36.8%	63.2%	$13,353
AUXILIARY SYSTEMS	TF	AIR SYSTEMS, COMPRESSED	061430287	COMPRESSOR UNIT 20.0CFH 3000PSI	36	736	75	51315	24	1446433	74	253	19	30990.66	11	55	29	2.96	24	122	69	36.1%	7.4%	92.6%	$13,830
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	MED15659	AM-6899/SPY-1A CG47T58, AMPLIFIER,RADIO FREQ	72	719	79	77050	8	3498322	21	201	29	6048.992	356	24	125	2.92	25	30	174	65.3%	35.6%	64.4%	$32,738
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	ME403311	T-1348/SPG DDG51T90, TRANSMITTER,RADAR	120	940	52	24141	84	5475373	9	132	78	4160.215	624	55	31	2.91	26	32	443	93.4%	66.6%	33.4%	$48,796
GUN SYSTEMS	GV	WEAPON SYSTEM, CLOSE-IN, MK 15 (PHALANX)	006090242	M61A1 20MM GUN	237	1409	16	61981	12	2826318	29	222	24	8212.5	210	43	50	2.90	27	37	520	93.4%	70.7%	29.3%	$23,899
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	ME403292	AM-7159/SPY-1B DDG51T90, AMPLIFIER,RADIO FREQ	80	1088	35	18087	117	5223554	10	176	39	3551.882	797	43	54	2.83	28	20	221	91.6%	44.3%	55.7%	$33,790
PROPULSION SYSTEM, MAIN DIESEL, MECHAN	B1	ENGINE AND CONTROLS, DIESEL	668860067M	ENGINE DSL ID36SS8V-AM MDL-2949F01 8 CYL	24	1167	31	35619	44	1834152	52	167	43	11568.15	106	98	6	2.82	29	69	70	50.3%	7.6%	92.4%	$19,514
GENERATION SYSTEMS, ELECTRIC POWER	31	PLANTS, GENERATING, SHIPS SERVICE	L665360269	DIESEL ENG. MDL 38ND8 1-8 12 CYL	32	962	50	79314	7	800932	121	162	47	19018.27	35	39	60	2.82	30	117	96	45.0%	15.4%	84.6%	$24,528
COMMUNICATION AND DATA SYSTEMS	QE	TRANSMITTERS (COMMUNICATION)	00008485	AM-3924D(P)/URT, AMPLIFIER,RADIO FREQUENCY	434	1329	20	17252	149	1645025	64	354	11	16015.85	53	48	37	2.80	31	45	597	93.0%	74.0%	26.0%	$6,596
AUXILIARY SYSTEMS	TF	AIR SYSTEMS, COMPRESSED	863050754	H.P. AIR SYSTEM CARTRIDGE VALVE REPAIR PARTS	119	1280	25	18287	135	62050	1741	405	8	17610.27	45	2	1984	2.77	32	43	143	76.7%	28.4%	71.6%	$1,959
MISSILE SYSTEMS, SURFACE	53	FIRE CONTROL SYSTEMS, GUN/MISSILE	006080067	MK92MOD6,FIRE CONTROL SYSTEM (BASELINE)	12	679	85	19143	125	4587678	13	161	49	18615.98	36	51	33	2.72	33	116	36	23.9%	0.7%	99.3%	$33,251
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	00034338	OJ-451(V)8/UYQ-21(V) ROLL-UP	465	1677	12	31517	54	1920930	48	268	16	9861.075	145	16	223	2.54	34	37	845	95.8%	80.8%	19.2%	$11,872
PROPULSION SYSTEM, MAIN GAS TURBINE, M	D1	GAS TURBINE MODULE, PROPULSION	059970003	BASSE ENCL & GTRB ASSEMBLY FFG 7 L25040G01	60	890	58	27353	69	681950	151	292	14	25721.71	19	26	106	2.48	35	88	100	53.2%	16.5%	83.5%	$6,082
AUXILIARY SYSTEMS	T7	PLUMBING INSTALLATIONS	017000043	PUMP CTFGL 100GPM 30PSI 1750RPM MCC VLT	231	466	167	29432	64	209336	527	134	77	39702.58	5	25	116	2.48	36	296	839	73.9%	80.7%	19.3%	$10,049
MISSILE SYSTEMS, SURFACE	54	LAUNCHING SYSTEM, GUIDED MISSILE, MK 13 MOD 4	004020385	MK13MOD4,LAUNCHING SYSTEM,GUIDED MISSILE	30	1011	44	36101	40	936992	104	187	34	25403.8	22	44	46	2.39	37	136	78	36.5%	10.0%	90.0%	$12,733
AUXILIARY SYSTEMS	TC	SCUPPERS AND DECK DRAINS	679990055	DRAIN DK SZ 2.000 IN	7370	792	67	9984	358	113682	1004	177	38	35907.37	6	0	5975	2.30	38	203	20274	99.0%	99.1%	0.9%	$2,899
COMMUNICATION AND DATA SYSTEMS	Q7	AMPLIFIERS, AUDIO	00023028	AM-3729/SR, AMPLIFIER AUDIO FREQ	7333	1739	10	10073	355	329355	338	160	51	25033.9	23	0	5980	2.30	39	156	22316	99.3%	99.2%	0.8%	$4,577
AUXILIARY SYSTEMS	TD	FILLING, VENT AND TRANSFER SYSTEM (FUEL AND DI	882049342A	VALVE GATE 6.00IPS FLGE STL	248	46	2918	1660	2344	2167	12573	36	641	42575.48	4	0	5974	2.30	40	1183	3354	73.9%	94.8%	5.2%	$1,905
SONAR SYSTEMS	R4	SONAR SYSTEMS, CLASSIFICATION	00030785	TB-30C/SQQ-32(V), TOWED BODY	26	529	122	16155	170	2910021	28	122	93	6087.268	350	81	13	2.30	41	50	104	67.5%	17.6%	82.4%	$29,151
GUN SYSTEMS	GV	WEAPON SYSTEM, CLOSE-IN, MK 15 (PHALANX)	006090222	MK15MOD12,WEAPON SYSTEM,CLOSE-IN	113	1020	43	25802	73	1397838	75	148	57	7345.134	255	80	16	2.29	42	50	372	88.2%	61.6%	38.4%	$16,418
GUN SYSTEMS	G3	FIRE CONTROL SYSTEM, GUN, MK 86	49402746	AN/SPQ-9A,RADAR SET	37	490	147	26400	72	1814938	55	145	62	10138.56	135	84	11	2.28	43	70	124	64.0%	23.5%	76.5%	$19,800
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	00030000	OJ-663(V)1/UYQ-21(V), CONSOLE,COMBAT DISPLAY	318	1420	15	18517	132	1722120	58	224	23	11739.85	103	37	66	2.25	44	52	691	93.0%	77.1%	22.9%	$10,995
AUXILIARY SYSTEMS	T1	HEATING SYSTEMS	021450091	WASTE HEAT BOILER MDL BWCC 150 PSIG FWT 180 F	69	561	113	52533	19	380427	283	147	59	21458.47	30	23	131	2.23	45	146	229	61.0%	45.5%	54.5%	$16,883
AUXILIARY SYSTEMS	TK	DISTILLING PLANTS	080030086E	DISTILLATION UNIT 4000GPD	52	561	113	35959	42	410971	261	255	18	20593.06	31	31	84	2.21	46	81	99	55.1%	16.3%	83.7%	$7,252
COMMUNICATION AND DATA SYSTEMS	QP	COMMUNICATION SYSTEMS, SATELLITE	00019697	RT-1107(V)7/WSC-3, RECEIVER TRANSMTR,LOS	1721	1241	28	12220	272	898647	106	283	15	13122.34	80	20	156	2.18	47	46	2961	98.5%	94.1%	5.9%	$4,903
PROPULSION SYSTEM, MAIN GAS TURBINE, M	D1	GAS TURBINE MODULE, PROPULSION	345030003	STARTER ENG AIR GTRB MDL ATS100-388B	372	553	115	68835	10	2082214	41	82	187	4386.868	575	5	873	2.18	48	53	2209	97.6%	92.2%	7.8%	$58,971
PROPULSION SYSTEM, MAIN GAS TURBINE, M	D7	OIL SYSTEMS, FUEL	487140001	FILTER SEP LIQFL MDL 50471151500	4	46	2888	80683	6	48448	2166	7	3879	287.4866	9649	0	12281	2.17	49	41	278	87.1%	52.4%	47.6%	$467,967

Figure 32-2 Sample TMA EIC Ranking Matrix

EIC	EIC NOMENCLATURE	FUNCTIONAL AREA	jcn_count	jcn_rank	man_hours	tmh_rank	total_repair	trrc_rank	hi_priority	hpf_rank	hi_priority	hpdt_rank	casrep_vc	casrep_ra	BAL_VEC	BAL_RANK
U000	SUPPORT SERVICES, MAINTENANCE	SUPPORT SERVICES, MAINTENANCE	183,743	1	6,132,518	1	$25,751,114	4	17905	1	4,046,753	1	421	7	41.99	1
1000	ADMINISTRATION HABITABILITY, OUTFIT/FURNISHINGS	ADMINISTRATION HABITABILITY, OUTFIT/FUR	40,913	3	1,333,477	4	$5,812,668	37	6085	2	1,374,829	2	24	282	11.50	2
A905	COMPARTMENTS	HULL STRUCTURE	56,132	2	1,575,477	3	$2,220,421	100	4103	6	1,086,529	3	15	421	11.44	3
Z000	SPECIAL/MISCELLANEOUS/UNCODED ITEMS	SPECIAL/MISCELLANEOUS/UNCODED ITEMS	27,685	5	1,633,924	2	$37,860,095	3	2988	10	410,674	10	73	95	9.45	4
AD01	DOORS	HULL STRUCTURE	40,661	4	712,558	7	$7,877,630	21	4198	5	870,775	4	95	69	8.23	5
T801	FIREMAINS	AUXILIARY SYSTEMS	19,247	12	591,128	8	$10,819,978	16	4390	4	815,003	5	637	1	7.72	6
1805	LOCKERS, DAMAGE CONTROL	ADMINISTRATION HABITABILITY, OUTFIT/FUR	24,547	6	728,980	6	$13,264,377	11	4912	3	612,214	6	20	332	6.59	7
D111	GENERATOR ASSEMBLY, GAS	PROPULSION SYSTEM, MAIN GAS TURBINE	7,361	38	474,096	11	$38,386,681	2	1679	25	117,104	46	308	10	6.38	8
5612	TRANSMITTER GROUPS (AN/SPY-1)	MISSILE SYSTEMS, SURFACE	9,923	21	320,727	23	$38,454,563	1	1700	23	64,308	84	276	13	6.23	9
3108	GENERATOR SET, 60HZ, GAS TURBINE DRIVEN	GENERATION SYSTEMS, ELECTRIC POWER	11,571	15	883,518	5	$16,253,348	6	2847	11	169,960	28	563	3	5.92	10
TF01	AIR SYSTEMS, HIGH PRESSURE	AUXILIARY SYSTEMS	20,573	9	461,414	13	$12,792,343	13	3851	7	371,861	12	501	4	5.78	11
TF03	AIR SYSTEMS, LOW AND MEDIUM PRESSURE	AUXILIARY SYSTEMS	18,272	13	522,940	10	$13,197,387	12	3340	9	295,402	17	563	2	5.69	12
1B01	GALLEY EQUIPMENT (COMMISSARY SPACES)	ADMINISTRATION HABITABILITY, OUTFIT/FUR	23,144	7	354,346	21	$4,608,712	44	3544	8	423,713	9	92	72	4.71	13
T30B	FAN UNIT (TYPE A, VANEAXIAL)	AUXILIARY SYSTEMS	8,689	24	234,068	34	$2,091,720	104	2330	14	470,081	8	353	9	4.09	14
B101	ENGINE, DIESEL	PROPULSION SYSTEM, MAIN DIESEL, MECH	9,587	22	273,377	28	$12,351,988	14	1554	29	134,713	37	458	6	3.91	15
T40S	CONDITIONING SYS, AIR (R-114 CHILLED WATER PLANT)	AUXILIARY SYSTEMS	12,995	14	365,132	19	$5,967,372	36	2415	13	366,808	13	204	21	3.73	16
4505	FIXTURES, LIGHTING, PERMANENT MOUNTED	DISTRIBUTION SYSTEMS, ELECTRICAL POW	20,131	10	362,859	20	$4,937,186	42	2703	12	246,527	20	8	625	3.70	17
T706	PIPING AND VALVE GROUP	AUXILIARY SYSTEMS	10,537	18	262,186	30	$3,130,625	68	1995	17	496,523	7	64	105	3.64	18
7C1C	AIRCRAFT RECOVERY EQUIPMENT GENERAL ARRANGEMENT, MK 7	AVIATION SHIP INSTALLATION	21,233	8	461,127	14	$10,376,460	17	185	228	69,568	76	21	318	3.51	19
7A11	CATAPULT GENERAL ARRANGEMENT C13/C13-1/C13-2	AVIATION SHIP INSTALLATION	19,771	11	582,583	9	$6,042,689	29	410	112	67,447	78	18	357	3.45	20
T806	AUXILIARY SEA WATER SERVICE SYSTEM	AUXILIARY SYSTEMS	11,020	17	403,072	17	$6,673,045	31	2106	16	269,111	19	231	17	3.39	21
3701	GENERATOR SET, 60HZ, DIESEL ENGINE DRIVEN	GENERATION SYSTEMS, ELECTRIC POWER	8,594	26	448,990	15	$6,189,991	35	2212	15	161,341	31	286	12	3.29	22
3101	GENERATOR SET, 60HZ, DIESEL ENGINE DRIVEN	GENERATION SYSTEMS, ELECTRIC POWER	8,673	25	267,790	29	$9,680,634	19	1249	32	99,833	52	373	8	3.23	23
GV23	RADAR-WEAPON ASSEMBLY 5543003	GUN SYSTEMS	7,264	40	186,791	41	$18,210,968	5	1363	31	67,058	80	172	26	3.23	24
GV00	WEAPON SYSTEM, CLOSE-IN, MK 15 (PHALANX)	GUN SYSTEMS	1,846	140	55,909	134	$3,197,582	67	442	104	33,195	175	484	5	3.06	25
T300	VENTILATION SYSTEMS	AUXILIARY SYSTEMS	8,557	27	170,682	43	$2,095,440	103	1742	22	393,807	11	162	29	3.05	26
T404	AIR CONDITIONING PLANT, CHILLED WATER (R-12) 80 TON	AUXILIARY SYSTEMS	7,601	34	212,030	36	$3,455,803	61	1974	18	312,106	16	220	19	2.94	27
A500	PLATFORMS, FLATS AND DECKS	HULL STRUCTURE	10,495	19	315,058	24	$722,116	251	1631	26	335,634	14	15	422	2.85	28
F101	BOILERS, D-EXPRESS-HEADER TYPE, PRPLN SYS, MAIN STEAM	PROPULSION SYSTEM, MAIN-STEAM, MECH	7,402	37	437,143	16	$5,179,471	38	1682	24	226,238	21	162	30	2.83	29
T605	FUELING SERV, XFR AND BLENDING SYSTEM, AVI JP-5	AUXILIARY SYSTEMS	9,470	23	273,973	27	$5,055,032	39	1808	20	315,318	15	74	93	2.83	30
TB03	WATER SYSTEM, POTABLE	AUXILIARY SYSTEMS	10,434	20	277,612	26	$6,619,149	32	1825	19	209,837	25	158	32	2.74	31
TK03	DISTILLING PLANT, LOW PRESSURE FLASH TYPE	AUXILIARY SYSTEMS	7,702	33	258,056	31	$6,879,203	27	1746	21	195,523	26	222	18	2.70	32
D701	SERVICE SYSTEM, FUEL OIL	PROPULSION SYSTEM, MAIN GAS TURBINE	7,520	35	399,221	18	$7,374,117	23	1596	27	132,404	40	192	24	2.70	33
5646	AN/SPG-62(SERIES), RADAR SET	MISSILE SYSTEMS, SURFACE	5,414	49	111,779	69	$14,534,374	8	751	57	38,609	147	217	20	2.69	34
GV20	WEAPON SYSTEMS, CLOSE-IN, MK 15 MODS 11-14 (PHALANX)	GUN SYSTEMS	8,108	29	180,214	42	$10,197,047	18	1166	38	56,343	99	272	14	2.68	35
5622	DISPLAY GROUP, COMMAND AND DECISION	MISSILE SYSTEMS, SURFACE	6,938	43	462,580	12	$6,948,534	25	1224	33	64,784	83	108	58	2.44	36
1A01	LAUNDRY-TAILOR SHOP EQUIPMENT	ADMINISTRATION HABITABILITY, OUTFIT/FUR	11,420	16	204,488	38	$2,314,806	94	1577	28	209,992	24	68	99	2.33	37
LB3E	AN/WSN-2, GYROCOMPASS SET, STABILIZED	NAVIGATION SYSTEMS (ELECTRONIC AND N	436	475	8,766	560	$15,594,245	7	123	352	9,553	456	44	165	2.30	38
4101	SWITCHBOARD, SHIPS SERVICE, 60HZ	DISTRIBUTION SYSTEMS, ELECTRICAL POW	5,106	51	152,708	47	$4,080,244	49	1097	41	102,675	51	295	11	2.29	39
G611	WEAPON SYSTEM, GUN, MK 34 MOD 0	GUN SYSTEMS	2,675	104	68,606	116	$13,525,878	10	355	132	25,221	218	148	36	2.23	40

32.5.2 Charts and Graphs.

32.5.2.1 Impact Chart. The Impact Chart provides a means of plotting the Ranking Matrix and showing, using a two-axis display, the TMA-TMI systems or equipment and potential candidate systems or equipment. Annual Cost of Parts and Labor are combined to form the X-axis and Days Down Time the Y-axis, providing a visual "high cost", "high down time" display of TMA-TMI current and candidate systems or equipment.

Figure 32-3 Sample Impact Diagram
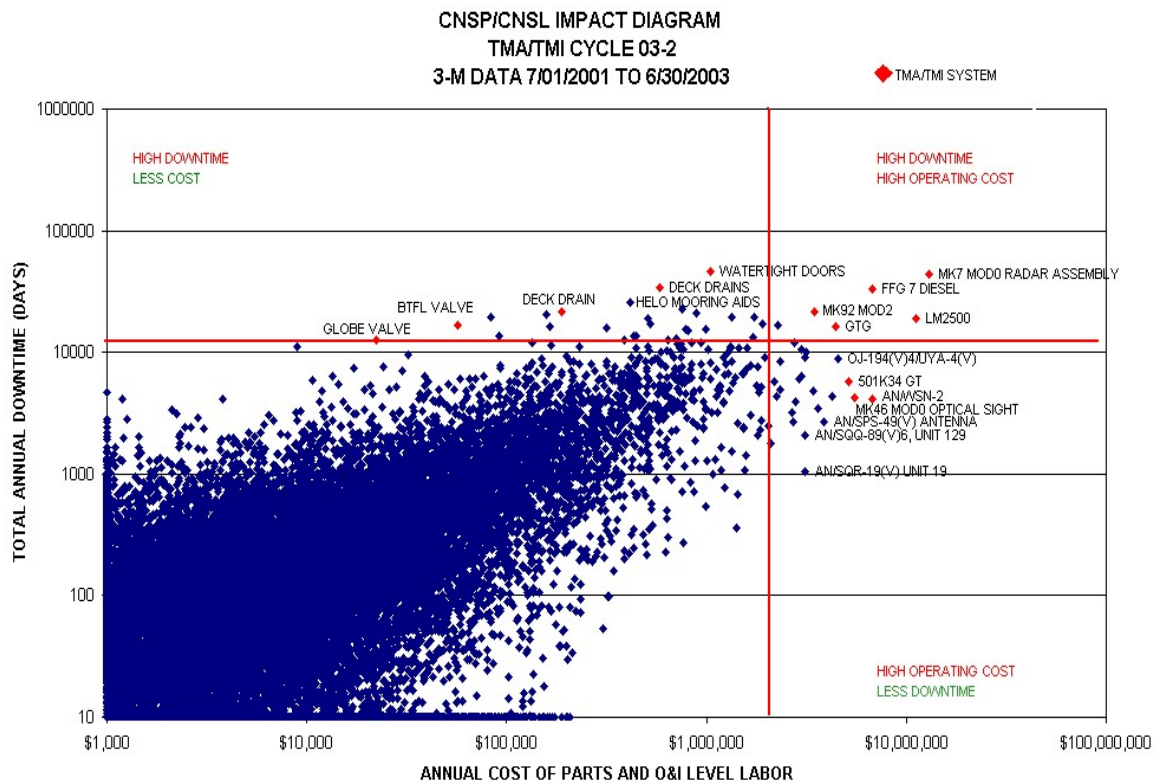
32.5.2.2 Balanced Score Card.

a. Ratio analysis is a valuable tool for interpreting financial and operating data (from balance sheets, profit-and-loss statements, production data, etc.) to detect favorable or unfavorable conditions in business performance.

b. Ratios are used to show the proportional relationship of data from a variety of sources. Business owners should compare their ratios for a specific period with previous periods to ascertain possible reasons for change. They may also choose to compare the ratios for their operation with the industry standard.

c. After an operation has been in existence for a reasonable time, the ratios tend to stabilize and in many industries, desirable ratios are well established. Therefore, there is a minimum percentage that an operation can cost (manpower or capital) and still provide proper service, and a maximum that it can cost before the operation is shut down or re-engineered.

    d.   This business approach can be applied to the management of systems in the fleet. The BSC developed by the TMA-TMI Analysis Center allows the user to:

        (1)   Observe the shape, or system behavior and maintenance strategy (relative proportions or ratios, variable to variable).

        (2)   Compare a single variable with the entire fleet (since the data is scaled using the upper control limit of all fleet data for each variable as the 100% mark).

        (3)   Observe the enclosed area which is proportional to the TMA-TMI balanced ranking value.

        (4)   Identify problem areas for follow-on analysis.

Notice that ratios of variables that have the same value on the grid (1:1) are at the fleet average or norm. For example, if Hi-Priority Failures and Hi-Priority Downtime are equal, the connecting line is parallel to the grid and that system has an Average Logistics Response Time equal to the fleet average. Other ratios behave in the same way. A typical BSC has six sides representing the six TMA-TMI attributes. Additional variables from other data sources may be added and, if scaled to the upper control limit of that data source, will achieve similar results.

Figure 32-4 Sample BSC
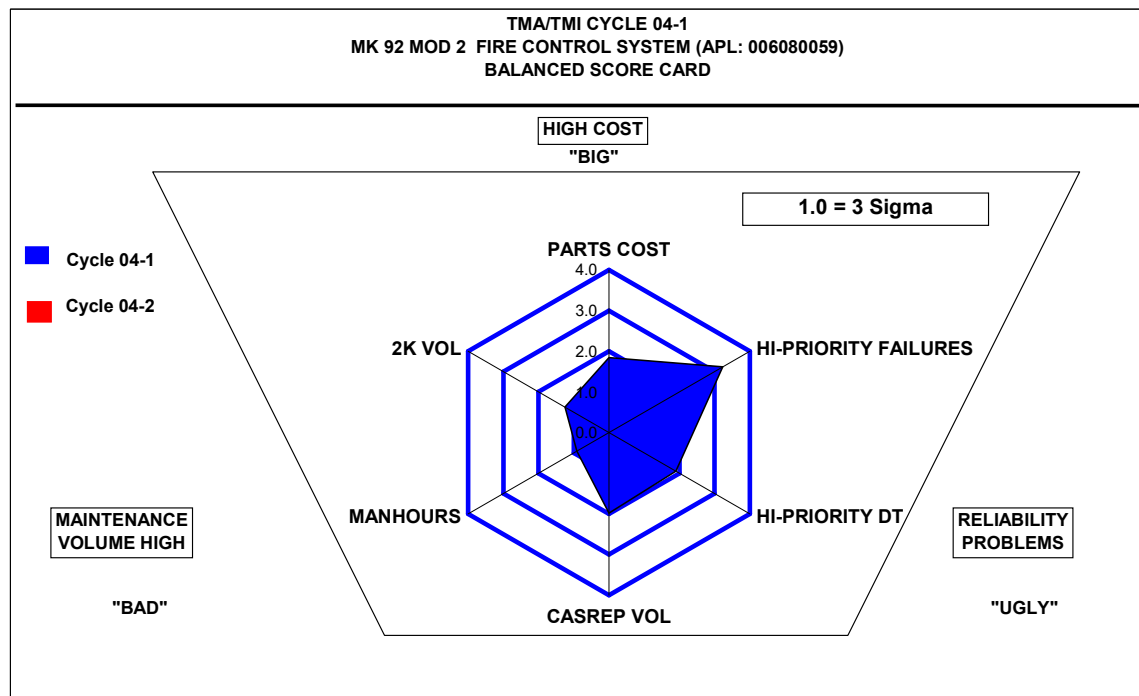
32.5.2.3 <u>Time (problem free)</u>. Reference (b), establishes Operational Availability (Ao) as the primary measure of material readiness for navy mission-essential systems, subsystems and equipment installed in platforms. Ao represents the expected percentage of time that system or individual equipment will be ready to perform satisfactorily in an operating environment when called for at any random point in time. To provide the primary measure of material readiness for the TMA-TMI systems or equipment, the TMA-TMI Analysis Center has developed a measure

of Ao for selecting, tracking and trending TMA-TMI systems and equipment called Time Problem Free (T (pf)).

a.   T (pf) uses the mathematical description of Ao provided by reference (b). Generally, Ao is interpreted as the percentage of time that the system will be ready to perform satisfactorily in an operating environment. T (pf) is interpreted as the percentage of time that the system or equipment is free of hi-priority failures during that same period. Quantitatively, this is expressed in the formula:

$$Ao = \text{Uptime divided by Uptime} + \text{Downtime}$$

For the purposes of describing TMA-TMI systems or equipment, Uptime is equal to Mean Time Between Failure (MTBF) and Downtime is equal to Mean Down Time (MDT). The TMA-TMI formula for T (pf) becomes:

$$\textbf{T (pf)} = \text{MTBF divided by (MTBF} + \text{MDT)}$$

Data to calculate T (pf) is extracted from the Navy's 3-M Database via the OARS. OARS provides a ten-year maintenance history of system and equipment performance.

MTBF (in days) is calculated using the formula:

MTBF = 1 divided by (No. Failures divided by (30.44*0.667*Population)) where

b.   No. Failures = the number of Status 2 and 3 2-Kilos written per month. Status 2 is defined by 3-M as inoperative and Status 3 is degraded performance. Limiting 2-Kilo data to Status 2 and 3 eliminates approximately 75% of all 2-Kilos written and provides the basis for measuring mission-degrading performance. Together the TMA-TMI process identifies these as "Deck Plate" CASREPs or maintenance actions that reduce a system or equipment's ability to satisfactorily perform in an operating environment. 30.44*0.667 = 30.44 days in an average month times 0.667, which is defined by reference (b) as "the percentage of time that the system will be ready to perform satisfactorily in an operating environment". For sea-going systems, this operating tempo is approximated as 2/3-calendar time.

c.   Population = the actual population of the system or equipment under evaluation or the number of platforms the system or equipment is installed in. Actual numbers of equipment are generally used for CS and larger HM&E items such as Main Engines or Ships Service Generators. Number of platforms is used for multiple installations of smaller HM&E items such as pumps or valves.

d.   MDT is computed by month directly from OARS and is the mean number of days from the opening of Status 2 or 3 2-Kilos until the Deck Plate CASREPs are corrected and the 2-Kilos closed. MDT is all-inclusive. It contains such items as Mean Logistics Delay Time, Administrative Time, Mean Total Time to Repair, etc. Breaking MDT down into the contributing elements requires expensive data collection and analysis and is not necessary for TMA-TMI purposes.

e.   Time (problem free) Assessment. The resultant T (pf) meets the requirements of reference (b) and provides a means of assessing:

(1)   Operational Availability of TMA-TMI systems or equipment.

(2) Effectiveness of the TMA-TMI program in resolving chronic problems in those systems and equipment.

(3) Systems or equipment trends in T (pf), MTBF and MDT over time.

Figure 32-5 Sample T(pf)

**RM&A PARAMETERS FOR MK 46 MOD 0 OPTICAL SIGHT
(TIME PROBLEM FREE (Tpf) IS % OPERATING TIME FREE OF PROBLEMS)**
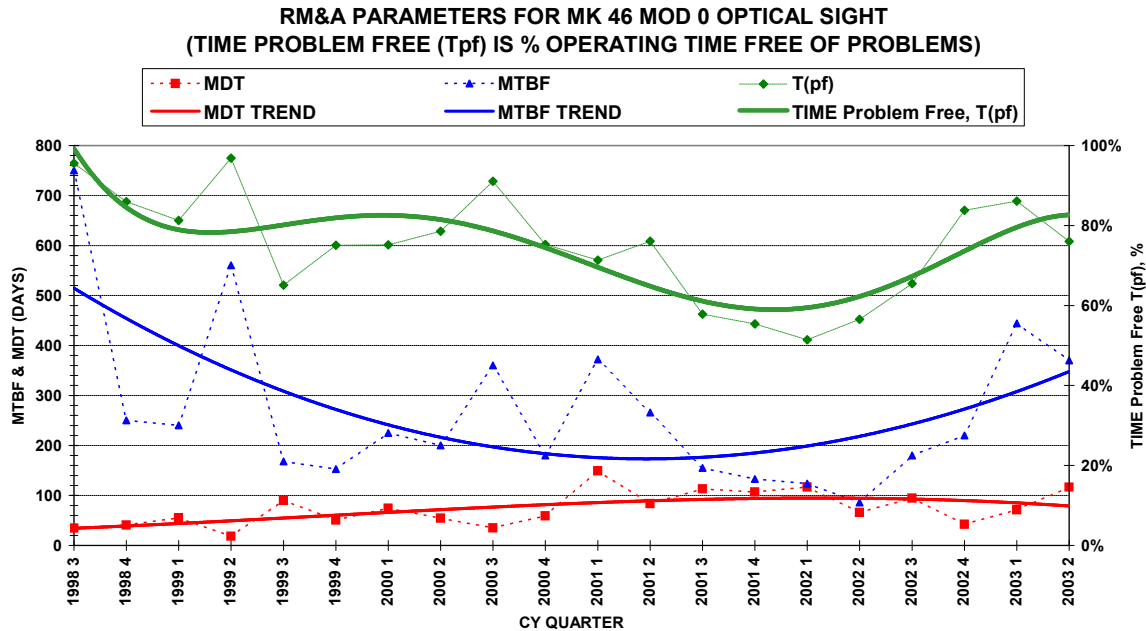
32.5.2.4 <u>Failure Trend</u>. The failure trend provides a failure history for the candidate TMA-TMI system and equipment. Hi-Priority Failures are plotted quarterly for the past five years and a polynomial trend line provides the direction of movement.

Figure 32-6 Sample Hi-Priority Failure Trend

**RM&A PARAMETERS FOR MK 46 MOD 0 OPTICAL SIGHT
STATUS TWO & THREE FAILURES DIRECT FROM 3M VIA OARS**
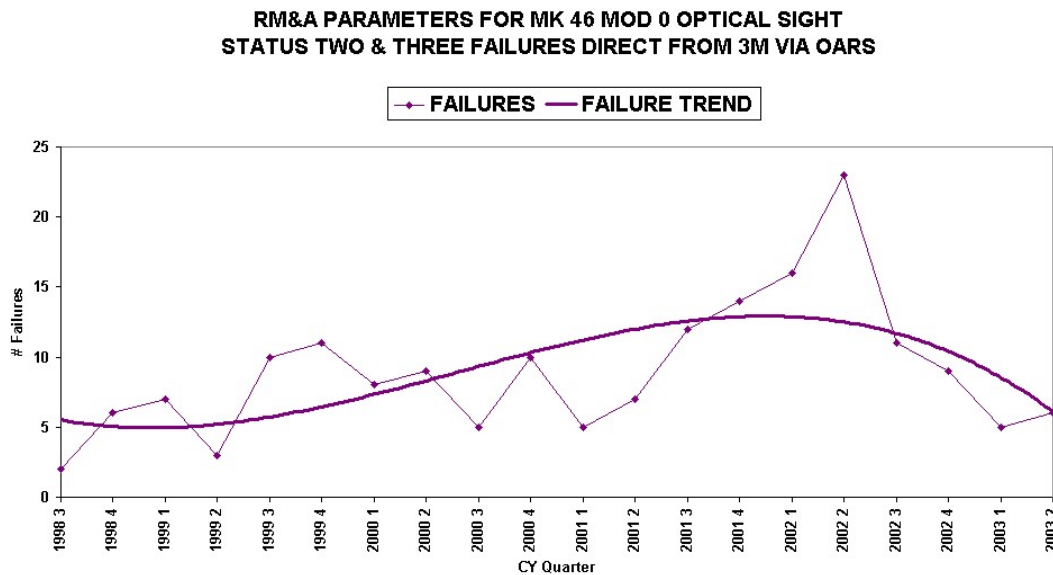
32.5.2.5 <u>Parts Ranking</u>. The Supply Parts Ranking Report, L0201, is a Ships 3-M Standard Report extracted from OARS. This report provides a quick method for determining fleet material problems based on total parts issued and total cost. Parts Ranking is the ten highest "TOTAL_PRICE" parts extracted from OARS. This represents total cost to the Navy, not necessarily to the individual unit. Cost to the unit will be increased for failure to turn in a Depot Level Repairable carcass. The Parts Ranking provides the National Item Identification Number (NIIN), abbreviated NIIN nomenclature, quantity and total cost per NIIN for the ten most expensive repair parts for the candidate system or equipment.

Figure 32-7 Sample Parts Ranking

MK 46 MOD 0 OPTICAL SIGHT, PARTS RANKING 7/01 TO 6/03

- 014524680 SENSOR,THERMO IMAGI, QTY 16
- 014524678 SENSOR,DAYLIGHT IMA, QTY 8
- 014554414 DIRECTOR ASSEMBLY,P, QTY 3
- 014541758 CHASSIS AUTO VIDEO, QTY 3
- 014460717 GYROSCOPE,INTEGRATI, QTY 8
- 014460750 CIRCUIT CARD ASSEMB, QTY 7
- 014460722 GRIP ASSEMBLY,CONTR, QTY 9
- 014541755 CHASSIS DISPLAY, QTY 1
- 014469118 RESOLVER,ELECTRICAL, QTY 4
- 014460731 STABILIZER,GYRO, QTY 1
- 014762964 PANEL,BLANK, QTY 34

Values shown on chart: $24,248 / $30,266 / $40,459 / $52,130 / $56,009 / $88,479 / $320,592 / $521,340 / $1,138,620 / $2,927,360 / $7,090,240

32.5.2.6 Ship's Logistics Indicator Computerized Report. The SLICR, L0106, is a Ships 3-M Standard Report extracted from OARS. The SLICR is intended to identify problem equipment within the fleet. The SLICR provides the following metrics:

a.   APL/EIC.

b.   APL_NOMENCLATURE/EIC_NOMENCLATURE.

c.   FAILURES: Count of maintenance actions with Status_Code 2 or 3.

d.   SF_MNHRS: Total number of Ship's Force man-hours expended by Ship's Force personnel or other installing personnel in completing and documenting the maintenance action.

e.   PART_ISSUES: Total number of 1250 and 1348 Supply Order Forms processed in support of maintenance.

f.   REPLCMNT_COST: The cost to replace parts used in maintenance with new (not refurbished) parts.

g.   IMA_MNHRS: Total number of IMA man-hours expended in completing and documenting the maintenance action.

h.   VISITS: The count of maintenance actions with TYCOM screening code = 1, 2 or 3.

i.   ACTIONS: A count of deferral, non-deferral and IMA maintenance actions.

j.   OWNSHP_COST: The sum of the cost of the labor of Ship's Force personnel, the cost of labor of the IMA personnel, the cost to replace non-repairable items and the cost to fix repairable items for a group of Job Control Numbers for a given APL or EIC.

k.   COSAL: COSAL Effectiveness is the probability a requested item is stocked onboard whether or not it is available when requested.

l.   NET_COSAL: NET Effectiveness is the probability that a stocked item is onboard when requested.

m.   GROSS_COSAL: GROSS Effectiveness is the probability that any requested item is onboard when needed and is the product of COSAL*NET effectiveness.

n.   LOG_TIME: The sum of (issue date – open date) divided by the total number of issues; average waiting time for a part issue in days.

o.   MAINT_EFFECT: The probability of all required repair parts for a given maintenance action being onboard.

Figure 32-8 Sample SLICR Report

APL	APL_NOMENCLATURE	FAILURES	SF_MNHRS	PART_ISSUES	REPLCMNT_COST	IMA_MNHRS	VISITS	ACTIONS	OWNSHP_COST	COSAL	NET_COSAL	GROSS_COSAL	LOG_TIME	MAINT_EFFECT
006040508	MK46MOD0,OPTICAL SIGHT	79	6952	185	$10,375,646	48	12	139	$10,255,325	45.7	69.4	31.7	77	23.3

32.5.2.7 Ranking Matrix. The Ranking Matrix is similar to the TMA Ranking Matrix except that it provides data for all six TYCOMs and contains data on over 60,000 APLs. This fleet wide Ranking Matrix allows the Fleet to prioritize TMA-TMI selections on a Navy wide basis.

Figure 32-9 Sample Ranking Matrix

FUNCTIONAL AREA (L1)	EIC	EIC NOMENCLATURE (L2)	APL	APL NOMENCLATURE (L3)	apl_population	jcn_count	jcn_rank	total_man	tmh_rank	total_repair	trrc_rank	hi_priority	hpf_rank	hi_priority	hpfdt_ran	casrep_vc	casrep_ra	BAL_VEC	BAL_RANK	MDT	MTBF	A(o)	R(m)	P(mf)	$/Failure
GUN SYSTEMS	GV	WEAPON SYSTEM, CLOSE-IN, MK 15 (PHALANX)	006090237	MK7MOD0,RADAR ASSEMBLY,MODULE	270	7592	1	203171	2	$21,890,449	1	1639	1	71419	1	501	1	19.94	1	44	80	64.8%	10.6%	89.4%	$18,314
GENERATION SYSTEMS, ELECTRIC POWER	37	GENERATOR SYSTEM, 100KW, STEWART AND STEVENSON MO	667780010E	ENGINE DSL 16 114D001 1600 1800RPM	106	3016	3	258700	1	$3,501,167	20	809	2	56993	2	122	3	10.16	2	70	64	47.5%	6.0%	94.0%	$17,119
HULL STRUCTURE	AD	DOORS, HATCHES, MANHOLES, SCUTTLES AND CLOSURES	319990011	WATERTIGHT DOORS, HATCHES, SCUTTLES NO OTHER APL	9229	2978	4	52793	25	$266,450	465	378	12	112546	12	1	3170	9.75	3	298	11888	97.6%	98.5%	1.5%	$6,291
PROPULSION SYSTEM, MAIN GAS TURBINE, MECHANICAL DRIVE	D1	GAS TURBINE MODULE, PROPULSION	052050008	GAS GENERATOR ASSY&GTURB MN PROSN 7LM2500PB101	137	1794	12	156811	4	$15,281,673	2	456	9	34541	9	115	4	9.34	4	76	146	65.9%	29.2%	70.8%	$47,268
ADMINISTRATION HABITABILITY, OUTFIT/FURNISHINGS	1A	EQUIPMENT AND FURNISHINGS, UTILITY SPACE	439990247	PLASTIC PROCESSOR MELT UNIT 593-6961200	530	1831	11	63246	16	$2,197,163	43	471	8	62184	8	77	17	6.37	5	132	548	80.6%	72.0%	28.0%	$10,036
GENERATION SYSTEMS, ELECTRIC POWER	35	GENERATOR SET, GAS TURBINE	052090005	ENG ASSY,GAS TURB MDL 501K34	117	1249	34	59905	19	$11,631,984	4	189	38	10109	38	76	19	5.97	6	53	301	84.9%	55.0%	45.0%	$74,223
NAVIGATION SYSTEMS (ELECTRONIC AND NON-ELECTRONIC)	LB	GYROCOMPASS (CIRCUIT LC AND XLC)	262000010	ANWSN-2 SET,GYROCOMPASS,STABLIZED	62	242	560	5592	626	$12,665,477	3	72	269	4822	269	36	74	5.80	7	67	419	86.2%	65.1%	34.9%	$179,016
GUN SYSTEMS	GV	WEAPON SYSTEM, CLOSE-IN, MK 15 (PHALANX)	006090238	MK20MOD0,ELECTRONIC ASSEMBLY,ENCLOSURE	270	2267	7	61719	17	$4,504,972	14	545	4	21048	4	156	2	5.79	8	39	241	86.2%	47.4%	52.6%	$12,796
MISSILE SYSTEMS, SURFACE	51	FIRE CONTROL SYSTEM, GUN/MISSILE, MK 92 MOD 2	006080059	MK92MOD2,FIRE CONTROL SYSTEM (BASELINE)	18	1350	24	34045	53	$4,320,047	15	579	3	35400	3	97	7	5.31	9	61	15	19.8%	0.0%	100.0%	$9,813
DISTRIBUTION SYSTEMS, ELECTRICAL POWER	45	DISTRIBUTION SYSTEM, AC LIGHTING	249990138	LANTERN ELEC 115VAC SYM 101.2	89256	2829	6	38046	41	$414,519	296	535	5	40573	5	2	3169	5.08	10	76	81233	99.9%	99.8%	0.2%	$3,619
GUN SYSTEMS	G6	WEAPON SYSTEMS, GUN	006040508	MK46MOD0,OPTICAL SIGHT	34	246	552	15632	216	$10,683,899	5	79	226	6291	226	58	27	5.05	11	80	210	72.5%	42.4%	57.6%	$143,154
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEMS, AEGIS, MK 7 MODS	78298233SA	OJ-194(V)4/UYA-4(V) LESS IP-1091	192	595	135	178318	3	$1,469,130	80	144	79	6990	79	14	270	4.91	12	49	649	93.0%	75.8%	24.2%	$59,735
AUXILIARY SYSTEMS	TF	AIR SYSTEMS, COMPRESSED	061430285E	COMPRESSOR AIR HIGH PRESSURE 20CFH 3000PSI	57	1299	28	61519	18	$1,947,981	51	520	6	28820	6	88	9	4.63	13	55	53	49.1%	3.4%	96.6%	$8,478
DISTRIBUTION SYSTEMS, ELECTRICAL POWER	45	DISTRIBUTION SYSTEM, AC LIGHTING	249990001	FIXTURE LGTG FLRSNT MS171179-77.4	128672	2938	5	36021	47	$4,013,172	95	397	15	30912	11	0	4948	4.38	14	73	157813	100.0%	99.9%	0.1%	$7,993
PROPULSION SYSTEM, MAIN GAS TURBINE, MECHANICAL DRIVE	D1	GAS TURBINE MODULE, PROPULSION	052050018	GAS GENRATOR ASSEMBLY MDL L25250G12	66	664	114	41219	39	$8,613,557	6	160	60	11454	60	42	58	4.36	15	72	201	73.7%	40.8%	59.2%	$64,139
COMMUNICATION AND DATA SYSTEMS	QF	CRYPTOGRAPHIC EQUIPMENT	88633651	TA-970/U, TELEPHONE SET	5523	3157	2	20582	128	$526,720	230	490	7	24727	7	0	4947	4.30	16	50	5488	99.1%	96.8%	3.2%	$2,755
GENERATION SYSTEMS, ELECTRIC POWER	31	PLANTS, GENERATING, SHIPS SERVICE	052090002	ENGINE GAS TURBINE SHIPS SER GEN	78	1290	29	81095	6	$4,969,783	11	317	15	12900	15	85	11	4.27	17	41	120	74.6%	22.3%	77.7%	$25,910
AUXILIARY SYSTEMS	T8	FIREMAINS, FLS, SPKLR, WASHDOWN AND SALT WATER SER.	982051261	VALVE GLB 2.50IPS 250PSI FLGE X MHSTH BRZ	10551	892	74	23865	106	$196,813	639	186	43	49673	43	0	4957	4.25	18	267	27620	99.0%	99.4%	0.6%	$6,190
PROPULSION SYSTEM, MAIN-STEAM, MECHANICAL DRIVE	F7	PIPING, VALVES AND ACCESSORIES, MAIN STEAM	887055403R	VALVE GLB STP .50IPS 900PSI SWLDG STL	5706	1034	51	23170	108	$71,477	1790	43	567	42783	567	0	5129	3.62	19	995	64612	98.5%	99.7%	0.3%	$23,216
GENERATION SYSTEMS, ELECTRIC POWER	31	PLANTS, GENERATING, SHIPS SERVICE	668980044L	ENGINE DIESEL GEN 36SS6V-AM MDL 2894F01-GEN 6CY	36	1490	19	36978	44	$3,982,757	19	237	23	14656	23	92	8	3.58	20	62	74	54.5%	8.8%	91.2%	$23,046
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	ME015664	AM-6900/SPY-1A CG47T58, AMPLIFIER,RADIO FREQ	48	1151	43	72676	10	$4,080,218	16	326	14	13133	14	19	177	3.52	21	40	72	64.0%	8.1%	91.9%	$21,433
AUXILIARY SYSTEMS	TF	AIR SYSTEMS, COMPRESSED	061430287	COMPRESSOR UNIT 20.0CFH 3000PSI	36	736	97	51315	30	$1,446,433	81	253	20	30991	20	55	28	3.49	22	122	69	36.1%	7.4%	92.6%	$13,830
AUXILIARY SYSTEMS	T8	FIREMAINS, FLS, SPKLR, WASHDOWN AND SALT WATER SER.	990990513	NOZZLE-TYPE SB,WASHDOWN COUNTERMEASURES SYSTEM	10225	349	327	15134	223	$115,318	1152	136	89	41816	89	3	2037	3.49	23	307	36608	99.0%	99.5%	0.5%	$5,299
RADAR AND IFF SYSTEMS	P3	RADAR, AIR SEARCH	59226806	AS-3263/SPS-49(V), ANTENNA	90	274	480	13203	285	$7,486,394	7	51	448	3977	448	25	121	3.47	24	78	859	91.7%	81.1%	18.9%	$157,147
AUXILIARY SYSTEMS	TD	FILLING, VENT AND TRANSFER SYSTEM (FUEL AND DIESEL OIL)	862049342A	VALVE GATE 6.00IPS FLGE STL	248	46	3483	1660	2790	$2,167	14581	36	732	42575	732	0	5193	3.44	25	1183	3354	73.9%	94.8%	5.2%	$1,905
AUXILIARY SYSTEMS	T7	PLUMBING INSTALLATIONS	017000043	PUMP CTFGL 100GPM 30PSI 1750RPM MCC VLT	235	466	212	28432	75	$209,336	602	134	93	39703	93	0	130	3.44	26	296	854	74.2%	81.0%	19.0%	$10,049
PROPULSION SYSTEM, MAIN DIESEL, MECHANICAL DRIVE	B1	ENGINE AND CONTROLS, DIESEL	668980032L	ENGINE DIESEL 36SS6V-AM MDL 2894F01 6CYL	48	1538	18	36021	47	$4,013,172	18	179	46	15643	46	80	15	3.39	27	84	131	59.9%	25.2%	74.8%	$30,469
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	ME403291	AM-7158/SPY-1B DDG51T90, AMPLIFIER,RADIO FREQ	120	833	84	16563	194	$6,525,854	8	156	65	3220	65	46	44	3.34	28	21	375	94.8%	61.8%	38.2%	$46,079
HULL STRUCTURE	AD	DOORS, HATCHES, MANHOLES, SCUTTLES AND CLOSURES	319990907	MISC STEEL WT/AT CLOSURE COMMON REPAIR PARTS	731	1175	40	86538	5	$640,599	183	138	87	24884	87	0	4967	3.31	29	180	2579	93.5%	93.3%	6.7%	$29,726
COMMUNICATION AND DATA SYSTEMS	QD	TRANSCEIVERS (COMMUNICATION)	00014937	AN/PRC-114(V), RADIO SET	1004	927	69	8932	483	$240,689	508	190	36	37351	36	0	4953	3.29	30	197	2573	99.2%	99.3%	0.7%	$2,869
AUXILIARY SYSTEMS	TC	SCUPPERS AND DECK DRAINS	679990055	DRAIN DK SZ 2.000 IN	10075	840	81	10693	388	$117,398	1131	190	37	37488	37	0	4954	3.28	31	197	25819	99.2%	99.3%	0.7%	$2,869
GUN SYSTEMS	GV	WEAPON SYSTEM, CLOSE-IN, MK 15 (PHALANX)	006090242	M61A1 20MM GUN	270	1555	16	67956	12	$3,136,393	25	246	21	8752	21	44	56	3.19	32	36	534	93.8%	71.4%	28.6%	$23,799
RADAR AND IFF SYSTEMS	P1	RADAR, SURFACE SEARCH	57041000	AN/SPS-55, RADAR SET	81	813	87	17709	174	$2,216,016	42	219	28	13164	28	112	5	3.18	33	60	180	75.0%	36.8%	63.2%	$13,353
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	ME403311	T-1348/SPG DDG51T90, TRANSMITTER,RADAR	120	940	64	24141	101	$5,475,373	9	132	95	4160	95	55	29	3.03	34	32	443	93.4%	66.6%	33.4%	$48,796
MISSILE SYSTEMS, SURFACE	53	LAUNCHER SYSTEMS	006080067	MK32MOD6,FIRE CONTROL SYSTEM (BASELINE)	12	679	112	19143	148	$4,587,678	13	161	58	18616	58	51	39	3.02	35	116	36	23.9%	0.7%	99.3%	$33,251
GENERATION SYSTEMS, ELECTRIC POWER	31	PLANTS, GENERATING, SHIPS SERVICE	L665360269	DIESEL ENG. MDL 38ND8 1-8 CYL	32	962	62	79314	8	$800,932	141	162	57	19018	57	39	65	3.01	36	117	96	45.0%	15.4%	84.6%	$24,528
GUN SYSTEMS	GW	HANDLING EQUIPMENT, AMMUNITION	580630047	HOIST CHN AIR OPER CAP 4000LBS	193	47	3410	1513	3020	$99,585	1324	33	801	36876	801	0	5220	2.98	37	1117	2684	71.8%	93.9%	6.1%	$4,852
PROPULSION SYSTEM, MAIN DIESEL, MECHANICAL DRIVE	B1	ENGINE AND CONTROLS, DIESEL	668980067M	ENGINE DSL ID36SS8V-AM MDL-2949F01 8 CYL	24	1167	42	36519	50	$1,834,152	56	167	54	11568	54	98	6	2.96	38	69	70	50.3%	7.6%	92.4%	$19,514
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	ME015669	AM-6899/SPY-1A CG47T58, AMPLIFIER,RADIO FREQ	72	719	99	77060	9	$3,498,322	21	201	33	6049	33	24	129	2.95	39	30	174	85.3%	35.6%	64.4%	$32,738
COMMUNICATION AND DATA SYSTEMS	Q7	AMPLIFIERS, AUDIO	00023028	AM-3729/SR, AMPLIFIER,AUDIO FREQ	9129	1895	10	11203	369	$372,486	338	189	39	27052	39	0	4955	2.92	40	153	23519	99.4%	99.2%	0.8%	$4,342
AUXILIARY SYSTEMS	T7	PLUMBING INSTALLATIONS	882304005	VALVE B 4.00IPS 100PSI FLGE BRZ	755	309	395	3994	1178	$60,175	2096	57	399	35828	399	0	5067	2.92	41	629	6449	91.1%	97.2%	2.8%	$3,869
MISSILE SYSTEMS, SURFACE	56	WEAPON SYSTEM, AEGIS, MK 7 MODS	ME403292	AM-7159/SPY-1B DDG51T90, AMPLIFIER,RADIO FREQ	80	1089	47	18168	164	$5,223,554	10	176	50	3552	50	43	57	2.92	42	20	221	91.6%	44.3%	55.7%	$33,808
COMMUNICATION AND DATA SYSTEMS	QD	TRANSCEIVERS (COMMUNICATION)	00008495	AM-3924D(P)/URT, AMPLIFIER,RADIO FREQUENCY	434	1332	26	17286	180	$1,657,633	70	354	13	16016	13	48	43	2.90	43	45	597	93.0%	74.0%	26.0%	$6,636
PROPULSION SYSTEM, MAIN GAS TURBINE, MECHANICAL DRIVE	D1	GAS TURBINE MODULE, PROPULSION	059970003	BASSE ENCL & GTRB ASSEMBLY FFG 7 L25040G01	60	890	75	27363	81	$681,950	171	292	17	25722	17	26	139	2.88	44	88	100	53.2%	16.5%	83.5%	$6,082
AUXILIARY SYSTEMS	TF	AIR SYSTEMS, COMPRESSED	863050754	H.P. AIR SYSTEM CARTRIDGE VALVE REPAIR PARTS	138	1290	30	18677	155	$62,513	2019	406	10	17610	10	2	2033	2.86	45	43	166	79.2%	33.8%	66.2%	$1,999
MISSILE SYSTEMS, SURFACE	54	LAUNCHING GUIDED MISSILE, MK 13 MOD 4	004020385	MK13MOD4,LAUNCHING SYSTEM,GUIDED MISSILE	30	1011	56	36101	46	$936,992	120	187	41	25404	41	44	49	2.82	46	136	78	36.5%	10.0%	90.0%	$12,733
COMMUNICATION AND DATA SYSTEMS	QD	TRANSCEIVERS (COMMUNICATION)	00014955	12-514069(04655), HELMET USED WITH AN/PRC-114(V)	1011	1133	44	9776	426	$237,712	515	179	47	30101	47	0	4969	2.80	47	168	2750	94.2%	93.7%	6.3%	$3,513
AVIATION SHIP INSTALLATION	7C	RECOVERY EQUIPMENT, AIRCRAFT	U995000085	AE A/G DRIVE SYSTEM (DS) INSTL,68CL PEND626064-2	32	1938	9	67036	13	$2,871,644	31	5	5905	1644	5905	0	8307	2.76	48	329	3116	90.5%	94.4%	5.6%	$1,110,617
AUXILIARY SYSTEMS	T8	FIREMAINS, FLS, SPKLR, WASHDOWN AND SALT WATER SER.	982290399	VALVE BTFL 8.00IPS 200PSI FLGE BRZ	1208	40	3961	1072	4114	$9,949	7732	23	1277	32794	1277	0	5431	2.65	49	1426	25573	94.7%	99.3%	0.7%	$2,297
AUXILIARY SYSTEMS	T1	HEATING SYSTEMS	021450091	WASTE HEAT BOILER MDL. BWCC 150 PSIG FWT 180 F	69	927	70	52533	26	$380,427	330	147	75	21458	75	23	141	2.54	50	146	229	61.0%	45.5%	54.5%	$16,883

APPENDIX A

**TOP MANAGEMENT ATTENTION AND
TOP MANAGEMENT ISSUES
FLOWCHART**

Coordinate Agendas for TMA
and TMI Panels.

Provide Courses of
Action for Fleet Review

D + 150

Resolve Outstanding
Issues at TMA and TMI
Panels

D + 165

Develop Courses of
Action to Resolve
Issues

Top Management Attention

(TMA)

HM&E and CS
Working Groups assign
SYSCOM Code
Responsibility for Issues

Disseminate
TMA and TMI
Panel Minutes and
Presentations
D+180

Top Management Issues

(TMI)

Consolidate HM&E and
CS TMA/TMI Issues
into Joint COMLANTFLT/
COMPACFLT Package

Update Ticklers &
Track Issues/Actions
For Follow up.

CONTINUOUS

Identify Joint
Fleet HM&E and
CS Issues

D + 90

Collect Data and
Develop Technical
Ticklers

CYCLE BEGINS (D)

D = 1 October or 1 April

VOLUME VI

CHAPTER 33

MAINTENANCE AND MODERNIZATION BUSINESS PLAN

REFERENCES.

(a)   OPNAVNOTE 4700 - Representative Intervals, Durations, Maintenance Cycles, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships

LISTING OF APPENDICES.

A.   Executive Summary Sheet

33.1   MAINTENANCE AND MODERNIZATION BUSINESS PLAN.

a.   The Maintenance and Modernization Business Plan (MMBP) identifies the total private sector maintenance funding budget available to support the ship during the execution year and advance planning and funding needs for availabilities to be executed in future years. The MMBP also includes funding for modernization. This includes funding for all Fleet Alterations and those Program Alterations managed by the Type Commander (TYCOM) or Naval Supervisory Authority (NSA) (Regional Maintenance Center (RMC), Naval Shipyard or Supervisor of Shipbuilding). The MMBP does not include funding for modernization that is managed by the Ship's Program Manager (SPM) or Participating Acquisition Resource Manager and accomplished by Alteration Installation Teams through separately administered contracts.

b.   MMBPs will be developed for all ships that will be in commission at the start of the upcoming Fiscal Year (FY). A second MMBP will be developed for any ship scheduled to start a Chief of Naval Operations (CNO) Availability in the first quarter of the following FY. This second business plan will address only the CNO Availability controls, a Risk Assessment and will not include Continuous Maintenance (CM) controls. The TYCOM will normally use the same TYCOM Target Controls for these out-year CNO Availabilities as used for the upcoming FY CNO Availability controls. These out-year MMBPs will require additional refinement in the next MMBP cycle.

33.2   MMBP RESPONSIBILITIES.

33.2.1   Maintenance Team Responsibilities. The Maintenance Team identifies budget needs to the NSA and the TYCOM based on well-documented work in the Current Ship's Maintenance Project (CSMP) and Class Maintenance Plan. The Maintenance Team MMBP identifies the total maintenance funding.

a.   The Maintenance Team establishes the funding phasing plan that will roll up to the Fleet Commander's overall phasing plan. It should be noted that the accuracy of the phasing plan is critical to the Fleet and TYCOM's ability to provide timely and stable funding. A Maintenance Team over executing or under executing its budget will cause unnecessary funding churn. For this reason, Maintenance Teams and NSAs should develop phasing plans that are accurate and reasonably achievable. For

example, if a CNO Availability is scheduled to start in the first month of a quarter, the funding for that availability will be required in the previous quarter and should be phased in the earlier quarter. CM phasing will depend largely on ships' schedules and should not simply be divided into four equal quarters in the phasing plan.

b. Each Maintenance Team will include an assessment of known material readiness risks associated with the MMBP funding levels in their initial MMBP submittal. In a case where there is unacceptable risk associated with the assigned funding controls, the TYCOM may agree to adjust assigned controls.

c. Maintenance Teams must use the format provided in Appendix A for MMBP submission.

33.2.2 NSA Responsibilities. For submarines and aircraft carriers, actions assigned to the NSA may be performed directly by the TYCOM or a designated agent (i.e., Immediate Superiors In Command (ISIC), Trident Refit Facility, or Naval Submarine Support Center).

a. The NSA has the authority to execute ship maintenance and must do so following Fleet and TYCOM policies and directives.

b. When conditions warrant, the NSA will develop a Business Adjustment Factor (BAF) percentage for CNO Availabilities to account for local business conditions. BAFs are established as a percentage of the availability budget, similar to the growth or award fee percentages. The BAF is an adjustment or hedge against impacts to the man-day rate or premium levels for specific CNO Availabilities due to factors such as high or low port loading. Examples of other situations that may require an allowance in the BAF are seasonal adverse weather patterns, anticipated labor union issues, anticipated labor rate adjustments or the general business conditions in the port.

c. The NSA will make any additional adjustments to TYCOM target controls based on prioritization of the work package, risk analysis and Business Case Analysis (BCA) included in the Maintenance Team's MMBP submissions. The overall, total NSA CNO Availability funding controls and total CM funding controls provided to the NSA by the TYCOM may not be exceeded in these adjustments.

d. (Surface Ships only) During the year of MMBP execution, changes to individual ship controls exceeding 10% require TYCOM notification; changes in excess of 20% require TYCOM approval. In the event adjustments are required that exceed available funds, the NSA will provide a written justification supporting the change and a formal recovery plan to the TYCOM for approval.

e. Appendix A may be modified as required, with TYCOM concurrence, for unique NSA processes or circumstances.

33.2.3 TYCOM Responsibilities (Surface Force Ships only).

a. Establish Force maintenance policies, directives and authorize the NSA to execute those policies and directives.

b. Provide Target Controls to the NSA in March of each year and review those controls as required by the budget approval process. These controls are between the TYCOM and the Port Engineer.

c. Ensure the established modernization plan is accurate and issue Fleet Alteration Letters of Authorization.

d. Validate MMBPs and issue approved CNO availability and Continuous Maintenance funding controls in naval message format at the beginning of each fiscal year.

e. Align Surface Warfare Enterprise processes with established waterfront support organizations and establish the readiness and cost control processes required to provide greater overall enterprise effectiveness.

f. Support the ISIC with warships ready for tasking by aligning manning, training, equipping and maintaining processes of ships by class.

g. Assess current readiness, analyze metrics, examine trends, determine root causes, establish lessons learned and provide recommendations and solutions, while emphasizing readiness and cost control.

h. The TYCOM will provide the RMCs with TYCOM Target Controls in March of each year and will revise these controls as required by the budget approval process.

33.2.4 TYCOM Responsibilities (Aircraft Carriers and Submarines only). The TYCOM establishes Force maintenance policies and directives and authorizes the NSA to execute those policies and directives.

a. The TYCOM ensures that the established modernization plan is accurate and issues Fleet Alteration Letters of Authorization.

b. The TYCOM has final approval of all MMBPs and will issue approved CNO Availability and CM funding controls in naval message format.

33.2.5 Ship Program Manager Responsibilities. The SPM ensures that the Letter of Authorization for Program Alterations is accurate and includes Program Alterations funding estimates.

33.3 THE MMBP SUBMISSION.

33.3.1 MMBP Spreadsheet. The required format for submission of MMBPs is provided in Appendix A of this chapter. As noted in paragraph 33.2.2.e. of this chapter, changes may be made to Appendix A to reflect NSA unique circumstances.

33.3.1.1 General Description. The MMBP provides the maintenance team's description of the planned maintenance and funding phasing.

33.3.1.2 Executive Summary Sheet.

a. Section I: The Schedule Overview is intended to illustrate major milestones in the current and upcoming year: assessments, deployments, availabilities, decommissioning, etc.

b. Section II: This section begins with initial controls (CNO and CM) and applies adjustments to those controls by TYCOM and RMC. The final numbers in each of these categories are funds available for assignment to CM and CNO work as appropriate. Particular care must be taken to ensure that the sign (where subtraction has a "-" or a number is preceded and followed with parentheses, e.g., "(10)"

indicating a negative number) of these numbers are correct, as they are linked to the CONTROLS AND PHASING sheet.

c.   Section III: Ensure that program alterations (K-Alterations) are included here and not included in other locations. D-Alterations, Machinery Alterations, and Ship Change Documents should be located in Section II.

d.   Section IV: This section provides an area for the maintenance teams to indicate areas of risk associated with the particular FY's maintenance plan. This section does not include topics that are not applicable to the execution FY risk. Areas to be discussed here:

    (1)   Work items identified in the UNFUNDED REQUIREMENTS sheet, and their impact to current or future operations.

    (2)   Upcoming assessments that may identify serious discrepancies.

e.   Section V: This section provides a general rollup of the work planned for the execution FY. Items in this section need not be identified by Job Control Number or Job Sequence Number, but rather a general layout of work to be brokered to individual availabilities and their notional values; this should include historical repairs from assessments. The bottom of this sheet sums items from other portions of the workbook for comparison purposes. Items of note in this section:

    (1)   The items identified in the "green" section of Section V are planned for completion in the execution FY and therefore are not elements of risk.

    (2)   The "shortfall" cell should be equal to or less than the UNFUNDED cell.

    (3)   The Risk section on the bottom of the spreadsheet feeds directly from the UNFUNDED REQUIREMENTS SHEET. This section sums the unfunded items by funding type and then by associated risk (see paragraph 33.3.1.4 of this chapter).

33.3.1.3 <u>Controls and Phasing Sheet</u>. This sheet applies changes (growth pools, overhead, award fees, and the business adjustment factors) to the adjusted controls. This sheet provides a further adjustment to the controls, as well as a phasing of the controls that should be completed by the Maintenance Teams so as to reflect the maintenance schedule. Particular care should be taken to ensure that sums are correct, since TYCOMs use this sheet to plan quarterly cash flows.

33.3.1.4 <u>Unfunded Requirements Sheet</u>.

a.   This sheet identifies those items in the Class Maintenance Plan or validated maintenance items in the ship's CSMP that cannot be completed in the execution FY due to funding constraints. To be included in the UNFUNDED REQUIREMENTS list, the following conditions must be satisfied:

    (1)   The work can be accomplished in the time available if additional funding is applied, or

    (2)   The work can be accomplished in the execution year if additional Continuous Maintenance Availability (CMAV) or CNO time were allotted.

b.   The column marked "Funding Type" has permissible entries: CM, CNO and AP. They are meant to indicate the most likely funding areas to which the work would be brokered if funding were available.

c.   The "Risk" column has permissible entries of "High," "Medium" and "Low" as determined by a BCA guided by Volume II, Part I, Chapter 4, Appendix D of this manual. These columns must be populated in order to properly assess the risk associated with the MMBP, as well as to feed properly to the Executive Summary Sheet.

33.3.2 <u>Prioritization</u>. Maintenance Teams should use any and all resources at their disposal to prioritize the work for which funds are available. The prioritized work should support the ship's current readiness requirements as well as work designed to ensure the ship can operate effectively its full service life.

33.3.3 <u>Maintenance Summary and Risk Assessment</u>. The Maintenance Team and TYCOMs will address any known maintenance risks based on Funding Controls or ship's maintenance schedule for the upcoming FY. This risk assessment must provide sufficient detail to enable NSA or TYCOM to make critical decisions with respect to funding adjustments. Photographs, inspection reports, docking reports, operating logs, vibration analysis, Maintenance Figure of Merit (MFOM) data and other objective evidence of important maintenance which is not able to be accomplished within the Maintenance Teams funding controls should be included.

33.4 <u>BUDGET PROCESS AND MMBP DEVELOPMENT TIMELINE</u>.

33.4.1 <u>Guidance</u>. In order to develop MMBPs prior to the start of the FY in which they will be executed, it is necessary to begin the process well before the final budget is approved and financial controls are passed to the Fleet Commanders, TYCOMs, and eventually to the Maintenance Teams. Maintenance Teams must develop MMBPs using the following guidance and timeline. For submarines and aircraft carriers, actions assigned to the NSA may be performed directly by the TYCOM or a designated agent (i.e., ISICs, TRIDENT Refit Facility, or Naval Submarine Support Center).

33.4.2 <u>Initial Budget Guidance (March)</u>.

a.   The TYCOM, in coordination with the Fleet Maintenance Officer, will establish an initial estimate of the expected funding controls for the next FY. Based on this information, TYCOMs will develop a common maintenance funding strategy, establish initial TYCOM Target Controls for each ship's CNO Availability and each ship's CM budget. The CM budget provides funds for both the yearlong continuous availability and scheduled CMAVs. TYCOM Target Controls are passed from the TYCOM to the Maintenance Team as the initial input to the MMBP process.

b.   The TYCOM and the SPM will ensure Letters of Authorization accurately reflect the modernization plan. SPMs and Participating Acquisition Resource Managers will provide installation estimates for Program Alteration installations or installation support services for which funding will be provided to the Maintenance Team. The TYCOM Target Controls will be separated into Fleet maintenance and Fleet funded alteration controls by the TYCOM before the controls are passed to the NSA.

33.4.3 <u>Provide Controls to Maintenance Team (April)</u>.

a.   The Maintenance Teams will use the Class Maintenance Plan to develop assessment schedules with NSA for inclusion in individual MMBPs.

b.   ISIC must provide ship operational schedule information to the Maintenance Team. This information is used to schedule CMAVs and Assessments for the upcoming year.

c.   The NSA will establish BAF if required for each CNO Availability, anticipated CNO Availability and CM growth percentages, support service percentages and Award Fee percentages as applicable for entry into the MMBP Budget Planning Sheet, Appendix A. For surface ships, Maintenance Teams may modify target controls for ships within a class based on their relative material condition.

d.   Maintenance Teams will develop MMBPs based on these initial controls. This iterative process will involve risk assessment and a BCA of any differences between the Maintenance Teams identified funding needs and the funding controls established for them.

33.4.4 <u>Execution Strategy Adjustments (May)</u>. The TYCOM in coordination with Fleet Commanders will determine if adjustments to the TYCOM Target controls are required. For surface force ships, the TYCOM will provide the NSA with direction for the adjustment of controls.

33.4.5 <u>(Surface Ships only) Maintenance Team Submit MMBPs for Approval via NSA (June)</u>. The NSA approves, consolidates and submits copies of each assigned ship's MMBP to the TYCOM for review and approval.

33.4.6 <u>TYCOM Approves MMBPs (July)</u>.

a.   The TYCOM approves MMBPs and issues final approved CNO availability and CM controls.

b.   The TYCOM or RMC provides final CNO budget controls and CM controls to the Maintenance Teams.

33.4.7 <u>Submit Phasing Plans (August)</u>.

a.   The NSA funds administrators will review and adjust each Maintenance Team's phasing plan to correspond with the total controls. Each NSA will provide the Maintenance Team phasing plans to TYCOM.

b.   The TYCOM will submit phasing plans to the Fleet Commander.

c.   The Project Manager is responsible for ensuring all MMPB related information is entered in the Navy Maintenance Database for all surface ship availabilities, including the TYCOM Annual Operating Controls. If the TYCOM controls are unknown at time avail is established within NMD, then a Notional Control must be entered in the interim until an actual control is established.

33.5 <u>BUSINESS PLAN RESOURCES</u>. The following resources and information must be reviewed and considered in the development of MMBPs. This list is not intended to be all-inclusive and is provided as a starting point.

a.   The notional CNO man-day requirements used by the TYCOM to establish initial TYCOM Target Controls.

b. The ship's CSMP.

c. The ship's Baseline Availability Work Package.

d. The Class Maintenance Plan.

e. Areas of specific concern that will be assessed or inspected prior to the availability.

f. Modernization Plan - Program and Fleet Alterations.

 (1) Program Ship Change (SC) Authorization letters provided by Program Executive Officer Ships include NAVSEA, Naval Information Warfare Systems Command (NAVWAR), Naval Supply Systems Command and Naval Air Systems Command (NAVAIR) planned installations.

 (2) Fleet SC Authorization letters provided by the TYCOM include Fleet Alterations, Alterations Equivalent to Repair and Machinery Alterations.

 (3) Information contained in Program Executive Officer or Systems Command and TYCOM SC authorization letters will be consolidated into Hull Modernization Plans. Hull Modernization Plans will list all SCs (Program and Fleet Alterations) programmed for installation on each ship for the entire FY.

g. Deployment and operational schedules.

h. Assessment and inspection schedules (Hull, Mechanical, Electrical Readiness Assessment (HMERA), Command, Control, Communications, Computers and Combat Systems Readiness Assessment (C5RA), Board of Inspection and Survey (INSURV), etc.).

i. Ship's event schedules (Change of Command, etc.).

j. Long-term ship's CNO Availability and decommissioning schedule.

k. CNO Availability and CMAV Planning Milestones.

l. Departures from Specifications.

m. Habitability Project Plan or Schedule (TYCOM provide).

n. Other Availability Programs (TYCOM provide).

 (1) Underwater Hull Cleaning.

 (2) Calibration.

 (3) Other miscellaneous.

APPENDIX A

EXECUTIVE SUMMARY SHEET

USS XXX (XX-XX)

MAINTENANCE AND MODERNIZATION BUSINESS PLAN

FY 2010

PORT ENGINEER: **PE**
PROJECT MANAGER: **PM**

I. SCHEDULE OVERVIEW

	EVENT		DATES	
A.	**CNO Availability**	(Start-End)		
B.	**Continuous Maintenance Avails (CMA)**			
	CMA 0A1	(Start-End)		
	CMA 0A2	(Start-End)		
	CMA 0A3	(Start-End)		
	CMA XA4	(Start-End)		
C	**Surge Ready Asset**			
		(Start-End)		
		(Start-End)		
D.	**Assessments - Major**			
	PSART	(Start)		
	C5RA	(Start)		
	Main Propulsion Plant Assessment DEI 1, 3 SSDG	(Start)		
	Main Propulsion Plant Assessment Gas Turbine Inspections	(Start)		
	Total Ship Readiness Assessment (TSRA) (1, 2, 3, 4)	(Start)		
E.	**Training Cycle**			
	Ultra E + C (Engineering and Combat Readiness Training Assessment, 12M Cert)	(Start)		
	Ultra S+ (Sustainment, 12M Cert)	(Start)		
	Group Exercise	(Start)		
	Group Certification	(Start)		
F.	**Deployment**			
			Deploys	**Returns**

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

	EVENT		DATES	
G.	**INSURV**	**(Last-Next)**		
			Deploys	**Returns**
H.	**Out-Year CNO Availabilities**			
		(Start-End)		
		(Start-End)		
		(Start-End)		
I.	Docking CNO Avail - Next	(Start-End)		
J	Planned DECOMM Date	(End)		

II. TYCOM FUNDING CONTROLS

A.		MFOM Data	
	a.	Class Average Weighted MROM (MFOMw)	$0
	b.	MFOMw	$0
B.		Continuous Maintenance & I - Level Expenditures	
	a.	Initial TYCOM CM Target Control (total)	$0
	b.	CM Control Designated for Fleet Alterations	$0
	c.	RMC Net Target Control for Maint (c+d)	$0
	d.	Prior Year Funds Available	$0
	e.	RMC Adjustments (Indicate + or -)	$0
	f.	FY-10 TYCOM Funding CM CONTROL (Maint) e+f+g	$0
	g.	FY-10 TYCOM Funding DIL CONTROL (Maint)	$0
	h.	Total TYCOM CM & DIL Control (h+b+i)	$0
C.		FY-10 CNO Avail	
	a.	Initial TYCOM Target Control (total)	$0
	b.	CNO Avail Control Designated for Flt Alts	$0
	c.	CNO Maint Control before Adjustment(a-b)	$0
	d.	RMC Net Target Control for Maint	$0
	e.	Prior Year Funds Available	$0
	f.	RMC Adjustments (Indicate + or -)	$0
	g.	TYCOM Funding CNO CONTROL (Maint) (e+f+g)	$0
	h.	Total TYCOM CNO Control (h+b)	$0
D.		Advance Funding Previously Obligated on FY-10 CNO Avail	
	a.	FY-08 Advance Funding	$0
	b.	FY-09 Advance Funding	$0
	c.	TOTAL	**$0**

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

E.		Advance Funding for FY-11 CNO Avail	
	a.	FY-09 Advance Funding	**$0**
	b.	FY-10 Advance Funding	**$0**
F.		Habitability (TYCOM N43 Managed & Funded)	
G.		ORATA (TYCOM N43 Managed & Funded)	
	a.	Underwater Hull Cleaning	$0
	b.	Calibration, other Misc ORATA Programs	$0
	c.	Total	$0
H.		Assessments (Mission Funded - estimates for RMC budgeting only)	
	a.	HMERA	$0
	b.	C5RA	$0
	c.	TSRA	$0
	d.	Total	$0

III. PROGRAM ALTERATION FUNDING CONTROLS (Funding Managed by RMC)

A.		NAVSEA (PEO-SPM)	
	a.	CNO Avail Program Alteration Controls	$0
	b.	CM Program Alteration Controls	$0
B.		NAVWAR	
	a.	CNO Avail Program Alteration Controls	$0
	b.	CM Program Alteration Controls	$0
C.		NAVAIR	
	a.	CNO Avail Program Alteration Controls	$0
	b.	CM Program Alteration Controls	$0

IV. NARRATIVE RISK ASSESSMENT

A. Schedule Summary		
	a. CNO avail:	
	b. Deployment cycle (Training sched):	
	c. INSURV	
	d. CMAV	

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

	e. Out-Years (Future major events, AP CNO, Home port shift, etc.)	

B. Assessment-Repair Summary

	a. Main Propulsion	
	b. Auxiliary Equipment	
	c. Distributive Systems	
	d. Combat Systems	

C. Corrosion Control Summary

	a. Tanks b. Decks/ Bilges c. Structural (fan rooms, stacks)	

D. CLASS Specific Major Anticipated Repairs.

	a.	
	b.	
	c.	

E. TYCOM Unscheduled Modernization

	a. Fleet Alts	

F. Summary Risk Assessment.

	a. Risk Assessment Narrative:	

V. PLANNED WORK ROLLUP

Target	Item	Notional Cost

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

V. PLANNED WORK ROLLUP (Cont'd)

Target	Item	Notional Cost
UNF	Unfunded Avail Total (RMAIS)	$0
AP	Advanced Planning (Next FY Avail)	$0
CNO	Fleet Alts	$0
N/A	Award Fees (Auto fill from Controls & Phasing)	$0
N/A	Services (Auto fill from Controls & Phasing)	$0
	Total Requirement	**$0**
	Total MMBP	**$0**
	SHORTFALL	**$0**
	CNO Risk	$0
	High	$0
	Medium	$0
	Low	$0
	CM Risk	$0
	High	$0
	Medium	$0
	Low	$0
	AP/AF Risk	$0
	High	$0
	Medium	$0
	Low	$0

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

CONTROLS AND PHASING						
FYxx xxRMC BUDGET FOR USS XXX (XX-XX)						
	Total/Phasing	Q1	Q2	Q3	Q4	
FY xx TYCOM Budget	$0	$0	$0	$0	$0	
FY xx DIL Budget	$0	$0	$0	$0	$0	
FY xx PROGRAM Alt Budget	$0	$0	$0	$0	$0	
FY xx TOTAL MMBP Budget	$0	$0	$0	$0	$0	

FYxx xxRMC TYCOM CNO BUDGET							
FYxx CNO BUDGET	**TOTAL**	Phase check sum	Q1	Q2	Q3	Q4	
	$0	$0	$0	$0	$0	$0	
		Budget	Comments				
	1.	Maintenance	$0	Estimate			
	2.	Fleet SHIPALTS		Based on Modernization Plan, LOAs			
Sum of 1,2,c,d	a.	Package Subtotal	$0				
	b.	Growth %	12.00%	$0	% of (a) based on RMC policy, cannot exceed 12%		
	c.	Service / Support %	17.00%	$0	Historical percentage of (a) for 800/900's, adjusted for program Alt prorated costs		
	d.	LLTM		$0	As required		
Change if 10% is not correct	e.	Award Fee % of (a+b+d)	11.23%	$0	For Cost contracts only Max % possible based on contract terms		
	f.	Other costs		$0	Work accomplished outside of Avail contract		
	g.	Pierside Refurb		$0	As applicable at each RMC		
Business Adj Factor	h.	BAF % of (a+b+e)	0.00%	$0	Enter positive percent value if Gov Estimate expected to be LOWER than winning Bid / negotiated Target Cost		
CNO AVAIL BUDGET			$0				
FY xx FUNDING REQ			$0	IF AN AVAIL CROSSES FISCAL YEARS, PREDICT GROWTH AND ASSOCIATED AWARD FEE FOR THE FOLLOW ON FY			
FY xx FUNDING REQ			$0				
TOTAL CNO Execution Control			$0	As established by RMC / TYCOM			
Prior FY Funds			$0	AP or PSIA contractor funds still available in execution			
TOTAL CNO CONTROL			$0	**Total SERMC CNO Avail Funding Available**			

FYxx xxRMC TYCOM CM BUDGET							
FYxx CM BUDGET	**TOTAL**	Phase check sum	Q1	Q2	Q3	Q4	
	$0	$0	$0	$0	$0	$0	

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

CONTROLS AND PHASING (Cont'd)						
			Budget	**Comments**		
	1.	Maintenance	$0	Estimate. Before growth		
	2.	Fleet SHIPALTS	$0	Estimate		
Sum of 1,2	a.	CM Package Subtl	$0	Base Budget. No Growth or Fees.		
	b.	Growth % — 12.00%	$0	% of (a) based on RMC policy, cannot exceed 12%		
Change if 10% is not correct	c.	Award Fee % of (a+b) — 0.00%	$0	For Cost Contracts only Max % possible based on contract terms		
	d.	Other costs	$0			
CM Budget			**$0**			
FYxx CM Control			$0	As established by RMC/TYCOM		
Prior FY Funds			$0	AP or PSIA contractor funds still available in execution		
TOTAL CM CONTROL			**$0**	**Total SERMC CM Funding available**		

Advance Planning Budget		**Q1**	**Q2**	**Q3**	**Q4**
FY xx CNO Avail Advance Planning	**$0**	$0	$0	$0	$0
FY xx CNO Avail Advance Planning	**$0**	$0	$0	$0	$0

FY10 SERMC TYCOM DIL Budget						
FY xx DIL Budget	**TOTAL**	Phase check sum	**Q1**	**Q2**	**Q3**	**Q4**
	$0	**$0**	$0	$0	$0	$0
		Budget	**Comments**			
	1.	Maintenance	$0	Estimate. Before growth		
	2.					
Sum of 1,2	a.	DIL Package Subtl	$0	Base Budget. No Growth or Fees.		
	b.	Growth % — 12.00%	$0	% of (a) based on RMC policy, cannot exceed 12%		
Change if 10% is not correct	c.	Award Fee % of (a+b) — 0.00%	$0	For Cost Contracts only Max % possible based on contract terms		
	d.	Other costs	$0			
DIL Budget			**$0**			
FYxx DIL Control			$0	As established by RMC/TYCOM		
Prior FY Funds			$0	AP or PSIA contractor funds still available in execution		
TOTAL DIL CONTROL			**$0**	**Total SERMC DIL Funding available**		

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

CONTROLS AND PHASING (Cont'd)							
FYxx CNO AVAIL Program ALT Modernization Budget							
NAVSEA	**TOTAL**		Phase check sum	**Q1**	**Q2**	**Q3**	**Q4**
Program Alts	**$0**		**$0**	$0	$0	$0	$0
			Budget	**Comments**			
	1.	Labor & Matl	$0	From Mod Plan, LOAs			
	2.	Services	$0	Negotiated with RMC for 800/900's			
Sum of 1,2	a.	Package Subtotal	$0	Base Budget. No Growth or Fees.			
	b.	Growth %	10.00%	$0	% of (a) based on RMC / PARM policy		
	c.	Award Fee % of (a+b)	11.23%	$0	For Cost contracts only / Max % possible based on the contract		
	d.	BAF % of (a+c)	0.00%	$0	Enter positive percent value if Gov Estimate expected to be LOWER than winning Bid / negotiated Target Cost		
	e.	Other costs	$0	Explain in comments			
NAVSEA Budget			**$0**	**Budget cannot exceed control**			
FYxx NAVSEA Control			**$0**	From Mod Plan, LOAs			
NAVWAR	**TOTAL**		Phase check sum	**Q1**	**Q2**	**Q3**	**Q4**
Program Alts	**$0**		**$0**	$0	$0	$0	$0
			Budget	**Comments**			
	1.	Labor & Matl	$0	From Mod Plan, LOAs			
	2.	Services	$0	Negotiated with RMC for 800/900's			
Sum of 1,2	a.	Package Subtotal	$0	Base Budget. No Growth or Fees.			
	b.	Growth %	10.00%	$0	% of (a) based on RMC / PARM policy		
	c.	Award Fee % of (a+b)	11.23%	$0	For Cost contracts only / Max % possible based on the contract		
	d.	BAF % of (a+c)	0.00%	$0	Enter positive percent value if Gov Estimate expected to be LOWER than winning Bid / negotiated Target Cost		
	e.	Other costs	$0	Explain in comments			
NAVWAR Budget			**$0**	**Budget cannot exceed control**			
FYxx NAVWAR Control			**$0**	From Mod Plan, LOAs			
NAVAIR/ OTHER ALTS	**TOTAL**		Phase check sum	**Q1**	**Q2**	**Q3**	**Q4**
	$0		**$0**	$0	$0	$0	$0
			Budget	**Comments**			
	1.	Labor & Matl	$0	From Mod Plan, LOAs			
	2.	Services	$0	Negotiated with RMC for 800/900's			

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

CONTROLS AND PHASING (Cont'd)								
Sum of 1,2	a.	Package Subtotal		$0	Base Budget. No Growth or Fees.			
	b.	Growth %	10.00%	$0	% of (a) based on RMC / PARM policy			
	c.	Award Fee % of (a+b)	11.23%	$0	For Cost contracts only Max % possible based on the contract			
	d.	BAF % of (a+c)	0.00%	$0	Enter positive percent value if Gov Estimate expected to be LOWER than winning Bid / negotiated Target Cost			
	e.	Other costs		$0	Explain in comments			
NAVAIR/OTHER ALTS Budget				**$0**	**Budget cannot exceed control**			
FYxx NAVAIR/OTHER Control				**$0**	From Mod Plan, LOAs			

NAVSEA		TOTAL	Phase check sum	Q1	Q2	Q3	Q4
Program Alts		**$0**	**$0**	$0	$0	$0	$0
		Budget		Comments			
	1.	Labor & Matl	$0	From Mod Plan, LOAs			
	2.	Services	$0	Negotiated with RMC for 800/900's			

Sum of 1,2	a.	Package Subtotal		$0	Base Budget. No Growth or Fees.		
	b.	Growth %	10.00%	$0	% of (a) based on RMC / PARM policy		
	c.	Award Fee % of (a+b)	11.23%	$0	For Cost contracts only Max % possible based on the contract		
	d.	BAF % of (a+c)	0.00%	$0	Enter positive percent value if Gov Estimate expected to be LOWER than winning Bid / negotiated Target Cost		
	e.	Other costs		$0	Explain in comments		
NAVSEA ALTS Budget				**$0**	**Budget cannot exceed control**		
FYxx NAVSEA Control				**$0**	From Mod Plan, LOAs		

NAVWAR		TOTAL	Phase check sum	Q1	Q2	Q3	Q4
Program Alts		**$0**	**$0**	$0	$0	$0	$0
		Budget		Comments			
	1.	Labor & Matl	$0	From Mod Plan, LOAs			
	2.	Services	$0	Negotiated with RMC for 800/900's			

APPENDIX A

EXECUTIVE SUMMARY SHEET (Cont'd)

CONTROLS AND PHASING (Cont'd)

Sum of 1,2	a.	Package Subtotal		$0		Base Budget. No Growth or Fees.
	b.	Growth %	10.00%	$0		% of (a) based on RMC / PARM policy
	c.	Award Fee % of (a+b)	11.23%	$0		For Cost contracts only Max % possible based on the contract
	d.	BAF % of (a+c)	0.00%	$0		Enter positive percent value if Gov Estimate expected to be LOWER than winning Bid / negotiated Target Cost
	e.	Other costs		$0		Explain in comments
colspan=3	NAVWARALTS Budget		$0	colspan=4	Budget cannot exceed control
colspan=3	FYxx NAVWAR Control		$0	colspan=4	From Mod Plan, LOAs

NAVAIR/		TOTAL	Phase check sum	Q1	Q2	Q3	Q4
OTHER ALTS		$0	$0	$0	$0	$0	$0

				Budget		Comments
	1.	Labor & Matl		$0		From Mod Plan, LOAs
	2.	Services		$0		Negotiated with RMC for 800/900's
Sum of 1,2	a.	Package Subtotal		$0		Base Budget. No Growth or Fees.
	b.	Growth %	10.00%	$0		% of (a) based on RMC / PARM policy
	c.	Award Fee % of (a+b)	11.23%	$0		For Cost contracts only Max % possible based on the contract
	d.	BAF % of (a+c)	0.00%	$0		Enter positive percent value if Gov Estimate expected to be LOWER than winning Bid / negotiated Target Cost
	e.	Other costs		$0		Explain in comments
colspan=3	NAVAIR/OTHER ALTS Budget		$0	colspan=4	Budget cannot exceed control
colspan=3	FYxx NAVAIR/OTHER Control		$0	colspan=4	From Mod Plan, LOAs

UNFUNDED REQUIREMENTS

USS XXX (XX-XX)		Total =		$0			
JCN	EQUIP NOUN NAME	JOB SUMMARY	MFOM (PRI CAT)	PE Est	Funding Type	Risk	Remarks
		MMBP Shortfalls					

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CHAPTER 34

FLIGHT DECK NON-SKID INSPECTION

REFERENCES.

(a)   OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
(b)   COMNAVAIRFORINST 4790.2 - Naval Aviation Maintenance Program (NAMP)
(c)   COMNAVSURFOR/COMNAVAIRFOR/COMMARFORCOM/COMMARFORPAC 4790.3 Instruction - Prevention of Foreign Object Damage (FOD) on CVN and LHD/LHA Class Ships
(d)   NAVSEA S9086-VD-STM-010 - NSTM Chapter 631 - Preservation of Ships in Service General
(e)   NAVSEA S9086-VG-STM-010 - NSTM Chapter 634 - Deck Coverings General
(f)   COMNAVSURFOR/COMNAVAIRFOR 9634.2 Instruction – Deck Nonskid Application, Inspection, Training, Quality Assurance and Reporting Procedures

34.1 PURPOSE. The purpose of this section is to prevent Foreign Object Damage (FOD) to aircraft engines as it relates to flight deck non-skid, and to provide guidance on flight deck non-skid repair aboard Amphibious Class Ships and Aircraft Carriers conducting fixed wing aircraft operations. It is necessary to repair damaged non-skid in areas exposed to aircraft launch and recovery operations in a timely fashion in order to minimize risk of FOD to aircraft engines. Maintenance policy for ships is outlined in reference (a) and information regarding the Naval Aviation Maintenance Program is located within reference (b). The inspection of flight deck non-skid is to be accomplished prior to the first flight operation of the day per reference (c).

34.2 BACKGROUND.

a.   Ingestion of foreign objects by gas turbine engines accounts for the largest percentage of premature engine removals from naval aircraft. FOD to an aircraft gas turbine engine caused by ingestion of flight deck non-skid can degrade engine performance and drive unscheduled removal and replacement of a damaged engine. Catastrophic engine failure from FOD may lead to loss of aircraft. Additionally, FOD presents personnel and material hazards, consumes valuable maintenance man-hours, imposes additional unscheduled workloads, creates additional logistics requirements, wastes dollars, and reduces operational readiness.

b.   All non-skid materials will produce chips from daily wear associated with aircraft and ground support operations. Flight deck cleaning and FOD walk downs prior to flight operations are used as a precaution against ingestion of non-skid and other foreign objects by aircraft.

c.   Routine operations may damage flight deck non-skid. Wear and tear associated with helicopter landing skids, and the impacts of dropped or dragged heavy or sharp items may each result in damaged non-skid that exposes the flight deck bare metal surface. Corrosion associated with this bare metal eventually undercuts the non-skid in adjacent areas, leading to failure of the non-skid coating and a subsequent FOD risk.

d. The consequences of damaged non-skid and the associate FOD risk make it imperative that damaged non-skid is repaired in a timely manner.

34.3 <u>SCOPE</u>. This chapter applies to all Amphibious Warfare ships and Aircraft Carriers that conduct fixed-wing aircraft operations.

34.4 <u>RESPONSIBILITIES</u>.

34.4.1 <u>Ship's Force</u>.

a. The non-skid inspection and repair procedures described are accomplished by Ship's Force, in order to provide early detection and treatment of corrosion and non-skid failures. Maintenance Requirement Cards contained within the Planned Maintenance System provide specific guidance for performing inspection of critical coated non-skid decks for corrosion and non-skid coating failure(s). Refer to reference (d) for boundary requirements for preparation and painting and critical coated decks are described in reference (e).

b. The following actions apply to ship's force when non-skid discrepancies are found:

(1) Non-skid failure less than 36 square inches - Repair with primer no later than 28 days after discovery.

(2) Non-skid failure greater than 36 inches and less than 50 square feet - Repair with non-skid system no later than 28 days after discovery.

(3) Ship's force will contact the Type Commander when areas of non-skid failure are greater than 50 square feet, or total area of non-skid failure is greater than 500 square feet.

34.4.2 <u>Quality Assurance Officer (where assigned)</u>. Refer to Non-skid Quality Assurance Officer (QAO) for disposition of failed non-skid requiring submission of Work Request to Industrial Activity to repair or replace failed non-skid. Nonskid QAO is defined in reference (f). All non-skid existing or corrected problems/discrepancies must be listed in the Work Center's CSMP for history purposes.

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CHAPTER 35

REGIONAL MAINTENANCE CENTER I-LEVEL MAINTENANCE CAPABILITIES

LISTING OF APPENDICES.

    A   Regional Maintenance Center I-Level Maintenance Capability Matrix

35.1 PURPOSE. This chapter provides a listing of Regional Maintenance Centers (RMC) I-Level maintenance capabilities for Surface Force ships and defines related reporting requirements. The Strike Force Intermediate Maintenance Activity (SFIMA), volume III, chapter 6 of this manual describes policies, provides governance and reporting requirements, and assigns roles, responsibilities, and actions necessary for Strike Group units.

35.2 BACKGROUND. The primary mission of an RMC is to promote surface ship readiness via assessment, troubleshooting, and repair of systems and equipment which are beyond the technical capability or capacity of Fleet units. A secondary mission of an RMC is to provide enough production work experience and on-the-job training to sailors for them to improve their technical knowledge and, where appropriate, earn a Navy Enlisted Classification (NEC) code used to fill Navy Afloat Maintenance Training Strategy (NAMTS) billets when returning to sea duty. An RMC accomplishes both of these missions, in part, with the sustainment and utilization of their I-Level maintenance capability.

35.2.1 Onboard Support. In addition to ship-to-shop and standard shipboard repair and maintenance work, the RMC I-Level capability is utilized to provide onboard Maintenance Assist Team (MAT) I-Level support to ships in port. The MAT concept was designed to bring RMC repair and maintenance training capability to bear on shipboard systems to improve Ship's Force repair, self-assessment, maintenance and equipment operations capability.

35.2.2 Applicable Regional Maintenance Centers. There are five RMCs with existing surface ship I-Level workforce: three of which are stand-alone Activities and two that are incorporated within Naval Shipyards. Southwest Regional Maintenance Center (SWRMC) is located in San Diego, CA. Hawaii Regional Maintenance Center (HRMC) is a function incorporated within Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY&IMF). Northwest Regional Maintenance Center (NWRMC) is a function incorporated within Puget Sound Naval Shipyard and IMF (PSNS&IMF). NWRMC also includes Everett, WA maintenance operations. Mid Atlantic Regional Maintenance Center (MARMC) is located in Norfolk, VA. Southeast Regional Maintenance Center (SERMC) is located in Mayport, FL.

35.3 RESPONSIBILITIES.

35.3.1 Fleet Commanders. (individually or jointly, as appropriate).

    a.   Approve changes, additions and deletions to the I-Level Capabilities Matrix (Appendix A) as recommended by the Type Commanders (TYCOM).

    b.   Approve recommended changes to the NAMTS NEC At-Sea Requirements Matrix as provided by the TYCOMs.

    c.   Approve and forward, with endorsement, NAMTS NEC modifications as developed and recommended by Commander, Navy Regional Maintenance Center (CNRMC)

with TYCOM concurrence, to the Navy Enlisted Occupational Classification System Board.

d.   Review, approve and submit Billet Change Requests (BCR) developed by CNRMC, to support the sea and shore rotation requirements.

e.   Request additions and deletions to the I-Level capabilities listed in Appendix A and corresponding capacities at each RMC based on utilization metrics and written Business Case Analysis to the cognizant Fleet Commander.

f.   Ensure full utilization of the full range of organic RMC I-Level capability identified in Appendix A.

g.   Establish and communicate work priorities to CNRMC and cognizant RMCs. Resolve work priority conflicts as necessary.

h.   Regularly assess NAMTS maintenance skills required on respective afloat units.

i.   Approve CNRMC recommended, or recommend additional changes to specific NAMTS maintenance skills and required training for billets on respective afloat units.

j.   In collaboration with CNRMC, review and recommend NAMTS NEC At-Sea Requirements Matrix revisions to the cognizant Fleet Commander(s).

k.   Review and approve establishment and disestablishment of MATs, as recommended by CNRMC. Optimize utilization of MATs capacity within existing total I-Level workload in each cognizant RMC.

35.3.2   <u>Commander, Navy Regional Maintenance Center</u>. CNRMC will:

a.   Provide the capabilities identified in Appendix A following all applicable policy, regulations and technical requirements. Ensure detailed capability manuals are issued by each RMC to expound on and clarify the exact capabilities identified in Appendix A.

b.   Coordinate with the TYCOMs to ensure full utilization of the funded capacity, adjusting capacity as necessary. Include utilization analysis and NAMTS Program inspections in Fleet Maintenance Activity Assessments of RMCs.

c.   Provide cost estimates and implementation plans to the Fleet Commanders for proposed additions and deletions to capabilities in Appendix A, as well as increases or decreases to capacity at any and all RMCs.

d.   Establish policy, requirements and direction for NAMTS program management and execution at RMCs.

(1)   Provide oversight of NAMTS program execution and qualifications to ensure:

(a)   Compliance with NAMTS roles, responsibilities and program execution per the NAMTS desk guide, CNRMC M-4700.12.

(b)   NAMTS enrollment and qualification is maximized.

(c)   "Hands-on" journeyman-level skills training is an integral part of Job Qualification Requirement (JQR) qualification.

(d)   The number of experienced JQR journeyman qualified personnel produced, is adequate to fill NAMTS NEC-coded afloat billet requirements established by the cognizant Fleet Commander(s).

(2)   Provide NAMTS JQR Life Cycle Management including the following:

(a)   Coordinate with TYCOMs, Surface Warfare Officer's School - Fleet Enlisted Engineering Training and RMCs to ensure JQRs meet NAMTS NEC requirements. Changes to NAMTS NEC requirements may result from ship system modifications, upgrades or new acquisitions.

(b)   Develop, review, coordinate feedback or revise JQRs as required. At a minimum, coordinate JQR reviews every three years.

(c)   Approve new and changes to JQRs. Determine or approve which JQRs are executed at RMCs.

(d)   For new JQRs, coordinate the development and submission of Course Identification Number packages to support NEC management and training accomplishment.

(e)   Maintain Master JQR Library.

(3)   Maintain and monitor a master test question data bank to support pre- and post-JQR examinations and JQR qualification oral boards.

(4)   Promote NAMTS program awareness among Fleet activities and sailors, to include:

(a)   Host and maintain an information web site that supports NAMTS program management and awareness, training materials and metrics.

(b)   Publish newsletters and other media to enhance program awareness.

(c)   Establish and maintain a system of metrics to reflect NAMTS program performance including eligibility, enrollment and qualification trends.

(5)   Establish a manpower and NAMTS NEC At-Sea Requirements Matrix and coordinate periodic reviews with TYCOMs.

(a)   Develop quarterly review schedules to ensure Ship Manning Documents for all afloat units are reviewed annually at a minimum.

(b)   In conjunction with manpower reviews, the NAMTS NEC At-Sea Requirements Matrix must be reviewed annually.

(c)   Review sea and shore rotation impacts resulting from recommended NEC changes.

(d)   Submit review results and recommendations to United States Fleet Forces or Commander, Pacific Fleet via TYCOMs prior to BCR submissions.

1   NAMTS NEC At-Sea Requirements Matrix changes.

<u>2</u>   NAMTS NEC modifications through the Navy Enlisted Occupational Classification System Board process.

<u>3</u>   Navy Manpower Analysis Center NEC changes.

(6)   Conduct Quarterly NAMTS Program Reviews with RMC representatives. Reviews must include at a minimum:

     (a)   Eligibility, enrollment, qualification and NECs award trends.

     (b)   Status of manpower, NAMTS NEC At-Sea Requirements Matrix reviews, BCRs, NEC modifications, feedback reports or other pending actions.

(7)   Develop a series of metrics to measure and monitor the performance and overall health of the NAMTS program. In particular, eligibility, enrollment, qualification and NEC award trends, accounting for all Sailors in NAMTS NEC source ratings, must be measured and analyzed. Metrics must be developed to support both program monitoring within the NAMTS organization and up line reporting as required.

e.   As MAT Program Manager, establish requirements and guidance for the execution of MATs at the RMCs, including reporting requirements.

f.   Coordinate with the cognizant TYCOM on the establishment, disestablishment and utilization of MATs.

35.3.3 <u>Regional Maintenance Center</u>.

a.   RMC areas of responsibility are the same as those identified in Volume II, Part I, Chapter 2, paragraph 2.1.1, Table 2.1 of this manual. The RMC must exercise all I-Level functions and responsibilities when services are required or requested by fleet activities within these areas unless assigned to another RMC by the Fleet Maintenance Officer. This includes utilization of the I-Level capability as appropriate.

b.   Include details of I-Level capabilities in RMC capability manuals.

c.   Identify and communicate shop loading to applicable Forces Afloat and TYCOMs to ensure full utilization of the funded capacity. This includes the use of this capacity to establish MATs.

d.   These requirements apply to Naval Shipyards when they are assigned RMC functions.

35.4 <u>REGIONAL MAINTENANCE CENTER PERFORMANCE MEASURES</u>. RMC I-Level capability performance will be reported monthly to CNRMC per guidelines in Volume II, Part I, Chapter 4, paragraph 4.6.5.1 of this manual for continuous evaluation.

a.   MAT utilization and performance measures must be included in the RMC monthly I-Level Reports.

b.   CNRMC will provide quarterly summary reports of I-Level performance, including MATs, to the cognizant TYCOM and Fleet Maintenance Officer.

APPENDIX A

**REGIONAL MAINTENANCE CENTER I-LEVEL MAINTENANCE
CAPABILITY MATRIX**

CATEGORY	CAPABILITY	MARMC	SERMC	SWRMC	NWRMC	HRMC
I	EXECUTION OF ASSIGNED SHIP REPAIR AND MAINTENANCE	X	X	X	X	X
I-A	Perform structural repairs (Shipfitter)	X	X	X	X	X
I-B	Perform pipe repairs (Pipefitter)	X	X	X	X	X
I-C	Perform insulation and lagging services	X	X	X	X	X
I-D	Perform repair and maintenance of ship's RHIBs	X	X	X	X	X
I-E	Perform (Inside Machinist) machining services	X	X	X	X	X
I-F	Perform diesel engine governor and injector repairs and maintenance	X	X	X	X	X
I-G	Perform valve repair and maintenance	X	X	X	X	X
I-H	Perform diesel engine repair and maintenance	X	X	X	X	X
I-I	Perform hydraulics system repair and maintenance	X	X	X	X	X
I-J	Perform pump repairs and maintenance	X	X	X	X	X
I-K	Perform gas turbine repairs and maintenance	X	X	X	X	X
I-L	Perform (Outside Machinist) machinery repairs and maintenance	X	X	X	X	X
I-M	Perform air conditioning and refrigeration repair and maintenance	X	X	X	X	X
I-N	Perform flex hose fabrication and testing	X	X	X	X	X
I-O	Provide mechanical and photo engraving services	X	X	X	X	X
I-P	Provide key and lock repair services	X	X	X	X	X
I-Q	Perform repairs and maintenance to heat exchangers	X	X	X	X	X
I-R	Perform inside electrical repair and maintenance, including motor troubleshooting	X	X	X	X	X
I-S	Provide sound vibration analysis of rotating equipment (both in place and in shop)	X	X	X	X	X
I-T	Perform outside electrical repair and maintenance	X	X	X	X	X
I-U	Perform cableway inspections	X	X	X	X	X
I-V	Perform repair and maintenance of interior communication systems	X	X	X	X	X
I-W	Perform test, repair and maintenance of electronic modules (2M) and provide qualification services for shipboard site reviews and personnel certification of (2M) technicians	X	X	X	X	X
I-X	Perform repair and maintenance of electronics systems	X	X	X	X	X
I-Y	Perform repair and maintenance of sonar systems	X	X	X	X	X

CATEGORY	CAPABILITY	MARMC	SERMC	SWRMC	MWRMC	HRMC
I-Z	Perform repair and maintenance of fire control and weapons systems	X	X	X	X	X
I-AA	Perform repair and maintenance of antennas	X	X	X	X	X
I-AB	Provide corrosion control services (also as part of all NAMTS NECs)	X	X	X	X	X
I-AC	Perform repair and maintenance of HLS and RAST systems	X	X	X	X	X
I-AD	Perform repair and maintenance of life rafts	X	X	X	X	X
I-AE	Repair and overhaul CIWS and 25mm chain guns	X	X	X	X	X
I-AF	Perform repair and maintenance of mine warfare specific systems		X	X		
I-AG	Provide diving services, including hyperbaric chamber	X	X	X	X	X
I-AH	Perform rigging, weight testing and manufacture of weight handling devices	X	X	X	X	X
I-AI	Provide oil analysis, spectral analysis, fluid contamination and particle contamination services	X	X	X	X	X
I-AJ	Perform non-destructive testing	X	X	X	X	X
I-AK	Provide weld qualification services	X	X	X	X	X
I-AL	Provide the services of a certified Marine Gas Turbine Inspector	X	X	X	X	X
I-AM	Provide various calibration services not provided by regional calibration centers	X	X	X	X	X
I-AN	Provide SISCAL Level II services	X	X	X	X	X
I-AO	Provide shipboard welding and brazing services	X	X	X	X	X
I-AP	Provide SCBA Cylinder testing and mask flow testing	X	X	X	X	
I-AQ	Provide Maintenance Assist Teams (MAT)	X	X	X	X	X
I-AR	Provide test, repair and maintenance of fiber optics and provide qualification services for shipboard site reviews and personnel certification of fiber optics test and repair (FOTR) technicians	X	X	X	X	X

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CHAPTER 36

SURFACE FORCE SHIP AND AIRCRAFT CARRIER MODERNIZATION PROCESS

REFERENCES.

    (a)   NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and Operations Manual (NMP-MOM)

    (b)   COMUSFLTFORCOMINST/COMPACFLTINST 4720.3 - Commander United States Fleet Forces Command (COMUSFLTFORCOM)/Commander Pacific Fleet (COMPACFLT) C5ISR Modernization Policy

    (c)   NAVSEA TS9090-310 – Alterations to Ships Accomplished by Alteration Installation Teams (AITs)

    (d)   OPNAVINST 4780.6 – Policy for Acquisition and Management of Service Craft, Combatant Craft, and Boats in the U.S. Navy

    (e)   MARCORSYSCOM Order 5000.3/SPAWARINST 3058.1/NAVFACINST 5000.15/NAVSUPINST 5000.20/NAVAIRINST 5000.21/NAVSEAINST 5000.8 - Naval SYSCOM Risk Management Policy

    (f)   NAVSEA TS9090-600A – Ship Alteration Drawings Preparation

    (g)   NAVSEA TS9090-100A – Liaison Action Record (LAR)

    (h)   NAVSEA SI009-60 - Schedule and Associated Reports for CNO Availabilities; Provide and Manage

    (i)   NAVSEA SI009-111 – Schedule and Associated Reports for Non-CNO Availabilities Provide and Manage

36.1   SCOPE. This chapter is applicable to all Surface Force ships, Aircraft Carriers, and AEGIS ashore sites involved in the Navy Modernization Process (NMP), as delineated in reference (a). The provisions of this chapter have been developed in collaboration with Naval Operations (OPNAV). Where there are conflicts with reference (a), this chapter must take precedence until such time as OPNAV implementing directives can be modified and issued. Submarine Modernization is described in chapter 3 of this volume. Exceptions and exemptions to the NMP are identified in reference (a). Reference (b) provides the policy for Command, Control, Communications, Computer, Combat Systems, Intelligence, Surveillance, and Reconnaissance modernization. Reference (c) governs the policy for Alteration Installation Teams (AITs) installing Ship Changes (SCs) including the Regional Maintenance and Modernization Coordination Office (RMMCO) Check-In and Check-Out processes. Fleet Commanders (FLTCDRs) and Type Commanders (TYCOMs), per references (a) through (c), ensure implementation of this process.

36.2   PURPOSE. The purpose of this chapter is to provide an overview of the entire NMP. The NMP provides a structure for identifying, planning, designing, approving, installing, sustaining, and maintaining configuration control of ship modernization. The NMP is designed to prevent unauthorized and non-supported SCs from being installed on Navy ships. Unauthorized SCs represent a substantial cost to the Navy in terms of the loss of configuration control, inefficiencies due to unexpected installation interferences, systems and equipment that are not logistically supported, and resources expended to support items which are no longer needed. Unauthorized SCs can also adversely impact the interoperability of highly technical and

integrated combat systems which equates to a loss of combat effectiveness due to a reduction in Battle Group Strike Force Interoperability (SFI) and individual ship capabilities.

NOTE: UNAUTHORIZED SHIP CHANGES TO NAVY SHIPS ARE PROHIBITED.

36.3   BACKGROUND. The NMP has progressed from the pre-2004 Fleet Modernization Process to the Ship Maintenance process of 2005-2007 to the NMP of today. The Entitled Process (EP) for Navy Modernization was promulgated by the Commander, Naval Sea Systems Command in 2006 and, upon adoption, became known as the NMP to recognize its broad application and permanence.

36.4   NAVY MODERNIZATION PROCESS. The NMP employs five modernization phases: Phase I (concept design), Phase II (preliminary design), Phase III (detailed design), Phase IV (advance planning and procurement), and Phase V (installation, check-out and feedback). These phases and the associated policies and processes are documented in reference (a) and in Naval Sea Systems (NAVSEA) Technical Specifications (TSs). Reference (a) also delineates the management roles within the NMP and their respective responsibilities. The NAVSEA TSs define policy, process, and responsibilities for specific modernization sub-processes, (e.g., Liaison Action Records (LARs), Ship Installation Drawings (SIDs), and alterations accomplished by Alteration Installation Teams (AITs)).

36.4.1 Exceptions and Exemptions. The following exceptions and exemptions apply to the NMP:

a.   The Deputy Commander for Nuclear Propulsion (NAVSEA 08) is responsible for all technical matters pertaining to nuclear propulsion of U.S. Navy ships, including all aspects of integration of the nuclear plant into ship systems. The procedures and requirements of this chapter are not applicable to alterations under the cognizance of NAVSEA 08.

b.   Equipage as defined in reference (a). Equipage consists of portable items that are not permanently installed.

c.   Habitability as delineated in Chapter 16 of this volume.

d.   Service Craft, Combatant Craft, and Boats as delineated in reference (d).

e.   Information Assurance and Vulnerability Management (IAVM) products are exempt from this chapter. IAVM is a process that provides positive control of vulnerability notification, corresponding corrective action, and IAVM status visibility for the Department of Defense Network Assets. The IAVM program applies to any device on Department of Defense owned, controlled, or contracted networks.

f.   Form, Fit, or Function replacement items as defined in reference (a).

g.   Shipbuilding and Conversion, Navy funded installations occurring during new construction.

h.   Database Updates (e.g., threat library updates, technical manual database updates, etc.) are exempt from this chapter.

i.   Littoral Combat Ship (LCS) Mission Modules are designed to provide the specific warfighting capabilities and operation for the LCSs. Their flexibility contributes to maritime dominance and provide improved access for the joint force. All MMs

designated for embarkation have been authorized via the Mission Package Certification, Warfare Center Certification, Combat System Certification and Integrated Logistics Support (ILS) Certification. The Mission Modules program will keep the Naval C5I Modernization Program Modernization Council apprised of currently certified or fielded Mission Package baselines. Additionally, it will identify plans for fielding newer baselines. A-O message and Electronic Configuration Control Board (eCCB) Risk Form per reference (b) will be submitted to the FLTCDR for approval prior to embarkation or debarkation on an LCS platform for non-mature MM baselines.

36.4.2 <u>Software Policy</u>. NMP requirements for Software SCs are determined by their change categories defined in reference (a). The change categories are:

a.   Major Release. Major releases are not exempt from any NMP requirements. Major Releases consist of software that:

    (1)   Contains a noun name not currently fielded.

    (2)   Forces changes in the interface with an external system.

    (3)   Adds, removes, or implements major modification to a capability that was already implemented or intended to be implemented but was not released in a previous version.

    (4)   Requires an on-site installation visit duration including testing, but not training, of greater than 21 calendar days.

    (5)   Impacts functionality inside at least one certification boundary.

b.   Standard Release. Standard releases are exempt from the Ship Change Document (SCD) review process. Alteration revision records must be created and scheduled in the Navy Data Environment (NDE) Navy Modernization.NET (NM.NET) application for Standard Releases. Standard Releases are additional functionality that does not meet the requirements for a Major Release and:

    (1)   Corrects implementation of an existing interface with an external system.

    (2)   Offers a change in the interface with an external system.

    (3)   Shifts from one existing interface to another.

    (4)   Adds or removes implemented functionality.

    (5)   Has a training or operational impact that is noticeable to the user and can be informed by Fleet Advisory or electronic notification upon install.

    (6)   Has an operational impact that increases administrator or operator workload by no more than 20%.

    (7)   Requires an on-site installation.

    (8)   Are other impactful non-hardware changes to the hosting environment.

c.   Minor Release. Minor Releases are any other software change that does not meet the criteria for a Major or Standard Release. Minor releases include Inconsequential

Overmatch Software Armory software deliveries. Minor Releases are exempt from the NMP.

d.   Restorative (Re-Load) Installation. Restorative Installations are re-loads of previously installed software version on a newly installed hardware component, system, or operating system.   New alteration accomplishment records must be created and scheduled in NDE NM.NET application for Restorative Installations. When an AIT needs to come onboard to accomplish the re-load and subsequent testing, the requirements of references (a) and (c) apply.

NOTE: SHIP'S FORCE SHALL NOT BE RESPONSIBLE FOR ACCOMPLISHING RE-LOADS.

e.   Qualified Development Security Operations (DevSecOps) Deployments. Qualified DevSecOps Deployments (QDDs) are any functions, capabilities or fleet driven updates that are delivered over the network using a qualified DevSecOps Framework. QDDs are exempt from the SCD review process. Alteration records must be created NM.NET to capture QDD installations. QDDs are also exempt from the Target Configuration Date (TCD) Waiver process defined in reference (b).

36.5   SHIP CHANGE DOCUMENTS. The SCD is the mechanism used to communicate and obtain approval for planned modernization. SCDs are initiated in the NDE EP application, are submitted through a structured review process, and ensure that applicable Navy stakeholders review and approve the proposed SCs prior to installation or execution.

36.5.1 Scope. SCD Scope consists of the following categories:

a.   Ship Modifications. Ship Modifications consist of Ship Alteration and Alteration Equivalent to Repair Alteration Types.

b.   Internal Equipment Modifications. Internal Equipment Modifications consist of Engineering Changes, Machinery Alterations, Ordnance Alterations, and Software Deliveries, and QDD Alteration Types.

c.   Site Modifications. Site Modifications are installations to Shore Sites.

36.5.2 Funding. SCD Funding comes from the following sources:

a.   Program Funded. Funded for installation by a System Command or Program Executive Office.

b.   Fleet Funded. Funded for installation by the Fleet.

c.   Non-Navy Funded. Funding from non-Navy sources (e.g., Missile Defense Agency).

36.5.3 Duration. SCD Duration consists of the following types:

a.   Permanent Changes. Permanent Changes are modifications of ships and their systems that are not temporary in nature. A permanent SC may include a prototype installation to support development and operational testing.

NOTE: NON-PERMANENT CHANGES WILL BE REMOVED WITHIN 1 YEAR FROM INSTALLTION UNLESS A WAIVER IS APPROVED BY THE FLTCDR OR TYCOM FOR AN EXTENDED EVALUATION PERIOD.

b. Non-Permanent Changes. Non-Permanent Changes are SCs that will be installed on a temporary basis for test and evaluation purposes or to demonstrate a new or improved capability for the Fleet. NPCs are intended to be installed for one operational deployment and may not exceed one year in duration.

36.5.4 Non-Standard. Non-Standard SCDs address unique circumstances. Non-Standard SCDs are subject to additional or streamlined requirements.

a. Mandatory Safety Ship Change Documents. A SC to correct or mitigate a Serious or High System Safety Risk as defined in reference (e). It may also be a SC directed as the result of a Safety Investigation Board or Naval Safety Center as an action in response to a Class A mishap or as determined by formal Flag level direction.

(1) Fielding Plan (FP) changes to Mandatory Safety SCDs require a full SCD review cycle to ensure Technical Warrant Holder concurrence and approval from the Ship Program Manager (SPM), TYCOM, and Resource Sponsor.

(2) The deferral or cancellation, after any Decision Point of SCDs designated Mandatory Safety, requires reevaluation for changes in mitigation strategy or residual risk acceptance of those changes. This review and approval will take place through the SCD review cycle.

b. Fleet Experimentation Technology Demonstration (FLEX-TECH DEMO). FLEX SCs consist of experimentation requiring the services of fleet assets during exercises such as Trident Warrior. Experiments are supported by data collection and analysis, providing tangible products for Fleet use, and will provide resultant findings and recommendations leading to improvements in naval warfighting capabilities spanning Doctrine, Organization, Training, Materiel, Leadership Development, Personnel, Facilities, and Policy. A TECH DEMO is a system, equipment, capability demonstration to evaluate a system, principal unit or software and integrate with the required interfacing Naval systems. FLEX-TECH DEMO SCDs must adhere to the following conditions:

(1) The duration of installations shall not exceed 90 days including removal and restoration.

(2) FLEX-TECH DEMO SCs can be accomplished in port or at-sea.

(3) FLEX-TECH DEMO SCs cannot be used to provide an interim capability to support operational and training requirements for Platform TYCOMs, Operational Commanders, Immediate Superior In Command (ISIC), or Commander, US Fleet Forces Command.

(4) The FLEX-TECH DEMO SC installations must be removed at the end of the experiment, the ship(s) returned to the original configuration or state, and the original system recertified.

c. Emergent Ship Change Documents. Emergent SCs are those items that require immediate installation (within 45 days or less of the first identification of the requirement) or reprioritization of tasking and reallocation of resources to support accelerated development and installation. Emergent SCs must meet the criteria defined in reference (a). The participating acquisition resource manager (PARM) or

designated representative will issue an emergent change request message to the appropriate installation approval authority. The installation approval authority reviews and approves or disapproves the emergent change requirement via Naval Message. The approval authorities for SFI Category (CAT) 1 or 2 SCs is the FLTCDR and the Platform TYCOM for SFI CAT 3 or 4 SCs.

d. Modernization Through Attrition (MTA) Modernization In Lieu of Repair (MILR) SCDs. MTA-MILR SCDs are SCs used to facilitate Condition Based Maintenance. Approval is based on the same criteria as any SC and installation will be determined by the TYCOM during the execution year. MTA-MILR actions are changes to components, or systems executed on an "as fails" basis or Condition Based Maintenance criteria. MTA-MILR actions targeted for a ship class(es), but without a known ship-specific FP, may be required to enhance maintainability, resolve hardware or software obsolescence, or to address declining Intermediate or Depot level repair resources. MTA actions may not impact shipboard or interfacing systems, certifications and do not result in additional operational capability.

e. Low Impact Ship Change Documents. Low Impact Internal Equipment Modifications are modernization or sustainment SCs which do not have a significant impact on Chief of Naval Operations (CNO) and Maintenance availabilities. Low Impact SCs can be authorized for CNO availabilities with condensed milestones.

36.6 SHIP CHANGE DOCUMENT PROCESS. The following paragraphs outline the SCD Process.

36.6.1 Ship Change Documents Initiation. SCDs can be initiated at Phase I, II, or III. The initiator will coordinate with the SCD submitter to determine the entry phase based on the maturity level of the SC. SCDs shall be initiated in the NDE EP application. The Initiator will fill out the mandatory fields of the SCD at a minimum, including identification of the Submitter responsible for the SCD and then submit to the SCD Submitter for review.

NOTE: **UPON IDENTIFICATION OF POTENTIAL SYSTEM OR EQUIPMENT IMPROVEMENT BY THE SHIP, SHIP'S FORCE PERSONNEL WILL FORWARD SC REQUESTS TO THE ISIC. THE ISIC WILL ENDORSE AND FORWARD THE REQUEST TO THE RESPECTIVE TYCOM FOR SCD INITIATION.**

36.6.2 Ship Change Document Submission. The Submitter shall review and agree with the need for the change, the high-level proposed resolution and proposed FP prior to submitting the SCD for review by the Technical Assessment Team (TAT).

36.6.3 Technical Assessment Team Review. The TAT consists of System Command and Program Executive Office technical personnel who review the SCD to ensure the SCD is technically feasible and to identify any ship integration issues that may impact its overall benefit to the Fleet. Upon completion of the TAT Review, the SCD will be forwarded to the SPM.

36.6.4 Ship Program Manager Review. The SPM will review the results of the TAT Review and provide an overall recommendation to the decision board(s). Upon completion of the SPM Review, the SCD will be forwarded into Cost Benefit Analysis (CBA) review.

36.6.5 Cost Benefit Analysis Review. The CBA Change Manager coordinates the review of the CBA which includes the FP. The CBA Change Manager shall review the results of the CBA

review and determine if the CBA is complete and accurate prior to forwarding to the Resource Sponsor.

36.6.6 Resource Sponsor Review. The SCD shall be forwarded to the applicable OPNAV Resource Sponsor(s) for review. The Resource Sponsor will review the funding information in the CBA and determine if there is funding available and provide additional comments. Upon completion of Resource Sponsor review, the SCD is forwarded to the applicable NMP Decision Board(s) for review and vote.

36.6.7 Ship Change Document Voting. SCD Voters consist of the TYCOM, SPM, OPNAV Resource Sponsor(s) of Record, FLTCDR, and, or, or both OPNAV N83 (SCDs utilizing maintenance funds). The applicable decision boards are determined by the total cost of the SCD. The three hierarchical decision boards are O-6, 1&2 Star, and 3 Star.

36.6.8 Navy Modernization Process Phases. The following subparagraphs describe the Phases of the NMP.

36.6.8.1 Phase I. The purpose of beginning in Phase I is to document a need for change, propose a resolution, or gain approval to proceed with development of that resolution into an engineered SC.

36.6.8.2 Phase II. The purpose of this phase is to perform preliminary design development of the SC, document results of the preliminary design, and gain approval to continue to Phase III (detailed design). Included in preliminary design development can be selection of technologies, establishment of design parameters, and prototype development. Phase II is also utilized to document the design of Prototypes, FLEX, TECH DEMOs, and NPCs which are authorized for installation upon Phase II approval.

36.6.8.3 Phase II(a). Phase II(a) combines Phases II and III and is appropriate for internal equipment modifications that meet the criteria in reference (a). Phase II(a) will allow early visibility of the change, via Phase I submission, while "bypassing" Phase II. A SCD can utilize the Phase II(a) process only upon request in Phase I with TAT concurrence. Phase II(a) results in a Decision Point (DP) 3 decision.

36.6.8.4 Phase III. The purpose of Phase III is to document detailed design development of the SC. The technical documentation provided with an SCD to support DP3 must include the level of detail sufficient to support a critical design review. DP3 provides authority to procure, test, and mature the SC.

36.6.8.5 Phase IV. The purpose of Phase IV is to accomplish ship and site-specific advanced planning and achieve maturity of the SC. The attention is redirected from overall SC design to specific requirements for installation on a specific ship or site. This phase includes availability work package integration, finalized ship or site design (including ship check or site survey and development of drawings, technical installation instructions, etc.), initiation of procurement, and installation readiness reviews.

   a.   FPs. When an SCD is initiated at any phase, the Submitter will provide a FP using the CBA Installation FP Tab that reflects the planned number of units, by ship or site, per Fiscal Year. Once the FP change has been approved in NDE EP, ship-specific installation information will be scheduled by the PARM in NDE NM. The PARM and submitter must coordinate data entry to ensure that the applicable ships or sites and the total number of production units (e.g., quantity per Fiscal Year in the CBA)

match the ships or sites numbers scheduled in NDE NM at each DP and reflects any changes.

b. SC Scheduling. SC Scheduling provides visibility to authorization activities for inclusion into the SPM and TYCOM authorization documents. SC Scheduling in NDE NM.NET must match the approved SCD FP. An increment of an SC is a finite, definable, bounded portion of the total scope of work required to fully accomplish a single SC. Increments are not to denote different versions of the same hardware or software system. If it is known during the development of an SCD that incremental installation is necessary and appropriate, the increments shall be fully defined as part of the Description of Change and evaluated during the TAT review of the SCD.

(1) If it is necessary to increment the installation post DP3 and before Start of Installation for the affected ship(s), a LAR approved by the SPM can be utilized to define the scope of each increment. The PARM shall update the FP after approval of the LAR to show the newly defined increments and submit the revised SCD for approval via the DP Boards. The LAR shall be attached to the SCD as a permanent record of the incremental decision. In cases when SID development has started, a LAR is required to the Planning Yard to identify changes required to the SIDs.

(2) To increment an SC after the Start of Installation during a maintenance availability and the remaining production work needs to be scheduled in a subsequent CNO availability, an informational Electronic LAR (eLAR) shall be developed by the PARM to define the scope of each increment for the affected ship. The eLAR shall be attached to the SCD, SCD updated (including FP change), and forwarded to the NMP Decision Board for approval. The PARM shall update NDE EP, NDE NM, and NDE Afloat Master Planning System modules after approval of the eLAR to show the newly defined increments for the affected ship(s). The PARM has the responsibility to take all appropriate actions to address all increments including coordination with the planning yard (PY) to address SIDs for each increment, RMMCO to address status of the increments in RMMCO.NET, SPM to address status of ILS certification, and C5I Modernization Program stakeholders to address impacts to the baseline.

(3) Some incremented installs may also require a Departure From Specification (DFS) to document the resulting ship's condition based on the incrementation. In those cases, the PARM shall be responsible for generating the required DFS.

c. SC Planning. The PARM shall plan to accomplish all maturity requirements and modernization milestone paragraph below. The PARM shall ensure all technical documentation is complete; all material has been procured and is available for installation; pre-installation testing has been accomplished following the appropriate installation and testing plans; all conjunctive SCs are either installed or mature; all certifications and qualifications have been completed.

(1) SIDs. Drawings, change instructions, material procurement and logistics required for SC installation will be developed or accomplished as necessary

utilizing internal processes. If the scope of the SC affects only internals to the equipment, SIDs are not required. Equipment level drawings shall be developed to ensure that all technical requirements are identified. SIDs shall be accomplished per reference (f). The PARM shall task and fund shipchecks and SID development following milestone paragraph below. SID approval is delegated by the SPM to the PY.

(2)   Installation Control Drawings and Installation Requirements Drawings are used to provide supplemental guidance in support of SID development per reference (f).

(3)   LAR. LARs are the formal documentation tool for communication among Availability Planning Activities, PYs, Supervisor of Shipbuilding (SUPSHIPs), Executing Yards, SYSCOMs, PARMs, AITs, SPMs, In Service Engineering Agents (ISEAs), and other organizations involved in planning and executing ship modernization. LARs shall be used to facilitate the resolution of design questions and change requests regarding drawings, technical documentation, and tasking assignments; requirements for departures; identification of increments not specified at the time of SC approval; and transmittal of drawings for approval or archiving. Policy for LARs is defined in reference (g).

(4)   Milestones. SC maturity and availability contractual requirements are subject to planning milestones to ensure timely planning and execution of availabilities. Enterprise specific milestones are identified in reference (a), formal SPM correspondence (e.g., Naval Messages, Memorandums, etc.) and volume II, part II, chapter 2 (Appendices D and E) of this manual. Failure to comply with JFMM volume II, part II, chapter 2 can result in deferral of a SC from SPM and TYCOM authorization documentation or additional requirements to be added or remain on a SPM Letter of Authorization (LOA) or TYCOM authorization documentation (e.g., Risk Assessment Approval, Late Add Approval, etc.).

(5)   Certifications and Qualifications. All required certifications and qualifications shall be documented in the SCD and accomplished prior to installation. Certifications include, but are not limited to:

(a)   Warfare System or Element (System) level Certifications

(b)   Warfare System Installation Assessment

(c)   ILS Certification

(d)   Application Integration Certification

(e)   Cybersecurity Accreditation and Certification

(f)   Weapons Systems Explosive Safety Review Board non-firing concurrence for installation

(g)   Electromagnetic Interference Impact Assessment or System Electromagnetic Capability Certification

(h)   Shock Qualification or Submitted Shock Deficiency Plan

(6)   FLTCDR C5I Baseline. The C5I Modernization Process is governed by reference (b). All SCs with a SFI CAT of 1 or 2 require authorization in the FLTCDR C5I Baseline. Authorization in the FLTCDR C5I baseline is critical maturity requirement for SPM and TYCOM authorization. SFI CAT determinations are made during SCD TAT Reviews. SCs can be added to the FLTCDR C5I Baseline through two different methods. SCs that are scheduled prior to the Baseline Lock Event (BLE) for a ship will be reviewed at the BLE and the FLTCDR will determine if the SC is authorized, Planned Not Authorized, or will not be included in the baseline.

   (a)   Any SCs that were not added to the baseline during the BLE will require the PARM submission of an eCCB Risk Form and FLTCDR approval.

   (b)   Any SCs being removed from the baseline after BLE will require PARM submission of an electronic Removal eCCB Removal Risk Form and FLTCDR approval. Depending on the SC maturity and scheduling timeframe, Risk Assessment Requests and TCD Waivers may be required.

(7)   Risk Assessments. SCs that are immature require an approved Risk Assessment Request to remain on the SPM LOA after the LOA Late Add milestone in reference (a). Additionally, if a SC is scheduled after the Late Add milestone and immature, an approved Risk Assessment Request, in addition to a Late Add message, is required to be added to the SPM LOA. Immature SCs scheduled outside of CNO availabilities will require an approved Risk Assessment Request for FLTCDR or TYCOM authorization. Risk Assessment Requests are submitted to the FLTCDR and TYCOM following the A-O message templates in reference (b). FLTCDR approval is required for SFI Category I and II SCs, and TYCOM approval is required for SFI CAT III and IV SCs.

(8)   TCD Waivers. The TCD is established by the FLTCDR for each ship to minimize configuration changes during the Basic, Integrated and Advanced, and Sustainment phases. Changes to the C5I baseline outside the Modernization Window adversely affect an operational unit's ability to train, and therefore, require TCD Waiver approval from the appropriate FLTCDR. TCD Waiver requests must be submitted for any SFI CAT I, II, or III SCs per reference (b).

(9)   Late Adds. SCs that are not authorized for a CNO Availability prior to the Enterprise specific LOA Late Add milestones paragraph above require Late Add approval. Depending on the Enterprise, Late Add milestones may vary based on SC scope and impact to the availability. Late Add requests must be submitted by the cognizant PARM. The TYCOM is the activity responsible for reviewing and approval or disapproval of Late Add requests.

d.   SPM and TYCOM Authorization. SPMs and TYCOMs are the activities responsible for reviewing SC maturity and authorizing SCs for installation.

(1) SPM and TYCOM Authorization (CNO Availabilities). The SPM (Program Alterations) and TYCOM (Fleet Alterations) will evaluate the maturity of each SC scheduled to occur in a CNO Availability based on their Enterprise specific processes, using the Installation Readiness Assessment, per applicable milestone paragraph above. The SPM and TYCOM will document the decision to authorize or defer each individual SC via a LOA or a LOA change message. Any SC that is not mature following above milestones paragraph will require Risk Assessment Request approval from the FLTCDR and TYCOM. Any SC that is not authorized in accordance with the LOA milestones paragraph above will require an approved Late Add request.

(2) TYCOM Authorization (Outside CNO Availabilities). The TYCOM will evaluate the maturity of each SC scheduled outside of a CNO Availability. Any SC that is immature requires Risk Assessment Request approval from the FLTCDR or TYCOM. For aircraft carriers, SCs identified in the Modernization Readiness Assessment as mature are authorized for installation. For Surface Force ships, the TYCOM will document authorized SCs via a Quarterly Installation Scheduling Message.

e. Pre-Installation Check-Out (PICO). PICO is a test designed to evaluate and baseline the operational status and performance of the equipment, systems, and interfaces. PICO completion is of vital importance to both the maintenance and modernization communities to ensure corrective actions and responsibility for discrepancy resolution is effectively and timely identified and completed. PICO is conducted prior to commencing modernization efforts on affected systems to identify pre-existing discrepancies, which if uncorrected, could delay or prevent the successful completion of the SC. The PARM or ISEA will ensure that PICO testing requirements are submitted to the coordinating activity following the Enterprise specific coordination method identified in references (a) and (c). Regardless of coordination method, all required PICO(s) will be targeted for completion 90 to 30 days prior to the Start of Availability based on the ship's operational schedule. For installations accomplished outside of CNO Availabilities, PARMs or ISEAs will coordinate with TYCOMs to accomplish the PICO.

(1) For all installations (AIT and Non-AIT), Ship's Force will ensure discrepancies are documented in the ship's Current Ship Maintenance Project (CSMP) and coordinate new work with the Naval Supervisory Authority (NSA) and Lead Maintenance Activity (LMA).

(2) The PARM or ISEA will provide a draft PICO Completion Naval Message using the suggested format in reference (c). All PICO discrepancies will have a Ship's Force CSMP entry, assigned Job Control Number, and be included in the PICO Completion Naval Message. Ship's Force will review and release the PICO Completion Naval Message. Ship's Force will continue to track CSMP items identified during the PICO and coordinate required maintenance actions (e.g., equipment repair and parts requisition) to support post installation testing. In the event a PICO can't be accomplished or completed, the PARM or ISEA will document via a Naval Message.

NOTE: **THE AIT ON-SITE INSTALLATION COORDINATOR SHALL BRIEF THE PICO STATUS AT THE SHIP'S IN-BRIEF PRIOR TO START OF INSTALLTION. SHIP'S FORCE WILL PROVIDE STATUS OF PICO DISCREPANCIES UNDER THEIR COGNIZANCE.**

36.6.8.6 Phase V. The purpose of Phase V is to execute the SC and document completion and delivery of all installation requirements. SCs must be authorized in Phase IV to proceed to installation Phase V. Once all planned installations for applicable ships have been completed and documented in NDE, the SCD is closed out.

NOTE: **AITS SHALL NOT BE ALLOWED ONBOARD ANY SHIP TO ACCOMPLISH INSTALLATION WITHOUT RMMCO AND NSA CHECK-IN AUTHORIZATIONS. IF AN UNAUTHORIZED AIT IS IDENTIFIED, SHIP'S FORCE SHALL NOTIFY THE NSA.**

   a.   RMMCO is a regionally aligned organization that serves as the initial control point for all waterfront-related SC installations performed by AITs per reference (c). The RMMCO Gatekeeper is designated by the NSA or Ship Acquisition Program Manager for New Construction ships. The RMMCO AIT Check-In process provides the AIT Manager or AIT On-Site Installation Coordinator (OSIC) with a tool to initiate the check-in procedures required for the installation of an SC aboard ships.

   (1)   Electronic Submission. The AIT Manager will submit an electronic RMMCO Form for each SC to the RMMCO Gatekeeper. RMMCO Gatekeepers will pre-screen the RMMCO Form and provide feedback on any discrepancies.

   (2)   RMMCO Check-In. The AIT Manager, OSIC, or AIT Lead must check-in with RMMCO prior to reporting to the ship. During check-in, RMMCO will review SC authorization and maturity documentation provided by the AIT Manager, OSIC, or AIT Lead. All discrepancies identified during Electronic Submission must be addressed prior to RMMCO Check-In. RMMCO will require the following documentation for RMMCO Check-In:

   (a)   AIT Quality Assurance (QA) Workbook.

   (b)   Copy of ILS Certification or FLTCDR or TYCOM approved Risk Assessment

   (c)   Copy of approved Platform System Operational Verification Test (SOVT) or Test Procedure (TP)

   b.   NSA Check-In. The AIT OSIC or AIT Lead will check-in with the NSA for review of logistics, Environmental, Safety & Occupational Health, and QA requirements. Once the AIT installation package is verified, the RMMCO Check-In and Check-Out Form will be printed by RMMCO or the NSA and provided to the AIT. This form identifies all items that will require signature verification of accomplishment or receipt of the list of ILS deliverables. NSA Check-In will consist of the following:

   (1)   NSA logistics representatives will review the most recent approved ILS certification.

   (2)   The Environmental, Safety & Occupational Health representatives will review the following documents: fire safety plan, list of AIT personnel that have

taken the NSA safety course (in-person) within the last year, permission to paint (if required), permission to use solvents and adhesives (if required), and list of Safety Data Sheets (if applicable).

 (3) The QA representatives will review the AIT QA Workbook. The AIT QA Workbook is not required for stand-alone software only changes unless directed by the AIT Manager.

c. AIT Ship's In-Brief.

 (1) The purpose of the AIT Ship's In-Brief is to provide an overview of the SC per reference (c), Exhibit-6. Additionally, the in-brief shall consist of the following:

  (a) PICO Status Review

  (b) Work to be Accomplished

  (c) Schedule of Key Events and Milestones

  (d) Planned Ship's Evolutions

  (e) Impact of Support Services

  (f) AIT OSIC and Ship's Force Responsibilities

  (g) Conjunctive SCs

  (h) SOVT or TP

  (i) ILS and Training to be Provided

  (j) Points of Contact

 (2) The in-brief shall be scheduled and coordinated by the AIT OSIC. It shall be conducted after RMMCO Check-In and prior to the initiation of SC accomplishment. The following personnel shall be invited to attend the in-brief (as applicable):

  (a) Commanding Officer, Executive Officer, Ship's Availability Manager, applicable Department Heads and Division Officers, Supply Officer, and Technical or Operator Personnel (i.e., Fire Controlman, Electronic Technician, Operations Specialist, etc.).

  (b) TYCOM, Squadron, NSA, Lead Maintenance Activity (LMA), or Shipyard Trades Personnel (i.e., Fire Controlman, Electronic Technician, Operations Specialist, etc.).

  (c) The AIT OSIC may invite ISEA representatives or other subject matter experts to support the in-brief.

d. Production Work. The designated Executing Activity will execute the work based on the technical documentation developed during Phase IV. The NSA is responsible for government oversight of all work performed during an availability. For SCs accomplished by AITs, the AIT OSIC, assigned by the AIT Manager, is responsible for overseeing contractor work and shall work closely with the NSA to ensure the proper integration and installation of the SC.

(1) Plan of Actions and Milestones (POA&M) Requirements. The following is guidance for AIT POA&Ms and weekly progress updates during CNO and non-CNO availabilities per reference (c).

(a) Notional POA&Ms during CNO Availabilities. Notional POA&Ms (sometimes referred to as Preliminary POA&Ms) are provided during Phase IV. Notional POA&Ms are used to support advance planning scheduling and duration analysis for Surface Ships and initial integration to support the development of the Integrated Master Schedule or Integrated Production Schedule for Aircraft Carriers.

(b) Production POA&Ms during CNO Availabilities. Production POA&Ms must be provided by the AIT Manager to develop or update the Integrated Master Schedule or Integrated Production Schedule. All activities must comply with Key Event schedules promulgated by the NSA and LMA. To streamline and standardize AIT deliverable documents, AIT Production POA&M submissions must contain data elements specified in reference (h), using the format in reference (c).

(c) POA&Ms during non-CNO Availabilities. POA&Ms will be provided per reference (c).

(2) Weekly Progress Updates. The NSA or LMA will require the AIT OSIC or AIT Lead to participate in routine and special progress meetings for the purpose of work coordination or progress reviews. Unless changes occurred to the SC or testing schedule, updates are not required until the production work has reached its planned start date. AITs are responsible for complying with the reporting requirements of reference (h) or reference (i) for updated production schedules and progress reporting through weekly progress updates. Any changes to the work schedule provided via Weekly POA&M progress updates shall be reported to the NSA, LMA, and Ship's designated point of contact as soon as changes are identified.

NOTE: **SOVTS AND TPS SHALL NOT BE SIGNED IF THE CAPABILITY TO BE DELIVERED HAS NOT BEEN SATISFACTORILY DEMONSTRATED OR THE SYSTEM IS NOT CYBER COMPLIANT.**

NOTE: **SOVT OR TP SIGNATORY APPROVALS SHALL NOT BE WITHELD FOR CAPABILITIES OUTSIDE THE SCOPE OF THE SC OR ISSUES WITH PRIOR VERSIONS OF THE SYSTEM OR SOFTWARE.**

e. SOVT and TP. SOVTs and TPs are formal processes used to verify the installed system, and equipment that has been completed following applicable requirements including any interface(s) with external system(s) or equipment and any system(s) or equipment that was temporarily moved or disconnected to accomplish the install. SOVTs and TPs can vary in scope, other than a full system test, if boundaries for the test are clearly defined and invoked to validate the modification or install. It can be a single test or a battery of tests that verifies the installed or modified component(s), equipment, systems, interfaces with existing systems, and systems impacted by the installation are properly installed and operates as intended at the platform specific

requirement and environment. SOVT and TP format and requirements are contained in reference (a). The SOVT or TP will be conducted for all equipment directly impacted by accomplishment of the SC. A completed SOVT or TP is defined as an executed SOVT or TP document that has been witnessed and signed by Ship's Force, with all test results, system configuration details, and any discrepancies recorded or uploaded into the appropriate data repository. The SOVT or TP discrepancy list shall be provided to the NSA. The OSIC, AIT Manager, or ISEA will provide a complete set of test reports to Ship's Force and the NSA at the completion of the SC testing.

f. ILS Product Delivery. The AIT OSIC is responsible for delivery of all ILS products, as outlined in the ILS Certification. The AIT OSIC shall obtain required signatures verifying delivery and noting any ILS deficiencies. The AIT OSIC is responsible for providing an itemized inventory utilizing the Requisition and Invoice/Shipping Document (DD Form 1149) (if applicable) for all deliverables to the ship with a signature from the appropriate department head or authorized personnel.

   (1) ILS Products Delivery will be tracked by the NSA's designated representative. For Surface Ships, the Regional Maintenance Center or Fleet Logistics Center (FLC) has assumed the NSA's ILS functions, and ILS products may be delivered to the Ship by the AIT or NSA or FLC. For Aircraft Carrier availabilities conducted in Naval Shipyards, the shipyard has assumed the NSA's ILS function, and in private a shipyard, the resident SUPSHIP performs the NSA's functions; all ILS products must be delivered to the Maintenance Support Center. Accordingly, the NSA, Regional Maintenance Center, or FLC are responsible for verifying that all ILS products have been delivered to support the installation of a SC and ensuring all ILS products are available as needed for SC installation and check-out of systems and equipment.

   (2) SID Red-Lines. The AIT Manager will ensure that SID Red-Line mark-ups of all PY approved drawings for the SC, including all LARs, deviations, and variances approved by the PY, are provided to indicate the actual "as installed" configuration on the ship. Delivery of the final SID Red-Lines are required to the ship and PY no later than 30 days after the Ship's Force or NSA Outbrief.

NOTE: **FOR THOSE SHIP CHANGES NOT FULLY COMPLETE, ENSURE THE OUTSTANDING ITEMS ARE DOCUMENTED IN THE NSA COMPLETION MESSAGE AND, OR THE COMPLETION REPORT NAVAL MESSAGE. ADDITIONALLY, IF PRODUCTION IS INCOMPLETE, SOVT OR TP IS NOT STARTED OR COMPLETED, OR ALL ILS DELIVERABLES ARE NOT PROVIDED, THE OSIC SHALL PROVIDE THE CURRENT SYSTEM AND EQUIPMENT STATUS AT THE OUTBRIEF. IN THESE CASES, COMMUNICATION WITH THE RMMCO IS STILL REQUIRED.**

g. Ship's Force or NSA Outbrief. The Ship's Force or NSA outbrief shall be scheduled and coordinated by the AIT OSIC for all SCs per reference (c). The TYCOM, NSA, LMA, NAVSEA 21 Phased Maintenance Representative, Ship's Force, and PY On-Site Logistics Representatives shall be invited to attend all outbriefs. The outbrief

shall be conducted after completion of the SC and prior to RMMCO Check-Out. Normally, the AIT OSIC will obtain the required Ship's Force and NSA verification signatures per reference (c) on the Alteration Completion Report at the outbrief. The AIT OSIC shall provide a draft copy of the Completion Report Naval Message. The message shall be reviewed and released by Ship's Force within seven days of the outbrief. In addition to the Alteration Completion Report and Completion Report Naval Message, the status and timeline for completion of the following items will be addressed during the outbrief, if applicable:

    (1)   SOVT or TP

    (2)   Ship's Force training completion

    (3)   ILS delivery

    (4)   Configuration Data Manager's Database – Open Architecture and Model Based Product Support final configuration data

    (5)   SID Red-Lines

NOTE: **THE RMMCO FORM SHALL NOT BE CLOSED OUT IF SHIP'S FORCE DOES NOT SIGN THE SOVT OR TP DUE TO DISCREPANCIES.**

    h.   RMMCO Check-Out. After the SC completion and outbrief, the AIT OSIC or AIT Lead must check-out with RMMCO with the following documents:

    (1)   Completed and signed RMMCO Form

    (2)   Signed Training Verification Report (if applicable)

    (3)   SOVT or TP cover sheet(s), discrepancy sheet and signature sheet

    (4)   Signed DD Form 1149 (if applicable)

    i.   SC Completion Status Update. The PARM shall set the accomplishment status code to a completion status and record the completion date for all completed SC accomplishments in the NM.NET application per reference (a).

    j.   SCD Closeout. Upon final planned installation completion, the SCD shall be reviewed by the Submitter to ensure all planned installations are complete and confirm that all ILS has been delivered for all installations. Once this is accomplished, the SCD may be considered complete.

VOLUME VI

CHAPTER 37

**REGIONAL MAINTENANCE CENTER PASSIVE COUNTERMEASURE SYSTEM
SUPPORT REQUIREMENTS**

REFERENCES.

(a)   OPNAVINST 9070.2 - Signature Control Policy for Ships and Craft of the U.S. Navy
(b)   NAVSEA RMC CERT 05P1 - Passive Countermeasure System (PCMS) Waterfront
       Support Certification Plan
(c)   NAVSEA SE400-DA-MMO-010 - Passive Countermeasure System (PCMS)
       Technical Manual
(d)   Maintenance Index Page 4721/081 - CG/DDG/LPD Passive Countermeasure System
       (PCMS)
(e)   NAVSEA RIM 05P1 - PCMS Repair and Installation Methods
(f)   NAVSEA ACD 05P1 - PCMS Access, Material Control and Disposal Manual
(g)   Maintenance Index Page 4721/082 - CVN Passive Countermeasure System (PCMS)
(h)   NAVSEA RIM (SLT) 05P1 - PCMS Repair and Installation methods for Type 3R
       SLT
(i)   NAVSEA ACD/J 05P1 - PCMS Access, Material Control and Disposal Manual
       (Japan)
(j)   NAVSEA ACD/R 05P1 - PCMS Access, Material Control and Disposal Manual
       (Rota)
(k)   NAVSEA ACD (CVN) 05P1 - PCMS Access, Material Control and Disposal Manual
       (CVN)

37.1 PURPOSE. Per references (a) through (k), to provide guidance in the execution of a shore
based Passive Countermeasure System (PCMS) maintenance program in the U.S. Surface Fleets.
Waterfront support for the PCMS is focused through the homeport Regional Maintenance Center
(RMC). To support the Fleet PCMS program each RMC must be capable of conducting the
following core PCMS activities:

a.   PCMS Readiness Improvement Program (RIP).

b.   PCMS Maintainer and Supervisor technical training.

c.   Installation and removal of Motion Measurement System.

d.   AP-1 and AP-2 system assessments. AP-2 is not applicable to CVN.

e.   Technical assists.

f.   Prioritization and quality assurance of all topside PCMS work related to or impacting
      PCMS resources and procedures. Requirements for these tasks are identified in
      reference (b). A general system description is provided in reference (c).

g.   Support of a RMC Production Repair Replace Facility. This facility will be outfitted
      and stocked by the RMC for accomplishment of tiling on ship items which have been
      removed from or are destined for PCMS ships. The facility must include, at
      minimum, an on-site RMC technician, certified by the NAVSEA Technical Warrant

Holder at Waterfront Level 2 Maintainer Instructor, to act as supervisor and manager of the production shop. The designated Code 900 production shop manager must coordinate training and oversight with PCMS SME (Code 200) at the RMC as needed. This capability will be RMC funded stocking of necessary tools, consumables and tiles such that work performed at the shop will not require specific ship provided materials or funding.

37.2 <u>PASSIVE COUNTERMEASURE SYSTEM EVENT DESCRIPTION</u>.

a. PCMS RIP. RIPs are scheduled by the Type Commander (TYCOM) via the Immediate Superiors In Command (ISIC). ISICs obtain primary and secondary dates, submit via action to TYCOM with information to the local RMC. This weeklong event is designed to provide on board training to the entire ship PCMS team, focused on maintenance and inspection training. Curricula are available for both the PCMS maintenance person and PCMS supervisor personnel. The RIP focuses on one day of classroom training, followed by shipboard training that includes assessment and repairs training to the system (trim, caulk, application of material, etc.). This is the primary method of delivering training and PCMS certification for Ship's Force personnel for CG/DDG/LPD. It also serves the purpose of providing a focused period for accomplishment of a prioritized selection of Ship's Force capable maintenance. Stand-alone onboard technical training (PCMS Supervisor or Maintainer) may be provided to ships CVN/CG/DDG/LPD) if delivering that training via the RIP process is not possible. This form of training can be requested by the ship directly through the local RMC PCMS SME. This training is requested through the RMC by ship submission of a 2K.

b. Motion Measurement System. Per references (d), ships without installed telemetry equipment require installation and removal of Motion Measurement System for radar cross-section testing. This is accomplished by the RMC following ship submission of a 4790/2K request.

c. AP-1 and AP-2 (CG/DDG/LPD) assessments. These comprise the annual Subject Matter Expert (SME) assessment of the ship system. It utilizes a visual assessment process in order to provide a prioritized maintenance plan for the ship. This complements the ship's measurement. A structured discipline is used for this assessment.

d. Technical assistance. RMC SMEs are responsible for responding to Forces Afloat requests for PCMS technical assistance. The RMC technician must be certified by the NAVSEA Technical Warrant Holder at a minimum for Level 2 Maintainer Instruction, to directly assist the ship in identifying and organizing a Ship's Force PCMS maintenance project. The technician would provide on-site advice and quality assurance assistance.

e. Prioritization and Quality Assurance of I and D Level Work. RMC SMEs must be utilized by the RMCs to provide technical advice, including work prioritization, and quality assurance of all I and D Level PCMS related or PCMS impacting work executed under the purview of the RMC.

37.3 <u>PASSIVE COUNTERMEASURE SYSTEM PERSONNEL CERTIFICATION</u>.

37.3.1 Passive Countermeasure System In-Service Engineering Activity. The Naval Sea Systems Command (NAVSEA) Topside Signatures Technical Warrant Holder has assigned Naval Surface Warfare Center Port Hueneme Detachment (NSWC PHD) as the PCMS In-Service Engineering Agent (ISEA). The Technical Warrant Holder (NAVSEA 05P1) retains final authority for all PCMS personnel certification.

37.3.2 Support Personnel. Per reference (b), PCMS personnel certification is required every three years. Qualifications for PCMS certification are successful completion of NAVSEA sponsored PCMS installation course conducted under the authority of NSWC PHD (S22) and on-the-job-training witnessed by a certified PCMS instructor within the past three years. RMC Subject Matter Expert personnel are also required to retain proficiency through annual accomplishment of at least one AP-1 and one RIP. This certification enables RMCs and shipyards to maintain a cadre of qualified PCMS personnel and with the assistance of the PCMS ISEA, to coordinate further certification or recertification training as required. Specific certification levels are addressed in the relevant PCMS Program NAVSEA manual.

37.3.3 Training Requirements. Per reference (c) and (e), NAVSEA 05P1 has established the requirement that all personnel involved in PCMS installation and maintenance, including inspection/assessment, surface preparation, material application, final painting or quality assurance, must be U.S. citizens trained in the specifics of PCMS installation procedures prior to any actual tile installation work. As waterfront experience has underscored the absolute importance of limiting PCMS work to properly trained personnel, the certification process is the single most important element of quality assurance for the fleet customer. All personnel assigned PCMS repair duties must be trained in the requirements of reference (f).

37.3.4 Regional Maintenance Center Japan, Regional Maintenance Center Rota and Pearl Harbor Naval Shipyard. With the exception of CVN training, Forward Deployed Naval Forces (Regional Maintenance Center Japan, Regional Maintenance Center Rota and Pearl Harbor Naval Shipyard) are authorized to execute training of personnel organic to their production codes for all PCMS maintenance and installation work using the PCMS ISEA provided training guide.

37.3.5 Ship's Force Personnel. Per the requirements of reference (c) MRC S-1, fleet personnel conducting PCMS S-1 assessments must be graduates of a PCMS ISEA approved ship supervisor course which includes an assessment/inspection training module. Ship's Force personnel assigned maintainer duties to include all reference (d) MRCs except the S-1 must be graduates of the PCMS ISEA approved PCMS maintainer course. Ship's Force personnel assigned maintenance duties to include all reference (g) MRCs must be graduates of the PCMS ISEA approved CVN specific course.

37.4 PASSIVE COUNTERMEASURE SYSTEM TECHNICAL ASSISTANCE. PCMS technical assistance is available through the local RMC. Distance support is also available, if required.

37.5 RESPONSIBILITIES.

    a.   Commander, Naval Sea Systems Command:

        (1)   Certify personnel, facilities, and activities in PCMS handling, Quality Assurance, application, and destruction. Maintain records for each RMC certification.

(2)   Provide Equipment Guide List (EGL) packages for AP-1, AP-2 and S-1 assessments. AP-2/S-1 is not applicable to CVN.

(3)   Incorporate and distribute ship configuration revisions submitted following AP-1 and AP-2 assessments. AP-2 is not applicable to CVN.

(4)   Conduct analysis of all measurements and provide Forces Afloat reports of results and recommendations.

(5)   Adjudicate all PCMS related requests for Departures from Specifications.

(6)   Designate a PCMS ISEA to function as the first line technical resource for Forces Afloat.

(7)   Coordinate PCMS in service activities with the broader Surface Maintenance Engineering Planning Program (SURFMEPP) organization and other activities, such as corrosion control programs.

b.   Navy Regional Maintenance Center:

(1)   Ensure that RMCs have adequate PCMS SMEs/technicians to support PCMS core activities defined in paragraph 37.1 of this chapter. Provide stewardship of RMC SMEs to ensure a seamless transition when personnel are scheduled for transfer or retirement. If qualified PCMS Technicians are not available at local RMC, the RMC should contact the following (in order of contact) for assistance:

    (a)   Other RMCs.

    (b)   PCMS ISEA (NSWC PHD). This request must include funding for the performance of the activity.

(2)   Ensure integration of PCMS SME support to all former SUPSHIP planning and execution of shipboard repairs and other upkeep performed under the auspices of the RMC organization.

(3)   Establish I-Level PCMS tiling support shops at RMCs with PCMS responsibilities.

(4)   Ensure the integration of PCMS restoration on all RMC conducted repairs and corrosion control projects where PCMS coverage is required. This is to ensure that PCMS restoration requirements generated as interferences to work performed by I and D level activities are not assigned to Ship's Force, but rather are restored as part of the I or D task. Should the Type Commander determine that it is necessary to abbreviate the funded task, he or she must direct the ship to submit a Departure from Specifications (DFS) to NAVSEA delineating the specifics of the unfunded PCMS restoration work.

c.   Type Commanders must:

(1)   Coordinate with the System Commands in identifying, solving and correcting PCMS deficiencies.

(2)   Refer all PCMS related Departures from Specifications to NAVSEA for adjudication.

(3)   Prior to promulgation, review and authorize all documents prepared by technical agencies that contain procedures relative to PCMS and the fleet PCMS program.

(4)   Evaluate comments and recommendations regarding the fleet PCMS program. If necessary, issue changes to existing policy and procedures.

(5)   Fund PCMS RIPs to provide for the additional RMC labor and material required to conduct these events at least bi-annually.

(6)   Ensure that proper corrosion control procedures are employed in the planning and execution of I and D Level maintenance affecting PCMS areas. References (f) and (h) provides detailed guidance.

(7)   Coordinate all aspects of scheduling ship measurements.

(8)   Provide for the restoration of all PCMS materials removed as interferences for other tasks.

d.   Immediate Superiors in the Chain of Command (ISIC) must:

(1)   Submit requests to schedule PCMS core activities for each unit to maintain unit currency in trained personnel and ship measurements.

(2)   Review and take the appropriate action to correct PCMS discrepancies for subordinate units.

e.   RMCs must:

(1)   Maintain qualified PCMS personnel and ensure assets are available to perform PCMS activities of paragraph 37.1 of this chapter, per reference (b).

(2)   Budget and provide travel funding to the ISEA for RMC personnel PCMS competency certifications, as required. As an alternative, the RMC person requiring certification can travel to Norfolk or San Diego for certification from the ISEA.

(3)   Budget for RMC PCMS SME attendance of Annual Waterfront PCMS Standardization Program Reviews required reference (b).

(4)   Provide Technical Assistance via distance support or on site visit as appropriate.

(5)   Conduct PCMS core activities. Provide the following to NAVSEA PCMS ISEA within four weeks following AP-1 events:

(a)   Redlined updates to key plans and detailed drawings.

(b)   Completed EGL inspection checklist, including revised items.

(c)   Completed digital photo surveys consisting of any new systems and topside changes not previously submitted or not listed in the ship key plans.

(6)   Ensure that RMC PCMS SMEs are involved in planning of all PCMS equipped ship topside maintenance where PCMS is affected.

(7)   Ensure that RMC Quality Assurance personnel, certified by the PCMS ISEA, are actively involved in the Quality Assurance of all I and D level PCMS related repairs and installations.

(8)   Ensure that contracted or I-Level jobs activities, facilities and personnel selected to conduct PCMS work are certified for the work being conducted.

(9)   Conduct annual inventory of all locally RMC held PCMS materials and provide results to NAVSEA 05P1.

(10)   Include in contracted I and D-Level jobs the provision of PCMS tiles for planned PCMS repairs and interference areas. Ships must not be tasked to provide tiles or other PCMS Allowance Parts List or Allowance Equipage List items to support work undertaken by other than Ship's Force, except with the specific concurrence of the TYCOM.

(11)   Maintain repair capability detailed in paragraph 37 .1.1.g of this chapter.

f.   PCMS Ship Commanding Officers must ensure:

(1)   Scheduling of PCMS activities within periodicity.

(2)   Obtaining RMC SME assistance in reviewing work packages to ensure identification of all topside signature related issues.

(3)   Establishment and maintaining of the following shipboard organization:

NOTE: AS OUTLINED IN CHAPTER 19, APPENDIX C4H OF THIS VOLUME, THE OT02 WORKCENTER IS DESIGNATED AS THE PCMS MAINTENANCE WORKCENTER. CVN DOES NOT LIST A SPECIFIC PCMS WORKCENTER. REFERENCE (B) CONTAINS ALL CVN PCMS MAINTENANCE REQUIREMENTS AND MUST BE CARRIED UNDER WORKCENTER OS02 (ELECTRONIC WARFARE (EW) OR CRYPTOLOGIC TECHNICIAN, TECHNICAL (CTT)). ADDITIONALLY, THE CVN PCMS SUPERVISOR MUST COME FROM THIS WORKCENTER OR CAN BE A MORE SENIOR PERSON WITHIN THE SAME DEPARTMENT.

(a)   PCMS Department Head: Per reference (a), the Commanding Officer must appoint a Department Head responsible for coordinating operation and maintenance of PCMS. Their responsibilities include:

1   Providing the Commanding Officer monthly PCMS effectiveness summaries including major PCMS deficiencies, the compliance of the ship with personnel certification requirements, an abbreviated Plan of Action and Milestones for correction of Category 1, 2 and 3 deficiencies and corrosion items, and the due date for the next ship measurement.

2   Coordinating shipboard PCMS indoctrination for newly reported personnel.

3   Coordinating ship-wide PCMS preventive and corrective maintenance schedule.

<u>4</u>   Coordinating distribution and update of Planned Maintenance System (PMS) materials, including ship specific PCMS key plan drawings and EGLs required for PMS inspections.

<u>5</u>   Serving as single point of contact for Quality Assurance of PCMS related Current Ship's Maintenance Project entries, review of all topside configuration changes (including program alterations, fleet alterations, field changes, etc.) to ensure Radar Cross Section reduction has been considered.

<u>6</u>   Ensuring PCMS is included in the command PMS spot-check program.

<u>7</u>   Assigning a command PCMS coordinator responsible to the PCMS Department Head for the detailed implementation of PCMS maintenance and operation.

<u>8</u>   Designate in writing the maintenance assignments by all work centers assigned PCMS responsibility, as applicable.

(b)   Command PCMS coordinator: The command PCMS coordinator is the primary assistant to the PCMS Department Head in carrying out his or her responsibilities. Additional responsibilities include:

<u>1</u>   Request PCMS RIPs at intervals not to exceed 24 months (non-CVN).

    <u>a</u>   Designate team of minimum 8 people (DDG and LPD), (15 people (CG) to attend the RIP. This team must include at least two supervisor level personnel (E5 and above). These team members must be committed throughout the entire RIP duration and cannot be substituted once the RIP commences.

    <u>b</u>   Commit this team to the full 5-day period, arranging other individual requirements or commitments around the PCMS RIP. The names, rates and PRD of these personnel must be provided to the local RMC SME by e-mail or record message not later than 3 working days prior to the PCMS RIP. The senior ship's force member of this team is responsible as the team's mustering petty officer and must exercise military control of the team. Personnel may not be substituted once the RIP has begun.

    <u>c</u>   All PCMS training requested through the RMC will be done by ship submission of a 2K.

<u>2</u>   Maintain personnel certifications, ensuring the required number of trained personnel are onboard. For DDG and LPD, a minimum of 8 maintainers and 2 supervisor-trained personnel are required. For CG, a minimum of 15 maintainers and 2

supervisor-trained personnel are required. For CVN, a minimum of 15 personnel are required to be trained in the CVN-specific training, one of which formerly designated as the ship's PCMS Supervisor.

    3   During RMC technical assists, ships would be expected to provide a minimum, dedicated team of five Level 1 Maintainer personnel and one Level I Supervisor personnel for such a technical assist. The team would be required to muster at least 80% of its assigned personnel continuously for workdays during the technical assistance period.

(c)   Supply Officer: Maintain Allowance Parts List stocks of PCMS materials and sufficient Allowance Equipage List items to support maintenance requirements. All shipboard stocks must be within shelf life.

VOLUME VI

CHAPTER 38

**DEEP SUBMERGENCE SYSTEMS
HULL INTEGRITY PROCEDURES**

REFERENCES.

(a)   NAVSEA SS800-AG-MAN-010/P-9290 - System Certification Procedures and
Criteria Manual for Deep Submergence Systems

LISTING OF APPENDICES.

A   SUBMEPP DSS HIP Inventory
B   SUBMEPP DSS HIP Schedule
C   Request for DSS HIP Periodicity Extension Format

38.1 PURPOSE. This chapter provides guidance and definition for the requirements,
responsibilities and actions for Deep Submergence Systems (DSS) Hull Integrity Procedures
(HIP) to continue certification for manned operations. The DSS HIP program is invoked on Dry
Deck Shelter (DDS) certified under reference (a).

38.2 HULL INTEGRITY PROCEDURES MAINTENANCE SCHEDULING, PLANNING
AND REPORTING.

38.2.1 Maintenance Requirements for Continued Certification. Reference (a) establishes the
Maintenance Requirements and identifies the responsibilities and actions required to support
continued unrestricted Submarine and DSS manned operations. In conjunction with reference
(a), Naval Sea Systems Command (NAVSEA) has issued individual manuals containing
required, periodic Scope of Certification (SOC) maintenance actions for each DSS. The DSS
HIP procedures identify degradation of the material condition of the hull integrity boundary and
of those systems affecting occupant safety. SOC certification indicates that a valid
recommendation for continued manned operations can be made. Maintenance of certification is
dependent on the positive control of all re-entries into the SOC boundaries per Volume V, Part
III, Chapter 5 of this manual, the satisfactory and timely completion of applicable DSS HIP
procedures as required by reference (a) and any necessary repairs. Accomplishment of the DSS
HIPs specified with this program identify changes within the SOC boundary which result from
inadvertent error or from degradation caused by the service environment.

38.2.2 Scheduling and Reporting. To enable the Type Commanders (TYCOM) to carry out their
responsibilities in the maintenance of certification of DSSs and to aid in decisions concerning
operational restrictions, an auditable system of scheduling the performance and reporting of DSS
HIPs has been developed. This system provides visibility to problem areas, facilitates
verification and provides a permanent record of DSS HIP accomplishment in the DSS's
Maintenance and Material Management (3-M) machinery history maintained at the NAVSEA
Logistics Center.

38.2.2.1 Dry Deck Shelter. Submarine Maintenance Engineering, Planning and Procurement
(SUBMEPP) Activity provides Periodic Maintenance Requirement (PMR) inventories and

schedules are used for scheduling and reporting. Appendices A and B of this chapter show examples of the SUBMEPP DSS HIP inventories and schedules respectively.

38.2.2.2 Submarine Maintenance Engineering, Planning and Procurement Activity Inventories and Schedules. The SUBMEPP inventories and schedules are provided at https://ebusiness.submepp.navy.mil/eBusiness/index.cfm.

38.2.3 Baseline and Due Dates. The baseline date for determining DSS HIP due dates is the Last Maintenance Action (LMA) date. LMA dates for new requirements will be based on the Change Issue Date of the DSS HIP invoking the new requirement unless otherwise directed from NAVSEA. Due dates are calculated based on LMA dates per paragraph 38.2.3.2 of this chapter. It is recognized that upkeep schedules for vehicles that are well into the operating cycle may not permit full compliance with the scheduled due dates. In such cases, a Departure From Specification (DFS) for the DSS HIP will be addressed on a case-by-case basis as specified in Volume V, Part I, Chapter 8 or Volume V, Part III, Chapter 8 of this manual. LMA dates and DSS HIP due dates are determined in the following paragraphs.

38.2.3.1 Last Maintenance Action Date. All DSS HIPs have an initial LMA date established at installation to start the operating cycle following the applicable DSS HIP manual. During the operating cycle, an adjusted LMA is used for DSS HIP. Calculate the adjusted LMA date as:

   a.   If the HIP is accomplished during a period other than a scheduled Availability (e.g., voyage repair periods, at sea, port calls, Fleet Maintenance Activity (FMA) Availability, refit, upkeep, etc.) the adjusted LMA date will be the first of the month following the PMRs completion date.

   b.   If the HIP is accomplished during a scheduled availability (e.g., Overhaul or Restricted Availability), the adjusted LMA date will be the first of the month following the scheduled availability's actual completion date.

38.2.3.2 Calculating Due Dates. Next due dates are calculated based on an adjusted LMA date. Due dates are calculated, for scheduling purposes, by taking the adjusted LMA date month (number) and adding the periodicity months (number) to show the month due (i.e., an item with an adjusted LMA date of February 2005 (2/05) with a six-month periodicity would be due in August 2005 (8/05)). The HIP will be accomplished prior to midnight of the last calendar day of the month due.

38.2.4 Periodicity Extensions. When determining the due date for certain DSS HIPs inspections, inactive time may be excluded from the time elapsed since the last inspection.

   a.   Inactive Time for HIPs 001, 003, 004 and 005 is defined as days in which a DDS is in a Restricted Availability (RAV), Regular Overhaul (ROH), storage, or other non-operational period. The definition of Inactive Time for HIP 002 is limited to only the time during which a DDS is in an availability (e.g. RAV, ROH). The sustaining activity must submit a Minor, Temporary, Non-Precedent setting DFS to the TYCOM, via the ISIC, to request a periodicity extension for the subject DDS HIP based on inactive time alone. This DFS must be specific to the HIP items and portions that will exceed the required periodicity, and must include supporting OQE (Transfer of custody letters, Dive log records etc.) to account for the inactive time. TYCOM must approve this DFS as temporary, with a due date of the requested HIP periodicity extension, and the DFS must remain active until the SUBMEPP PMR Inventory for

the HIP is updated. Upon update of the SUBMEPP PMR Inventory for the HIP, the DFS can be cleared.

b. General Periodicity Extensions: These authorization requests are for HIP periodicity extensions other than an Inactive Time Periodicity Extension of 1-9.d.1., and are generally due to technical or scheduling obstacles that prevent timely completion of a HIP. The sustaining activity must submit a Major, Temporary, Non-Precedent setting DFS to NAVSEA, via the ISIC and TYCOM, to request a periodicity change for the subject DSS HIP. This DFS must be specific to the HIP items and portions that cannot be or are not completed and must include rationale to support the requested change. This may include emergent operational needs, unavailability of material, incomplete integrity inspections, etc. The originator should provide supporting OQE (inspection and test reports accumulated, etc.). The originator will indicate when the HIP will be accomplished, propose any restrictions or limitations, and identify whether or not manned operations will be conducted between now and when the HIP inspection is accomplished. NAVSEA must approve this DFS, if appropriate, as temporary, with a due date of the requested HIP periodicity change, and the DFS must be active until the SUBMEPP PMR Inventory for the HIP is updated. Upon update of the SUBMEPP PMR Inventory for the HIP, the DFS can be cleared.

38.2.5 Scheduling, Planning and Reporting Hull Integrity Procedure Accomplishment at Sustaining Activity or Fleet Maintenance Activity Level.

38.2.5.1 Scheduling. The TYCOM PMR Scheduling System Inventories and Schedules are located at https://ebusiness.submepp.navy.mil/eBusiness/index.cfm. An inventories and schedules is to be provided to each applicable Unit Identification Code (UIC) by the ISIC. As a minimum, ISICs will schedule applicable DSS HIPs 60 days prior to scheduled availabilities.

38.2.5.2 Planning. FMA Planners will requisition materials, obtain plans and drawings, prepare Formal Work Packages or Controlled Work Packages and coordinate the scheduling with the Ship Superintendent, Production Officer and ISIC Material Office. Then the job will be turned over to the applicable Work Center for accomplishment.

38.2.5.3 Reporting. Each DSS HIP contains specific instructions on reporting the completed action and on use of a special feedback code to identify the material condition, or a change in inspection frequency is required. In order to ensure DSS HIPs are correctly accomplished and reported to SUBMEPP, the following actions are to be taken:

a. Sustaining Activities completing DSS HIPs must provide a report of accomplishment to SUBMEPP via the ISIC.

b. The Sustaining Activity must update the local inventory report and verify the completed HIPs are subsequently updated by SUBMEPP.

38.2.6 Scheduling, Planning and Reporting Hull Integrity Procedures Accomplishment During Regular Overhaul (ROH). Each DSS HIP contains specific instructions on reporting the completed action and on use of a special feedback code to identify the material condition, or a change in inspection frequency is required. In order to ensure DSS HIPs are correctly accomplished and reported to SUBMEPP, the following actions are to be taken.

a. The Availability Work Package (AWP) prepared by SUBMEPP will reflect all DSS HIPs authorized for accomplishment during the ROH at the AWP Ship Work List Item Number level.

b. For DSS HIPs assigned to the depot, the ISIC will enter "Assigned to <depot name> by AWP <AWP number>" in the Remarks/Completion block of the DSS HIP Schedule/Inventory and in the local scheduling system.

c. The Sustaining Activity will verify that all DSS HIPs assigned to the depot were reported and subsequently updated by SUBMEPP.

38.2.7 Scheduling, Planning and Reporting Hull Integrity Procedures Accomplishment During Restricted Availabilities (RAV). Each DSS HIP contains specific instructions on reporting the completed action and on use of a special feedback code to identify the material condition, or a change in inspection frequency is required. In order to ensure DSS HIPs are correctly accomplished and reported to SUBMEPP, the following actions are to be taken.

a. Prior to each RAV, the Sustaining Activity must identify HIPs required to be accomplished during the availability and assign them to the responsible repair activity for accomplishment. Forward this list via formal correspondence to the ISIC.

b. ISIC must review and verify these requests and forward to NAVSEA via the TYCOM.

c. The Sustaining Activity will verify that all DSS HIPs assigned for completion during the RAV are reported to the ISIC and subsequently updated by SUBMEPP.

38.2.8 Deep Submergence System Hull Integrity Procedures Completion Reporting.

a. Within 30 days after the completion of an availability or completion of a HIP outside an availability, the Sustaining Activity is required to provide a report of accomplishment to SUBMEPP and the DSS ISIC as well as other technical codes as designated in the DSS HIP. Specific information to be included in the report is identified in the applicable DSS HIP. The accomplishing activity or Sustaining Activity and ISIC must retain a legible copy of the most current inspection report until disposal of the DSS.

b. Prior to Manned Operations, the DSS Sustaining Activity must submit a letter to SUBMEPP via the ISIC that certifies all required inspections have been satisfactorily completed.

c. Upon identifying a material condition that would result in a reduced inspection periodicity if not restored to Category A condition during the availability in which the condition was found, a special report is required to be submitted by the accomplishing activity following the applicable DSS HIP and, if applicable, the AWP. This special report must be provided immediately to NAVSEA (PMS 390N) (SEA 07Q), TYCOM, ISIC and SUBMEPP indicating:

(1) Applicable DSS HIP.

(2) Equipment component identification.

(3) Inspection category.

(4) The reduced or deferred periodicity of each equipment component that should be inspected at less than its normal periodicity. This reduced periodicity report requirement is in addition to the completion reporting requirements.

38.3 RESPONSIBILITIES.

38.3.1 Type Commander.

a. Perform periodic audits of the ISICs and FMAs to verify full compliance with the provisions of reference (a), Volume V, Part I, Chapter 9 of this manual and this chapter.

b. Provide guidance to the ISICs, obtaining NAVSEA concurrence as necessary, when deviations in the scheduling or accomplishment of maintenance or repairs are required by a DFS request and resolution per Volume V, Part I, Chapter 8 and Part III, Chapter 8 of this manual.

c. Review requests for HIP accomplishment as required per paragraph 38.2.6 of this chapter.

38.3.2 Submarine Maintenance Engineering, Planning and Procurement Activity.

a. Receive reports of completion of DSS HIPs from all completing activities.

b. Review completion reports for compliance with the scheduled periodicity requirements and any change in the status category.

c. Establish an LMA date per paragraph 38.2.3.1 of this chapter.

d. Revise the periodicity and next due dates in DSS HIP inventories and schedules to reflect any NAVSEA approved periodicity extension changes, or TYCOM approved periodicity extensions due to inactive time as allowed for in the individual DSS HIP and paragraph 38.2.4 for this chapter.

e. Notify the TYCOM via the on-site SUBMEPP Representative of any DSS HIP beyond periodicity for TYCOM resolution.

f. Provide updated DSS HIP inventories and schedules following the distribution.

g. Quarterly, provide a list of DSS HIPs that appear overdue in the schedules and a list of DSS HIPs that have been reported complete by the fleet but Objective Quality Evidence has not been received by SUBMEPP.

h. Receive and review DSS HIP Objective Quality Evidence for technical accuracy and maintain DSS HIP completion history.

38.3.3 Immediate Superior In Command.

a. Maintain auditable records of DSS HIP accomplishment for each DSS. These records will include the current SUBMEPP Quarterly inventories and schedules, DSS HIPs completed and data report forms or reports submitted as a result of last accomplishment and all approved DFSs.

b. Conduct periodic audits of assigned FMAs and Sustaining Activities to verify full compliance with the provisions of reference (a), Volume V, Part I, Chapter 9 and Part III, Chapter 9 of this manual and this chapter.

c.   In addition to the records of audits, maintain a file, by DSS, of the current DSS HIP inventories and schedules as provided by SUBMEPP. The schedules (Appendix B of this chapter) for each DSS must be annotated with the new adjusted LMA date and the next due dates for the completions and any periodicity extensions authorized.

d.   Although the responsibility for the accomplishment of DSS HIPs must rest with the DSS Commanding Officer, the nature and scope of the DSS HIPs dictate that the ISIC coordinate the accomplishment of DSS HIPs following the SUBMEPP provided inventories and schedules. Accordingly, the ISIC must assist in the preparation of, and approve each DSS HIP performance schedule. In addition, the ISIC must:

(1)   Unless previously notified by SUBMEPP of delays, notify the SUBMEPP Representative and TYCOM of the non-receipt of schedules and reports.

(2)   Upon printing, review each vehicle's quarterly DSS HIP inventory and schedule against the schedule information on the individual DSS HIP to verify DSS HIP scheduling or periodicity is accurate and that any rescheduling data which has been submitted to SUBMEPP has been accurately incorporated. HIPs accomplished during the month preceding the quarterly report may or may not be reflected in the issue received. Similarly, upon receipt of DSS HIP changes, audit the individual DSS HIP procedural and schedule information against each DSS's HIP inventory and schedule to verify that the component or equipment and periodicity has not changed and that provided changes do not impact current schedules. Resolve identified deficiencies through the SUBMEPP Representative at TYCOM.

(3)   Review the enclosures to the HIP procedural inventories and the schedule forwarding letter and advise SUBMEPP of the completion dates and JSNs for DSS HIPs listed. Forward copies of completed Data Report Forms for these and any other DSS HIP completions identified by SUBMEPP as having missing Data Report Forms.

e.   Ensure that all DSS HIP requirements with the appropriate screening (Ship's Force, FMA) are in the CSMP for subsequent development by SUBMEPP of forthcoming availability AWPs.

f.   In the event that deviations from required periodicities or full requirements of the DSS HIPs are required, request approval from the Program Manager with Sustaining Certification Authority (SCA) concurrence by submitting a DFS request per Volume V, Part III, Chapter 8 of this manual. Such DFS requests will be a Major DFS for DSS HIP program deviations. DFS requests are also to be submitted when repairs arising from the DSS HIP inspections cannot be completely accomplished. Periodicity extension requests for all DSS HIPs must be submitted per paragraph 38.2.4 of this chapter.

g.   Establish procedures to affect routing of completed DSS HIP transactions. The ISIC should ensure proper documentation has been completed as described in the special reporting procedures of the HIPs. This must include the material condition feedback code as part of the final action, if required. Upon receipt of the report of maintenance action accomplishment from an assigned unit or the FMA, review the report for

completeness, consistency, acceptability of conditions and material trends. Where unsatisfactory conditions are found, direct repairs. Where repairs cannot be made, submit a DFS per Volume V, Part I, Chapter 8 and Part III, Chapter 8 of this manual. Ensure SUBMEPP inventories and schedules are updated per paragraph 38.3.3.c of this chapter. Clear DSS HIP major DFS upon TYCOM or NAVSEA approval and upon receipt of the SUBMEPP Quarterly PMR inventories and schedules, and ensure they accurately reflect the new due date of the DSS HIP as stated in the approved DFS.

h. Upon identifying a material condition that would result in a reduced inspection periodicity, ensure the accomplishing activity immediately reports the condition found via official correspondence to NAVSEA (PMS 390N), the TYCOM and SUBMEPP per paragraph 38.2.7.c of this chapter.

i. Monitor the timely submission of DSS HIP data report forms and the report of accomplishment for DSS HIPs completed by the FMA, Sustaining Activity or industrial activity, as applicable, to ensure required documentation is submitted per paragraph 38.2.7 of this chapter. Ensure data report forms are submitted to report component replacement, repair or operation out of specification. Review all Sustaining Activity accomplished DSS HIP data for compliance with the requirements of the DSS HIP Program prior to submittal to SUBMEPP.

j. Prior to a DSS's underway period, review the vehicle's certification continuity report, if submitted, to ensure the ISIC and DSS's records (including the CSMP) accurately reflect DSS HIP status.

k. The Parent ISIC of deploying ships will ensure that any DSS HIP due for accomplishment by the ship or DSS during its deployment period is identified in the transfer of custody message and that the ship possesses the DSS HIP data report forms (if applicable) for reporting job completion.

l. Deployed Squadrons will review the DSS HIP status of deployed DSSs upon in-chop. Perform the function of the Parent ISIC in ensuring all DSS HIPs are accomplished and reported within the required periodicity while the DSS is deployed.

m. Prior to the start of an availability, ISIC DSS HIP coordinators will:

(1) Assign Job Control Numbers to DSS HIP items assigned to Forces Afloat in the AWP and screen them prior to the start of the availability following the directions in the AWP. Care must be taken to appropriately assign DSS HIP items to the correct accomplishing activity.

(2) ISIC DSS HIP coordinators will not assign Job Control Numbers to DSS HIP items assigned to the industrial activity in the AWP. The industrial activity is responsible for performing, auditing and reporting all DSS HIP items assigned by the AWP.

(3) DSS HIPs assigned to Forces Afloat by the AWP for accomplishment prior to the start of the depot period, but for some reason were not completed, will be reassigned to a concurrent availability or formally reassigned to the industrial activity via a supplemental work request.

n.   DSS HIPs assigned to the industrial activity by the AWP which are not accomplished during the depot period will be reassigned to another availability by NAVSEA (PMS 390N) following the depot period provided the DSS HIP does not exceed its due date. The ISIC will be notified of this reassignment by formal correspondence which will include justification and reason why the scheduled and planned requirements were not met.

o.   Prior to availability completion, ISICs will audit DSS HIPs assigned to Forces Afloat by the AWP and ensure all have been satisfactorily completed and documented within the required periodicity. The ISIC audit will also verify that all DSS HIP items coming due within six months of availability completion are complete or assigned to a follow-on fleet availability. Under no circumstances are DSS HIP due dates to be exceeded. ISIC Quality Assurance Officers will not be responsible for auditing DSS HIPs assigned to the depot in the AWP.

p.   Following availability completion, the ISIC DSS HIP coordinator will ensure that all DSS HIPs assigned to the industrial activity were reported and subsequently updated by SUBMEPP.

38.3.4 <u>Deep Submergence System Commanding Officer</u>.

a.   Ensure all DSS HIPs are accomplished within the required periodicity as specified by SUBMEPP.

b.   Maintain auditable records of the accomplishment of DSS HIPs to permit verification of compliance with reference (a), Volume V, Part I, Chapter 10 and Part III, Chapter 10 of this manual and this chapter. These records must consist of:

(1)   Copies of letters of completion and inspection reports for all DSS HIP work accomplished by all activities. The required data forms are located in the individual DSS HIPs. A copy of each completed report must be submitted to the ISIC for review a minimum of 24 hours prior to manned operations.

(2)   One copy each of the current Quarterly DSS HIP inventories and schedules provided by SUBMEPP. Annotate the DSS HIP Inventory Report when accepting completed work requests from the FMA or Ship's Force (LWC 991). It is the DSS responsibility for ensuring that the reports reflect the actual configuration, especially with regards to the equipment identity and the Allowance Parts List.

(3)   Copy of outstanding DSS HIPs to be accomplished by Ship's Force.

(4)   One copy of each approved DFS from the requirements of reference (a), Volume V, Part I, Chapter 8 and Part III, Chapter 8 of this manual and this chapter. This authority is based on the following factors and considerations:

(a)   The completion of all DSS HIPs, or portions thereof, will be reported by the ISIC per paragraph 38.2.5.3 of this chapter. Particular care must be exercised to ensure that existing conditions found at the time of inspection or need for repair or replacement of components is recorded in detail as prescribed by the DSS HIP.

(b)   Deviations from DSS HIP requirements or periodicities may result in operational restrictions being placed on a unit. In order to determine whether such restrictions are necessary, the TYCOM must be fully apprised of the number and extent of deviations involved.

(c)   Allow no deviations in the scheduling or accomplishment of required DSS HIP maintenance actions unless formal NAVSEA approval of such deviations has been granted by an approved DFS or as allowed in paragraph 38.2.4 of this chapter. All system disassembles, repairs and reassemblies must be conducted per Volume V of this manual, including requests for a DFS, if necessary.

(d)   Except in an emergency, refrain from manned operations if all required DSS HIP maintenance actions have not been completed within the specified periodicities unless formal authorization to deviate from these requirements has been granted by NAVSEA. NAVSEA recommendation and TYCOM authority to conduct manned operations are contingent upon the satisfactory completion of these maintenance actions.

APPENDIX A

SUBMEPP DSS HIP INVENTORY

FOR OFFICIAL USE ONLY

| | PERIODIC MAINTENANCE REQUIREMENTS | | | REPORT DATE 01 Nov 2005 |

HIP CHANGE: 39 Sep 2005

INVENTORY URO/HIP SORTED BY URO/HIP

DRY DECK SHELTER 03P DDS 03P   **SDVT-2**

SHIP'S UIC: 59603

COMPID HSC	LINE ITEM RIC	COMP SERIAL	MJC NO MJFCN	PROC TYPE	MID NO	MRN	R M D L D	LAST WRK CTR JSN URO ITEM	M C C	LMA DATE	DUE DATE	PER	ALT	REMARKS/COMPLETION INFO JSN DATE
SYSTEM: 1310 PRESSURE HULL														
ITEM-01 596003AP01	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-02 596003AP02	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-03 596003AP03	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-04 596003AP04	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-05 596003AP05	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-06 596003AP06	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-07 596003AP07	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-08 596003AP08	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-09 596003AP09	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-10 596003AP10	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
ITEM-11 596003AP11	XCONFIGITEM		PENDING	HIP	001		D		X	Dec 2002	Dec 2009	84M		1310 270137 L901

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PERIODIC MAINTENANCE REQUIREMENTS
INVENTORY URO/HIP SORTED BY URO/HIP

REPORT DATE   01 Nov 2005

HIP CHANGE: 39 Sep 2005

DRY DECK SHELTER 03P DDS 03P   SDVT-2

SHIP'S UIC: 59603

COMPID	LINE ITEM	COMP SERIAL	MJC NO	PROC TYPE	MID NO	MRN	R M L	M D D	LAST WRK CTR JSN	M C C	LMA DATE	DUE DATE	PER	ALT	REMARKS/COMPLETION INFO
HSC	RIC		MJFCN						URO ITEM						JSN	DATE

SYSTEM: 1310 PRESSURE HULL (Cont'd)

ITEM-12			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP12	XCONFIGITEM														
ITEM-13			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP13	XCONFIGITEM														
ITEM-14			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP14	XCONFIGITEM														
ITEM-15			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP15	XCONFIGITEM														
ITEM-16			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP16	XCONFIGITEM														
ITEM-17			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP17	XCONFIGITEM														
ITEM-18			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP18	XCONFIGITEM														
ITEM-19			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP19	XCONFIGITEM														
ITEM-20			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP20	XCONFIGITEM														
ITEM-21			PENDING	HIP	001			D		X	Dec 2002	Dec 2009	84M		1310 270137 L901
596003AP21	XCONFIGITEM														

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PERIODIC MAINTENANCE REQUIREMENTS
INVENTORY URO/HIP SORTED BY URO/HIP

REPORT DATE: 01 Nov 2005

HIP CHANGE: 39 Sep 2005

DRY DECK SHELTER 03P DDS 03P   SDVT-2

SHIP'S UIC: 59603

COMPID HSC	LINE ITEM RIC	COMP SERIAL	MJC NO MJFCN	PROC TYPE	MID NO	MRN	R M L	D D	LAST WRK CTR JSN URO ITEM	M C C	LMA DATE	DUE DATE	PER	ALT	REMARKS/COMPLETION INFO JSN	DATE
SYSTEM: 1110 SUPERSTRUCTURE AND FAIRWATER																
AFTSUPSTRUCT			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1110 270900 L902	
596003AM02	XCONFIGITEM															
FWD MOUNT RG			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1110 270900 L902	
596003AM04	XCONFIGITEM															
ATTSTUDS&WLD			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1110 270900 L902	
596003AM06	XCONFIGITEM															
FRG MEM&WLD			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1110 270900 L902	
596003AM10	XCONFIGITEM															
EXT FOUND			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1110 270900 L902	
596003AM12	XCONFIGITEM															
SYSTEM: 1310 PRESSURE HULL																
HANGAR CYL			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AG02	XCONFIGITEM															
ACC SPHERE			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AG04	XCONFIGITEM															
ACC SPH SKRT			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AG06	XCONFIGITEM															
HYPER CHAMBR			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AG08	XCONFIGITEM															
FR FLANGES			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AJ02	XCONFIGITEM															

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PERIODIC MAINTENANCE REQUIREMENTS

INVENTORY URO/HIP SORTED BY URO/HIP

REPORT DATE: 01 Nov 2005

HIP CHANGE: 39 Sep 2005

DRY DECK SHELTER 03P DDS 03P   SDVT-2

SHIP'S UIC. 59603

COMPID	LINE ITEM	COMP SERIAL	MJC NO	PROC TYPE	MID NO	MRN	R M L	D D	LAST WRK CTR JSN	M C C	LMA DATE	DUE DATE	PER	ALT	REMARKS/COMPLETION INFO JSN	DATE
HSC	RIC		MJFCN						URO ITEM							
SYSTEM: 1310 PRESSURE HULL (Cont'd)																
FR WEBS			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AJ04	XCONFIGITEM															
ATT RNGS&WLD			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AM08	XCONFIGITEM															
INS&PEN EXT			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AM16	XCONFIGITEM															
INS&PEN INT			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1310 270163 L902	
596003AS04	XCONFIGITEM															
SYSTEM: 1700 WATERTIGHT HATCHES (PRESSURE HULL), TRUNKS AND ENCLOSURES																
EXT HNG DOOR			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1700 270480 L902	
596003BG08	312110266Y															
SYSTEM; 1770 INTERNAL STRUCTURAL BULKHEADS																
HYP CHMBR DR			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1770 270540 L902	
596003BG04	312110258Y															
INR HNG DOOR			PENDING	HIP	002			D		X	Jan 2003	Jan 2007	48M		1770 270540 L902	
596003BG06	312110258Y															

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URO/HIP INVENTORY BY URO/HIP PAGE: 4 DDS 03P

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PERIODIC MAINTENANCE REQUIREMENTS
INVENTORY URO/HIP SORTED BY URO/HIP

REPORT DATE: 01 Nov 2005

HIP CHANGE: 39 Sep 2005

DRY DECK SHELTER 03P DDS 03P   SDVT-2

SHIP'S UIC: 59603

COMPID HSC	LINE ITEM RIC	COMP SERIAL	MJC NO MJFCN	PROC TYPE	MID NO	MRN	R M D L D	LAST WRK CTR JSN URO ITEM	M C C	LMA DATE	DUE DATE	PER	ALT	REMARKS/COMPLETION INFO JSN DATE

SYSTEM: 5081 FLOOD, VENT & DRAIN

COMPID HSC	LINE ITEM RIC	COMP SERIAL	MJC NO MJFCN	PROC TYPE	MID NO	MRN	R M L D	LAST WRK CTR JSN URO ITEM	M C C	LMA DATE	DUE DATE	PER	ALT	REMARKS/COMPLETION INFO JSN
SHD-001 5960D3MU10	887306276Y		PENDING	HIP	003		I		X	Dec 2002	Dec 2009	84M/R		5081 444340 L903 R=F16Accomplish whenever the valve is removed for other reasons.
SHF-001 596003MV10	887305590Y		PENDING	HIP	003		I		X	Dec 2002	Dec 2009	84M/R		5081 440015 L903 R=F16Accomplish whenever the valve is removed for other reasons.
SHF-002 596003MV20	887306272Y		PENDING	HIP	003		I		X	Dec 2002	Dec 2009	84M/R		5081 440015 L903 R=F16Accomplish whenever the valve is removed for other reasons.
SHA-029 596003PU29	887306275Y		PENDING	HIP	003		I			Dec 2002	Dec 2009	84M/R		5081 440015 L903 R=F16Accomplish whenever the valve is removed for other reasons.

FOR OFFICIAL USE ONLY   URO/HIP INVENTORY BY URO/HIP PAGE: 5 DDS 03P

APPENDIX A

FOR OFFICIAL USE ONLY

| PERIODIC MAINTENANCE REQUIREMENTS | REPORT DATE: 01 Nov 2005 |
| INVENTORY URO/HIP SORTED BY URO/HIP | |

HIP CHANGE: 39 Sep 2005

DRY DECK SHELTER 03P DDS 03P   SDVT-2

SHIP'S UIC: 59603

COMPID	LINE ITEM	COMP SERIAL	MJC NO MJFCN	PROC TYPE	MID NO	MRN	R M L	D D	LAST WRK CTR JSN URO ITEM	M C C	LMA DATE	DUE DATE	PER	ALT	REMARKS/COMPLETION INFO JSN	DATE
HSC	RIC															

SYSTEM: 0611 AUDITS AND CERTIFICATION

COMPID	LINE ITEM	COMP SERIAL	MJC NO	PROC TYPE	MID NO		R		LAST WRK CTR		LMA DATE	DUE DATE	PER		JSN
VITAL EQUIP			PENDING	HIP	004		0				May 2002	May 2006	48M/R		0611 603040 L904
596003AD02		XCONFIGITEM													

R=N97 Accomplish after each ROH, or after installation
or other configuration change which adds equipment or significantly
changes existing design.

VI-38A-6

PERIODIC MAINTENANCE REQUIREMENTS

01 Nov 2005

HIP CHANGE: 39 Sep 2005

INVENTORY URO/HIP SORTED BY URO/HIP

DRY DECK SHELTER 03P DDS 03P

SDVT-2

SHIP'S UIC: 59603

COMPID HSC	LINE ITEM RIC	COMP SERIAL	MJC NO MJFCN	PROC TYPE	MID NO	MRN	R M L	D D	LAST WRK CTR JSN URO ITEM	M C C	LMA DATE	DUE DATE	PER	ALT	REMARKS/COMPLETION INFO JSN	DATE
SYSTEM: 5081 FLOOD, VENT & DRAIN																
SHF-001			PENDING	HIP	005			D		A	Dec 2002	Dec 2009	84M		5081 440015 L905	
596003MV10		887305590Y														
SHF-002			PENDING	HIP	005			D		A	Dec 2002	Dec 2009	84M		5081 440015 L905	
596003MV20		887306272Y														

APPENDIX A

APPENDIX B

SUBMEPP DSS HIP SCHEDULE

FOR OFFICIAL USE ONLY

| | | PERIODIC MAINTENANCE REQUIREMENTS | | REPORT DATE: | 01 Nov 2005 |

HIP CHANGE: 39 Sep 2005 SCHEDULED URO/HIP **CUTOFF DATE:** 01 Aug 2006

DRY DECK SHELTER 03P DDS 03P SDVT-2

SHIP'S UIC: 59603

COMPID HSC	LINE ITEM RIC	COMP SERIAL	MJC NO MJFC	PROC TYPE	MID NO	MRN	R M D L D	LAST WRK CTR JSN URO ITEM	M C C	LMA DATE	DUE DATE	PER	ALT	JSN	REMARKS/COMPLETION INFO DATE

SYSTEM: 0611 AUDITS AND CERTIFICATION

| VITAL EQUIP | | | PENDING | HIP | 004 | | 0 | | | May 2002 | May 2006 | 48M/R | | 0611 803040 L904 | |
| 596003AD02 | | XCONFIGITEM | | | | | | | | | | | | R=N97Accomplish after each ROH, or after installation | |

or other configuration change which adds equipment or significantly
changes existing design.

APPENDIX C

REQUEST FOR DSS HIP PERIODICITY EXTENSION FORMAT

4790

Ser

From: Commander, DSS Squadron ___

To: Commanding Officer, Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity

Via: COMNAVSPECWARCOM

Subj: REQUEST FOR EXTENSION OF PERIODICITY FOR DSS HIP (S)_____ON DSS Vehicle or Shelter and Hull No.)

Ref: (a) Applicable DSS HIP
    (b) COMUSFLTFORCOMINST 4790.3; Joint Fleet Maintenance Manual, Volume VI, Chapter 38
    (c) COMNAVSPECWARCOM ltr 4790 Ser __of (previous letter granting extension of periodicity)

1. Per references (a) and (b), request extension of DSS HIP periodicity for Deep Submergence System (Vehicle or Shelter and Hull No.) as:

DSS HIP	Equipment Guide List Item Number or Component Ident	LMA Date	Current Due Date	Inactive Time		Extension Required	Required Next Due Date
					Inactive Days		
001	All	June 82	Apr 91		100 days	7 months	Nov 91
002	All	June 82	Aug 91		100 days	3 months	Nov 91
003	All	June 82	Aug 91		100 days	3 months	Nov 91
004	All	June 84	Apr 91		100 days	7 months	Nov 91
005	VB-10	June 84	Apr 91		100 days	7 months	Nov 91

2. Inactive time identified for the DSS HIPs listed in paragraph 1 is the actual allowable time accrued to date since DSS HIP was last accomplished or previous extension of periodicity was granted by reference (c).

Copy to:
COMNAVSEASYSCOM (PMS 390N)
Commanding Officer, _____

VOLUME VI

CHAPTER 39

MAINTENANCE AND MODERNIZATION PERFORMANCE REVIEW
AND LESSONS LEARNED CONFERENCE
FOR SURFACE FORCE SHIPS

LISTING OF APPENDICES.

A Access to Lessons Learned Conference and MMPR Sites on the ST1 Portal

39.1 PURPOSE.

a. The Maintenance and Modernization Performance Review (MMPR) is a semi-annual forum for maintenance and modernization professionals to share, identify issues and focus on continuous process improvement opportunities within the Surface Maintenance and Modernization Community. The MMPR provides a path for communication between the individual Project and Ship Lessons Learned Conferences (LLC) and the top-level maintenance and modernization leadership.

b. The primary purpose of the LLC is to facilitate communication between Project Teams of all Surface Force ship classes across all Regional Maintenance Centers (RMC) and supporting activities at various stages in their availability to assist in improving cost, schedule and performance. The LLCs provide a singled-up approach to evaluate and capture critical lessons learned and barriers brought forward by Project Teams to facilitate process improvements in the Surface Navy.

c. The LLC process encompasses the established milestones and meetings within the planning and execution of availabilities per Volume II, Part II, Chapter 2 of this manual. Appendix D of Volume II, Part II, Chapter 2 of this manual includes a detailed table of milestones. Meetings that already exist to reinforce process improvements may include the Advance Planning Meeting, Work Package Integration Conference, Work Package Execution Review, Arrival Conference, 50% Conference and Completion Conference. While these events occur at various times, the feedback process exists to continually collect information to improve processes.

39.2 MAINTENANCE AND MODERNIZATION PERFORMANCE REVIEW OVERVIEW.

39.2.1 MMPR Objective. The MMPR topics will be relevant to process improvements for future availabilities and may include ship class or port specific process issues, best practices, success stories, industry feedback, technical issues, Surface Team One (ST1) initiatives and new developments and Fiscal Year Availabilities.

39.2.2 MMPR Key Membership.

a. The ST1 Executive Steering Committee (ESC) will select the MMPR Process Master and is responsible for managing and executing the MMPR.

b. Nearly all commands linked to the Surface Ship Maintenance and Modernization Community participate in the MMPR. These commands include Commander, Navy Regional Maintenance Center, RMCs, Naval Sea Systems Command (NAVSEA) 21, Type Commanders (TYCOM), Surface Maintenance Engineering Planning Program

(SURFMEPP), Planning Yards, Private Sector Industrial Activity Contracting Partners, Ship's Force (Commanding Officers through Department Heads), Fleet, SEA 05, SEA 09, Space and Naval Warfare Systems Command, Program Executive Officer Integrated Work Schedule and Office of the Chief of Naval Operations N43. At a minimum, the following organizations will be invited to attend all MMPRs:

(1)   Commander, Navy Regional Maintenance Center.

(2)   RMCs Southeast Regional Maintenance Center (SERMC), Southwest Regional Maintenance Center (SWRMC), Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF), Northwest Regional Maintenance Center (NWRMC), Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY & IMF), Hawaii Regional Maintenance Center (HRMC), Mid-Atlantic Regional Maintenance Center (MARMC), Forward Deployed Regional Maintenance Center (FDRMC), Ship Repair Facility (SRF)-Japan).

(3)   Commander, Naval Surface Forces Atlantic.

(4)   Commander, Naval Surface Forces Pacific.

(5)   NAVSEA 21.

(6)   SURFMEPP.

(7)   Ship's Force.

(8)   United States Fleet Forces Command.

(9)   Commander, U.S. Pacific Fleet.

(10)   Industry Partners.

(11)   Space and Naval Warfare Systems Command.

(12)   Naval Surface Warfare Center (Philadelphia, Port Hueneme, Corona).

(13)   NAVSEA 05.

(14)   NAVSEA 09.

(15)   Program Executive Officer Integrated Work Schedule.

c.   MMPR Planning Team. The MMPR Planning Team will be chaired by the ST1 ESC. MMPR planning meetings will be conducted on a monthly basis preceding a scheduled MMPR. The objective of these meetings is to develop the agenda and ensure any information from ST1 priority topics is included.

39.2.3 MMPR Action Items. All action items resulting from an MMPR meeting will be tracked by ST1 and documented and tracked on the ST1 Portal with Lessons Learned Conference Action Items and barriers. Documents from the MMPR will be posted to the MMPR site under the ST1 Portal. Instructions on gaining access to the ST1 Portal are located in Appendix A.

39.2.4 Further Guidance. Further guidance regarding the MMPR process is outlined in the MMPR Business Rules.

39.3 LESSONS LEARNED CONFERENCE OVERVIEW.

39.3.1 <u>Lessons Learned Conference Concept</u>. The LLC is not a program review, an evaluation of the Maintenance Team (government or contractor) or a forum to acknowledge heroism or place blame. It is a process review, an evaluation of the execution of the availability from the advance planning to the completion of the availability. It is also a place to identify process issues that can further improve overall end-to-end maintenance and modernization process.

39.3.2 <u>Lessons Learned Conference Objective</u>. The objective of the LLC is to increase in-depth cross-Project Team discussions of common issues and to include risk mitigation strategies and best practices. Feedback will be shared locally and globally in the surface force ship community and will ultimately be embedded into the maintenance and modernization processes.

39.3.3 <u>Lessons Learned Conference Key Membership</u>.

a.   Process Owner. Commander, Naval Surface Forces Atlantic N43 and Commander, Naval Surface Forces Pacific N43 are the overall LLC process owners. As such, Commander, Naval Surface Forces Atlantic N43 and Commander, Naval Surface Forces Pacific N43 are responsible for the general management of implementing the LLC process to ensure process effectiveness. While the TYCOMs are the LLC Process Owners, the LLCs are part of the ST1 structure as a "Knowledge Sharing Network". Each Knowledge Sharing Network under ST1 is assigned a Process Master; the LLC Process Master will be identified by the Process Owners.

b.   RMC LLC Analysis Team. Each RMC must have a designated LLC Analysis Team Coordinator and a designated LLC Analysis Team Waterfront Operations Representative on the Analysis Team. Some RMCs may choose to have the Coordinator and Waterfront Operations Representative to be one and the same due to the time requirements demanded of an Analysis Team Member.

(1)   The LLC Analysis Team Coordinator is responsible for the coordination and facilitation of their local RMC's scheduled LLCs. This person serves as the liaison between the Project Teams and the global LLC Community. Further guidance regarding the RMC LLC Coordinator's responsibilities are outlined in the LLC Analysis Team Business Rules.

(2)   The LLC Analysis Team RMC Waterfront Operations Representative is responsible for providing the Waterfront expertise and knowledge for their local RMC to the Analysis Team. This person serves as the liaison between their RMC's waterfront and the global LLC Community. Further guidance for the roles and responsibilities of the local RMC LLC Analysis Team Member in completing the LLC Waterfront Perspectives Questionnaire is contained in the LLC Analysis Team Business Rules.

NOTE: WHILE THE LLC ANALYSIS TEAM MEMBER POSSESSES MANY RESPONSIBILITIES AS THE LLC MEETING FACILITATOR, THEY SHOULD EXPECT TO RECEIVE ASSISTANCE FROM ALL STAKEHOLDERS.

c.   RMC Availability Project Manager (PM). The RMC PM is responsible for preparing and briefing their ship's Chief of Naval Operations Availability based on the Waterfront Perspectives Questionnaire they provided answers and comments on. The

RMC PM will capture all lessons learned, action items and barriers deemed necessary to be communicated to the Surface Maintenance and Modernization Community.

d. Maintenance Community. Other maintenance activities involved with ship availabilities (in addition to those highlighted in preceding paragraphs) will participate in the LLC. These representatives are active members of the LLC Community and are responsible for maintaining awareness of availability issues and participating in the topic specific LLCs. The following participants are mandatory:

(1) TYCOM N43 Type Desk Office.

(2) TYCOM Project Engineer.

(3) Immediate Superior In Command.

(4) Ship's Force Representative.

(5) Private Sector Industrial Activity or Firm Fixed Price Contractor.

(6) SURFMEPP Detachment Representative.

(7) Government Availability Planning Manager (GAPM).

e. Modernization Community. Representatives of any Alteration Installation Team or other non-repair activity involved with availabilities will participate in the availability LLC meetings as appropriate:

(1) NAVSEA 21.

(2) Field Activities.

(3) Space and Naval Warfare Systems Command.

(4) Program Manager Representative.

(5) Planning Yard Representative.

39.4 PREPARING FOR THE LESSONS LEARNED CONFERENCE.

39.4.1 Preparation. To adequately prepare for an LLC, Project Teams should review any lessons learned and barriers that they feel will be beneficial to other Project Teams throughout their Planning and Execution phases regarding the topic of the LLC. All Project Teams will be first introduced to the LLC Process during their first scheduled Integrated Project Team Development Event following the milestones listed in Volume II, Part II, Chapter 2, Appendix D of this manual by their local RMC LLC Analysis Team Coordinator or Waterfront Operations Representative.

39.4.2 Lessons Learned Conference Presentation Overview. The LLC Availability Overview Presentation serves as the format for the Project Teams to articulate key lessons learned and barriers encountered during their Availability Cycle. The LLC Waterfront Perspective Questionnaire template is available through the RMC Analysis Team Member. However, it will be tailored to each LLC Topic. Throughout the planning stages and execution of the availability, Maintenance Team members, other RMC personnel including the GAPM, Ship's Force, contractor, Alteration Installation Teams and other key availability stakeholders must assist the RMC PM in submission of the LLC presentation. Input should also be gathered from:

a.   Ship's Commanding Officer's Weekly Situation Reports.

b.   Standard metrics identifying top cost drivers.

c.   Late add alteration risk assessment messages (including comparison of expected versus actual impact to the availability).

d.   Late add alteration risk acceptance.

e.   Waivers for work added after the late add impact assessment as dictated by the milestones listed in Volume II, Part II, Chapter 2, Appendix D of this manual (including impact to availability).

f.   Cost variance forms provided by contractor.

g.   A review of contract changes to the base work package.

39.5   <u>CONDUCTING A LESSONS LEARNED CONFERENCE</u>.

39.5.1   <u>Lessons Learned Conference Schedule</u>. LLCs are scheduled as topics are identified for inclusion in the LLC process. Required LLC Project Teams are determined based on their applicability to the selected topic.

39.5.2   <u>Agenda</u>. The primary focus of the meeting is to discuss lessons learned, best practices and barriers pertaining to the specific topic. An agenda for all scheduled LLCs will be forwarded to all participants by the ST1 LLC Process Master, RMC LLC Analysis Team Coordinator. The agenda will also be available on the LLC site on the ST1 Portal: https://usff.navy.deps.mil/sites/surflant/st1/default.aspx..

39.5.3   <u>Lessons Learned Conference Focus Areas</u>. Surface Force Ships are required to participate in LLCs to promote synergy toward the identification and resolution of common availability issues. Topics of a LLC can be identified by any member of the Surface Ship Maintenance and Modernization Team. The topic specific LLC will bring together people from around the enterprise to share lessons learned on issues that are affecting the ability of project teams to complete availabilities on time or are constant drivers of growth and new work.

39.5.4   <u>Invitees</u>. Key membership and project team personnel involved with the availability, including the TYCOM, will be notified of the LLC meeting by the ST1 LLC Process Master, the RMC LLC Analysis Team Coordinator or the Class Team Leader. Key stakeholders involved with future availabilities will also be invited to attend the meeting.

39.5.5   <u>Invites and Announcement</u>. The RMC LLC Analysis Team Coordinator will review the scheduled LLCs on no less than a monthly basis. The schedule will include an agenda of upcoming LLCs based on topic relevance. The RMC Analysis Team Coordinators will recommend and designate the specific ship Project Teams to present at upcoming LLCs.

39.5.6   <u>Lessons Learned Conference Documents</u>. All LLC documentation will follow the LLC Analysis Team Communications Plan. Requirements for documents will also be discussed during the weekly LLC Telecoms.

39.5.7   <u>Lessons Learned Conference Minutes</u>. All participants, action items and barriers will be documented in minutes (KMails), following each LLC. The KMails will be forwarded no later than five business days to all invitees, ST1 ESC and RMC Commanders. The minutes will also be posted on the LLC site on the ST1 Portal.

39.5.8 <u>Lessons Learned Conference Web Site</u>. LLC process meeting documents and information must be posted on the LLC site on the ST1 Portal. This site tracks all scheduled LLCs throughout the calendar year, all meeting preparation materials to include necessary read-ahead material for participants, Project Team Point of Contact Lists and approved KMails. The site should be used to aid in planning work packages and preparing for availabilities to ensure that any barriers and lessons learned identified by previous LLC Project Teams are applied to future availabilities. The site is located at https://usff.navy.deps.mil/sites/surflant/st1/default.aspx. See Appendix A for instructions on obtaining access.

39.6 <u>INTERACTION AMONG FEEDBACK PROCESSES</u>.

39.6.1 <u>Relationships</u>. The LLC meeting is sensitive to the contractor-government relationship and the legal procedures that accompany it. The Department of the Navy Acquisition Reform strategy includes a goal to "build a continuous dialogue with industry to identify mutually beneficial opportunities and practices". While the Department of the Navy encourages open communication between the contractor and the government, many legal issues arise from such information sharing. It is critical that the LLC meetings and general processes maintain awareness of the following legal procedures: Federal Advisory Committee Act, Procurement Integrity Act, Trade Secrets Act and Organizational Conflicts of Interest. Additionally, the LLC process is mindful of other feedback and review processes, such as the Award Fee Board and Contractor Performance Assessment Report.

39.6.2 <u>Consistency</u>. These business rules recognize the need for consistency between other feedback processes and the need for all to exist. As the LLCs will most likely occur prior to the Award Fee Board and the Contractor Performance Assessment Reports issuance, sensitive issues may arise. The LLCs intend to remain focused on process improvement, lessons learned and barrier identification. The LLC will allow for sensitive issues to remain in closed sessions or within the scope of their existing feedback and review processes.

39.7 <u>LESSONS LEARNED CONFERENCE APPLICATION AND KNOWLEDGE SHARING</u>. Lessons Learned, Barriers and Action Items and their associated resolutions are only useful when they are communicated between maintenance and modernization professionals. The following are the required methods for sharing information in a timely manner, but are not the only means to share this information:
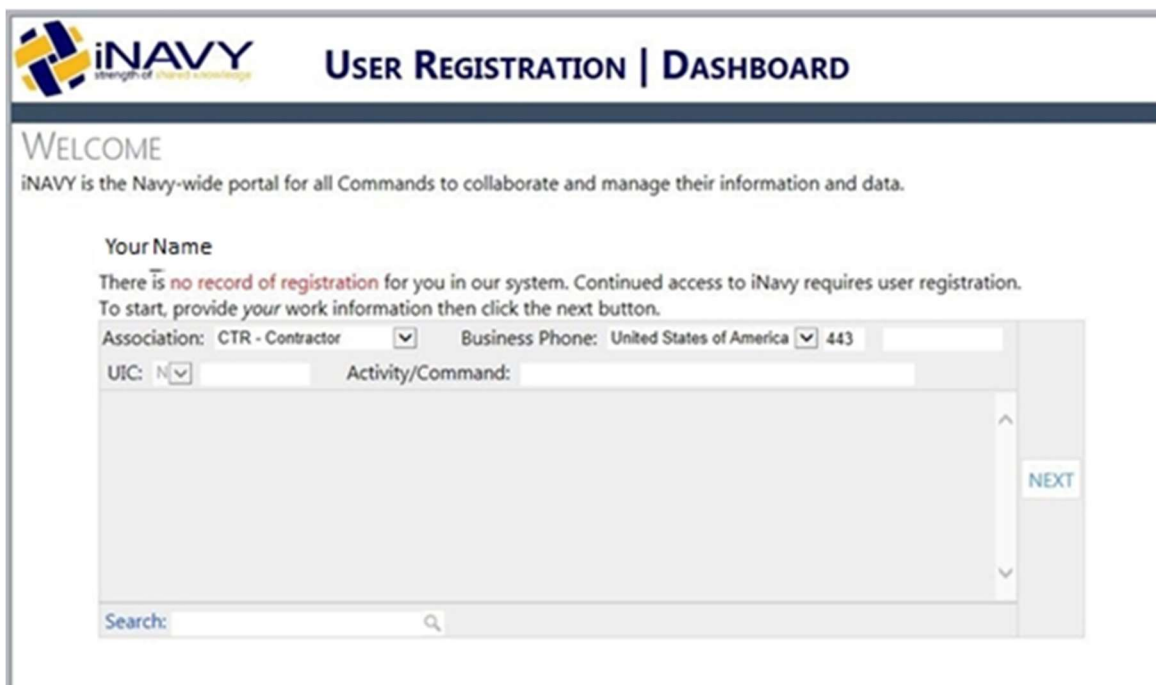
a.   Maintenance and Modernization Performance Review. Status of LLC Action Items and Barriers will be provided during each Maintenance and Modernization Performance Review.

b.   Surface Team One Executive Steering Committee Meetings. When requested, the LLC Process Master will brief the ST1 ESC. As a minimum, each ESC meeting will include a status brief of all open action items and barriers. When barriers are briefed to the ESC, the barrier will be assigned to the correct point of contact for action and closure.

c   Surface Team One Monthly Process Master Meetings. Monthly meetings will be conducted with each Knowledge Sharing Network Process Master and designated support personal. These meetings will serve as a venue to provide a critical review of assigned action items from each LLC.

APPENDIX A

**ACCESS TO LESSONS LEARNED CONFERENCE AND MMPR
SITES ON THE ST1 PORTAL**

**In order for users to be granted access, they must have
a .mil or .gov address and have a CAC.**

1.   Go to: https://flankspeed.sharepoint-mil.us/sites/NAVSEA_TeamShips_SEA21_ST1

2.   Fill in the information requested and submit.

3.   Your command approvers will create the account, usually within 48 hours.

4.   If an individual already has an account for a different site within iNavy, they will see the User Registration Dashboard that will indicate your status.

VOLUME VI

CHAPTER 40

SUBMARINE MESSAGE REPORTING

REFERENCES.

(a)   SECNAVINST 5510.36 - Department of the Navy Information Security Program Regulation
(b)   NAVSEAINST 4720.14 - Temporary Alterations to Active Fleet Submarines, Control of
(c)   NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and Operations Manual (NMP-MOM)

LISTING OF APPENDICES.

A   Sample (SUBS) Initial Message
B   Sample (SUBS) Update Message
C   Sample (SUBS) Final/Closeout Message
D   Sample (SUBS) ShipAlt/TempAlt Installation Message
E   Sample (SUBS) ShipAlt/TempAlt Removal Message

40.1 PURPOSE. This chapter provides policy and guidance regarding the utilization of (SUBS) messages. Reactor Plant and Strategic Weapons Systems material issues are not governed by this document and must not to be reported via (SUBS) message format. (SUBS) message requirements for New Construction, Chief of Naval Operations, (CNO) and Type Commander (TYCOM) depot availabilities are addressed in Volume II, Part I, Chapters 3 and 4 of this manual and will not be addressed in this chapter. This chapter supersedes all other policy, procedures or guidance previously issued regarding (SUBS) messages.

40.2 BACKGROUND. Submarine material and equipment problems or requests for technical assistance reported via message have experienced delays receiving the required resolutions for identified problems. Delays were associated with insufficient data and or improper message addressing.

40.3 SCOPE. To establish protocol for the reporting of submarine equipment, systems and material issues that affect ship's mission or ship or personnel safety. To establish a reporting procedure that will ensure all necessary commands and technical authorities are contacted without delay. To ensure the correct action is identified and provided to the ship using the most rapid means.

40.4 POLICY.

a.   The parenthetical code word (SUBS) must appear as the first word in the subject line before the subject description.

b.   (SUBS) messages must identify its status by using the words INITIAL, UPDATE or FINAL at the end of the subject line.

c. The (SUBS) message must not be used as a substitute for any Casualty Report, Situation Report or Incident Report that may be required by higher authority. A (SUBS) message must be sent to provide further supplemental information needed to explain the problem, provide troubleshooting support and identify its effect on the ship.

d. (SUBS) messages are intended for material and technical assistance request issues pertaining to ship's mission or personnel safety and should not be used to report routine administrative items such as visit requests, post tech assist visit reports or any other event not requiring the urgency of a (SUBS) message.

e. (SUBS) messages originated by submarines will be updated by the submarine at a periodicity not greater than once every 30 days. UPDATES should include equipment status, repair efforts in progress and if known anticipated repair date.

f. To identify (SUBS) message priority use the following precedence:

   (1) ROUTINE - REQUEST ANSWER WITHIN 5 WORKING DAYS.

   (2) PRIORITY - REQUEST ANSWER WITHIN 3 WORKING DAYS.

   (3) IMMEDIATE - REQUEST ANSWER WITHIN 24 HOURS.

g. (SUBS) messages must be used to identify the installation and removal of Temporary Alterations (TEMPALT) and Ship Alterations (SHIPALT). However, the 30-day UPDATE requirement and precedence identification is waived for these instances.

h. (SUBS) messages identifying the installation or removal of a TEMPALT or SHIPALT will identify such message by placing the words (TEMPALT) or (SHIPALT) at the end of the subject line.

i. (SUBS) messages are to be classified appropriately per reference (a) chapter 6.

j. (SUBS) messages must be addressed to the controlling Immediate Superior In Command (ISIC) for action and INFO Naval Sea Systems Command (NAVSEA), NAVSEA 08, TYCOMs and Technical Authority as appropriate ensuring parent commands are included as addressees. INFO NAVSURFWARCENDIV PHILADELPHIA PA for all submarine messages. SSBNs and SSGNs will INFO Director, Strategic Systems Programs (DIRSSP).

k. A FINAL close out (SUBS) message must be sent upon correction of the reported material problem or if in the Commanding Officer's judgement, a technical resolution has been reached or no additional response is required from Technical Authorities, NAVSEA, TYCOM or ISIC.

l. NAVSEA must review all (SUBS) messages and provide responses to the ISIC within the precedence time line as identified in paragraph 40.4 f. of this chapter.

m. (SUBS) messages initiated by NAVSEA requesting information from one or more Commands must be tracked by NAVSEA.

n. (SUBS) messages being initiated for the purpose of gathering technical information from submarines must be provided to the TYCOM for action.

o.   Technical Authorities must provide all (SUBS) message responses to NAVSEA, TYCOM and ISIC for review and action. For messages addressed to SSBNs or SSGNs, INFO DIRSSP.

p.   (SUBS) messages must not be initiated by a Technical Authority unless authorized by NAVSEA, TYCOM or ISIC.

40.5   RESPONSIBILITIES.

40.5.1   Type Commanders.

a.   Review (SUBS) message traffic and when necessary readdress or forward to ensure the proper Technical Authority was identified and aware of the message.

b.   Assist and support the ISIC as required to generate (SUBS) messages.

c.   (SUBS) messages initiated by the TYCOM, requesting information from one or more Commands are to be tracked by the TYCOM department generating the message.

d.   Track all (SUBS) messages generated by submarines under its cognizance.

40.5.2   Immediate Superior In Command.

a.   Review and take for action all (SUBS) messages coordinating with NAVSEA, TYCOM and the Technical Authority to generate and provide message responses as required and within the precedence time line as identified in paragraph 40.4 f. of this chapter.

b.   (SUBS) messages sent to or initiated by a submarine under its cognizance must be tracked by the ISIC.

c.   (SUBS) messages initiated by the ISIC requesting information from one or more commands must be tracked by the ISIC.

40.5.3   Ship's Commanding Officer.

a.   (SUBS) messages initiated by the ship must be tracked by the ship until closeout.

b.   All technical assistance (SUBS) requests must include the Ship's job sequence number (JSN).

c.   Responses to technical assistance (SUBS) messages must be answered as soon as the troubleshooting efforts have results. If requested troubleshooting efforts are not accomplished due to ship's operations or lack of test equipment, generate a (SUBS) message containing efforts taken, results, effect on ship and any further assistance needed.

d.   When requesting onboard technical assistance, Chapter 2 of this volume, Fleet Technical Assistance, must be used as guidance.

e.   Issue a (SUBS) message to identify the installation and removal of TEMPALTs and SHIPALTs.

40.6   MESSAGE REQUIREMENTS.

a.   All (SUBS) messages requesting technical assistance will contain, as a minimum, the following requirements:

(1)   EXECUTIVE SUMMARY - faulted equipment, when the fault occurred, functions lost and equipment effected.

(2)   BACKGROUND (if any) - previous related equipment problems, when experienced, corrective action taken, last completed system certification.

(3)   DESCRIPTION OF THE PROBLEM - affected equipment, type of fault, fault indications, system indications.

(4)   TROUBLESHOOTING EFFORTS - procedures used, documentation held onboard, Ship's Force training and experience with the equipment, troubleshooting limitations, special equipment held, any possible fault identified during Ship's Force troubleshooting.

(5)   ASSISTANCE DESIRED - repair parts needed, distance support or onboard technical assistance needed, if known identify the technical authority and the next available ship operation where a technician could board the ship. Identify the problem as corrected, no further assistance required and justify it as a FINAL REPORT with no additional action required. When answering an information request (SUBS) message a closeout message is not required and should be identified as such in Paragraph 5 of the message. (i.e., no additional action required by this message)

(6)   COMMANDING OFFICER'S ASSESSMENT - level of impact assessment of ship's capabilities to complete operational commitments, any additional backup or redundant systems and its operational status.

(7)   REQUIRED RESPONSE DATE - Specify the calendar date response is due by to support ship operations.

b.   All (SUBS) messages reporting TEMPALT and SHIPALT completion will contain, per references (b) and (c), the following requirements:

(1)   ACTIVITIES: Unit and installing activity identified.

(2)   BACKGROUND: TEMPALT number, TEMPALT name, installation period dates, installation completion date, Ship's Force operational testing completion acceptance date.

(3)   PROVIDED INFORMATION:

(a)   Type of installation: New equipment, Upgrade, Design change, etc.

(b)   TEMPALT number: XXXX K/D.

(c)   Certifying Statement: "all work was accomplished in full compliance with applicable contractual standards, specifications and installation drawings as outlined in reference ( )". System Operation Verification Testing (SOVT) was completed on XX NOV XXXX, results were provided to Ship's Force.

(d)   TEMPALT installation issues resolved: Ship's Installation Drawings require revision. All Liaison Action Requests submitted to the planning yard were resolved. Ship's Force has been provided copies of

all Liaison Action Requests and red line drawings. Red line drawing forwarded to planning yard.

    (e)   TEMPALT Completion Report completed and forwarded XX Dec XXXX, results provided to Ship's Force.

    (f)   Equipment installed: example AN-BLQ-10 ES SYSTEM.

    (g)   Integrated Logistics Support provided: Tech manuals, Maintenance Requirement Cards library data, On Board Repair Parts.

    (h)   Training Provided: identify by name all personnel trained.

    (i)   Summary: installation schedule issues, delays, support required, etc.

    (j)   Anticipated TEMPALT removal date.

  (4)   POC: Point of Contact (POC) at installing activity.

  (5)   COMMANDING OFFICER COMMENTS: Describe any issues of concern, provide positive and negative comments and identify any other pertinent information.

c.   All (SUBS) messages reporting TEMPALT removal will contain, per reference (b), the following requirements:

  (1)   ACTIVITIES: Ship's name and Hull number.

  (2)   BACKGROUND: TEMPALT Number and Title.

  (3)   PROVIDED INFORMATION:

    (a)   Date of removal.

    (b)   Certifying statement the ship was restored to original configuration.

    (c)   Removal Issues; any outstanding item preventing restoration.

  (4)   POC: Removal Activity POC.

d.   To ensure the appropriate Technical Agencies are informed of the material problems or request for technical assistance the addressee guidance provided for Casualty Reporting located at https://mfom.nola.navy.smil.mil/mfom (SIPR access required) should be used for (SUBS) messages.

e.   Appendices A through E provide samples of the message format to be used for (SUBS) messages.

APPENDIX A

SAMPLE (SUBS) INITIAL MESSAGE

OATUZYUW RUCORGP0054 2282105-UUUU--RUCBKMC.
ZNR UUUUU ZUI RUCOMCB4998 2290310
O 1730XXZ AUG XX
FM USS XXXXXXXXX
TO COMSUBRON XXXXX//
INFO COMSUBLANT NORFOLK VA//
COMNAVSEASYSCOM WASHINGTON DC//
COMSUBGRU XXX//
NAVSHIPYD NORFOLK VA//
XXXXX RMC XXXXX XX
SUBMEPP PORTSMOUTH NH
DIRSSP WASHINGTON DC// (FOR SSBN/SSGN)
BT
UNCLAS
MSGID/GENADMIN/XXXXXXXXX/0054/AUG//
SUBJ/(SUBS) EPM CIRCUIT BREAKER OVERCURRENT TRIPS **INITIAL**//
REF/A/DOC/NAVSEA/14MAR1995//
AMPN/REF A IS NAVSEA 0942-LP-005-2020/(C) MAIN PROPULSION GEARS WITH
CH-1.//
JSN:Vxxxxx-WCxx-XXXX
POC/XXXXX./ENGINEER/USS XXXXXXXXXX/LOC:AT SEA
/E-MAIL:ENG(AT) XXXXXXXXXX.NAVY.SMIL.MIL//
RMKS/**1. EXECUTIVE SUMMARY**: EMERGENCY PROPULSION MOTOR (EPM)
CIRCUIT BREAKER AT EPM CONTROL PANEL (EPMCP) TRIPS ON OVERCURRENT
WHEN TAKING THE EPM ABOVE 18 SHAFT RPM IN THE AHEAD DIRECTION.
CONTROL OF EPM MOTOR ARMATURE CURRENT BETWEEN SPEEDS OF 13 AND 18
SRPM IS SENSITIVE, WITH MOTOR ARMATURE CURRENT SPIKING AS MOTOR
SPEED IS INCREMENTALLY RAISED. THE EPM REMAINS OPERATIONAL AT
SPEEDS LESS THAN 15 SRPM AHEAD. OPERATION ASTERN IS NORMAL.
2. BACKGROUND: SHIP IS CURRENTLY CONDUCTING POST-SRA SEA TRIALS.
SHIPALT 3461K (EPM HIGH TORQUE CLUTCH) WAS INSTALLED DURING SRA. EPM
OPERATION WAS TESTED SATISFACTORILY PIERSIDE ON XXAUGXX TO A
MAXIMUM SPEED OF 15 SRPM AHEAD AND ASTERN WITH NO ABNORMALITIES
NOTED.
3. DESCRIPTION OF PROBLEM:
A. WHILE SLOWLY BRINGING THE EPM FROM 13 TO 18 SRPM AHEAD BY
INCREMENTALLY TURNING THE HANDWHEEL (LESS THAN 1/64TH TURN)
CLOCKWISE THE MOTOR ARMATURE CURRENT SPIKES TO APPROXIMATELY
800 T0 1100 AMPS DC THEN RETURNS TO NORMAL STEADY RUNNING CURRENT
(APPROX 250 AMPS DC). THE MAGNITUDE OF THE SPIKE IS DIRECTLY
PROPORTIONAL TO THE MOTOR SPEED/HANDWHEEL POSITION. MOTOR FIELD
CURRENT BEHAVES NORMALLY, RUNNING FROM 7-9 AMPS DC.

B. AS SPEED IS RAISED ABOVE 18 SRPM, AN ARMATURE CURRENT SPIKE OF 1800 AMPS DC IS INDICATED AS THE EPM BREAKER TRIPS. THE MOST LIKELY CAUSE OF THE BREAKER TRIP IS OVERCURRENT (RATED INSTANTANEOUS TRIP POINT IS 2800 AMPS DC), BUT THE AMMETER RESPONSE IS TOO SLOW TO REGISTER FULL DEFLECTION.

4. TROUBLESHOOTING EFFORTS:

A. PERFORMED CLEAN AND INSPECT OF EPM CONTROL PANEL AND CONTROLLER PER EL-26 A-5 AND A-2 SATISFACTORILY.

B. TESTED OPERATION OF EPMCP PER EL-26 R-2M SATISFACTORILY.

C. INSPECTED EPM CIRCUIT BREAKER SATISFACTORILY.

5. ASSISTANCE DESIRED: REQUEST FURTHER TROUBLESHOOTING GUIDANCE VIA MESSAGE BY XXAUGXX.

6. CO ASSESSMENT AND REPAIR DESIRES: ORIG IS CONTINUING WITH POST-SRA SEA TRIALS, LIMITING EPM TO 15 SRPM AHEAD. ADDITIONAL TROUBLESHOOTING WILL BE PERFORMED UPON SURFACING.//

BT

#0054

NNNN

NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS UTILIZED.

APPENDIX B

SAMPLE (SUBS) UPDATE MESSAGE

OATUZYUW RUCORGP0054 2282105-UUUU--RUCBKMC.
ZNR UUUUU ZUI RUCOMCB4998 2290310
O 1730XXZ AUG XX
FM USS XXXXXXXXX
TO COMSUBRON XXXXX//
INFO COMSUBLANT NORFOLK VA//
COMNAVSEASYSCOM WASHINGTON DC//
COMSUBGRU XXX//
NAVSHIPYD NORFOLK VA//
XXXXX RMC XXXXX XX
SUBMEPP PORTSMOUTH NH
DIRSSP WASHINGTON DC// (FOR SSBN/SSGN)
BT
UNCLAS
MSGID/GENADMIN/XXXXXXXX/0054/AUG//
SUBJ/(SUBS) EPM CIRCUIT BREAKER OVERCURRENT TRIPS **UPDATE**//
REF/A/DOC/NAVSEA/14MAR1995//
AMPN/REF A IS NAVSEA 0942-LP-005-2020/(C) MAIN PROPULSION GEARS WITH
CH-1.//
POC/XXXXX./ENGINEER/USS XXXXXXXXXX/LOC:AT SEA
/E-MAIL:ENG(AT) XXXXXXXXXX.NAVY.SMIL.MIL//
RMKS/**1. EXECUTIVE SUMMARY**: EMERGENCY PROPULSION MOTOR (EPM)
CIRCUIT BREAKER AT EPM CONTROL PANEL (EPMCP) IS STILL EXPERIENCING
TRIPS ON OVERCURRENT WHEN TAKING THE EPM ABOVE 18 SHAFT RPM IN THE
AHEAD DIRECTION. CONTROL OF EPM MOTOR ARMATURE CURRENT BETWEEN
SPEEDS OF 13 AND 18 SRPM IS SENSITIVE, WITH MOTOR ARMATURE CURRENT
SPIKING AS MOTOR SPEED IS INCREMENTALLY RAISED. THE EPM REMAINS
OPERATIONAL AT SPEEDS LESS THAN 15 SRPM AHEAD. OPERATION ASTERN IS
NORMAL.
2. BACKGROUND: SHIP IS CURRENTLY CONDUCTING POST-SRA SEA TRIALS.
SHIPALT 3461K (EPM HIGH TORQUE CLUTCH) WAS INSTALLED DURING SRA. EPM
OPERATION WAS TESTED SATISFACTORILY PIERSIDE ON XXAUGXX TO A
MAXIMUM SPEED OF 15 SRPM AHEAD AND ASTERN WITH NO ABNORMALITIES
NOTED.
3. DESCRIPTION OF PROBLEM:
A. WHILE SLOWLY BRINGING THE EPM FROM 13 TO 18 SRPM AHEAD BY
INCREMENTALLY TURNING THE HANDWHEEL (LESS THAN 1/64TH TURN)
CLOCKWISE THE MOTOR ARMATURE CURRENT SPIKES TO APPROXIMATELY
800 T0 1100 AMPS DC THEN RETURNS TO NORMAL STEADY RUNNING CURRENT
(APPROX 250 AMPS DC). THE MAGNITUDE OF THE SPIKE IS DIRECTLY
PROPORTIONAL TO THE MOTOR SPEED/HANDWHEEL POSITION. MOTOR FIELD
CURRENT BEHAVES NORMALLY, RUNNING FROM 7-9 AMPS DC.

B. AS SPEED IS RAISED ABOVE 18 SRPM, AN ARMATURE CURRENT SPIKE OF
1800 AMPS DC IS INDICATED AS THE EPM BREAKER TRIPS. THE MOST LIKELY
CAUSE OF THE BREAKER TRIP IS OVERCURRENT (RATED INSTANTANEOUS TRIP
POINT IS 2800 AMPS DC), BUT THE AMMETER RESPONSE IS TOO SLOW TO
REGISTER FULL DEFLECTION.

4. TROUBLESHOOTING EFFORTS:

A. PERFORMED CLEAN AND INSPECT OF EPM CONTROL PANEL AND
CONTROLLER PER EL-26 A-5 AND A-2 SATISFACTORILY.

B. TESTED OPERATION OF EPMCP PER EL-26 R-2M SATISFACTORILY.

C. INSPECTED EPM CIRCUIT BREAKER SATISFACTORILY.

D. MEASURED RESISTANCE OF FIELD RHEOSTAT THROUGH ITS ENTIRE RANGE
OF MOTION. INITIALLY DISCOVERED SEVERAL REGIONS OF HIGH RESISTANCE
CONTACT. CLEANED RHEOSTAT TO LESS THAN 0.1 OHM THROUGHOUT RANGE
OF MOTION, WITH NO RESULTANT CHANGE IN OPERATING BEHAVIOR.

5. ASSISTANCE DESIRED: REQUEST FURTHER TROUBLESHOOTING GUIDANCE BY
XXAUGXX.

6. CO ASSESSMENT AND REPAIR DESIRES: ORIG IS CONTINUING WITH POST-SRA
SEA TRIALS, LIMITING EPM TO 15 SRPM AHEAD. ADDITIONAL
TROUBLESHOOTING WILL BE PERFORMED UPON SURFACING. PER REF A VOL 2
TAB V-A TABLE 4-3, SHIP'S FORCE WILL INSPECT FIELD RESISTOR FOR A
POSSIBLE OPEN CIRCUIT.//

BT

#0054

NNNN

NOTE: **ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
AND CURRENT PLAD IS UTILIZED.**

APPENDIX C

SAMPLE (SUBS) FINAL/CLOSEOUT MESSAGE

OATUZYUW RUCORGP0054 2282105-UUUU--RUCBKMC.
ZNR UUUUU ZUI RUCOMCB4998 2290310
O 1730XXZ AUG XX
FM USS XXXXXXXXX
TO COMSUBRON XXXXX//
INFO COMSUBLANT NORFOLK VA//
COMNAVSEASYSCOM WASHINGTON DC//
COMSUBGRU XXX//
NAVSHIPYD NORFOLK VA//
XXXXX RMC XXXXX XX
SUBMEPP PORTSMOUTH NH
DIRSSP WASHINGTON DC//(FOR SSBN/SSGN)
BT
UNCLAS
MSGID/GENADMIN/XXXXXXXX/0054/AUG//
SUBJ/(SUBS) EPM CIRCUIT BREAKER OVERCURRENT TRIPS **FINAL**//
REF/A/DOC/NAVSEA/14MAR1995//
AMPN/REF A IS NAVSEA 0942-LP-005-2020/(C) MAIN PROPULSION GEARS WITH
CH-1.//
JSN:Vxxxxx-WCxx-XXXX
POC/XXXXX./ENGINEER/USS XXXXXXXXXX/LOC:AT SEA
/E-MAIL:ENG(AT) XXXXXXXXXX.NAVY.SMIL.MIL//
RMKS/**1. EXECUTIVE SUMMARY**: THE MATERIAL ISSUE OF OVERCURRENT TRIPS
OF THE EMERGENCY PROPULSION MOTOR (EPM) CIRCUIT BREAKER HAS BEEN
CORRECTED.
2. BACKGROUND: SHIP WAS CONDUCTING POST-SRA SEA TRIALS. SHIPALT
3461K (EPM HIGH TORQUE CLUTCH) HAD BEEN INSTALLED DURING SRA. EPM
OPERATION WAS TESTED SATISFACTORILY PIERSIDE ON XXAUGXX TO A
MAXIMUM SPEED OF 15 SRPM AHEAD AND ASTERN WITH NO ABNORMALITIES
NOTED.
3. DESCRIPTION OF PROBLEM:
A. WHILE SLOWLY BRINGING THE EPM FROM 13 TO 18 SRPM AHEAD BY
INCREMENTALLY TURNING THE HANDWHEEL (LESS THAN 1/64TH TURN)
CLOCKWISE THE MOTOR ARMATURE CURRENT SPIKES TO APPROXIMATELY
800 T0 1100 AMPS DC THEN RETURNS TO NORMAL STEADY RUNNING CURRENT
(APPROX 250 AMPS DC). THE MAGNITUDE OF THE SPIKE IS DIRECTLY
PROPORTIONAL TO THE MOTOR SPEED/HANDWHEEL POSITION. MOTOR FIELD
CURRENT BEHAVED NORMALLY, RUNNING FROM 7-9 AMPS DC.
B. AS SPEED WAS RAISED ABOVE 18 SRPM, AN ARMATURE CURRENT SPIKE OF
1800 AMPS DC WAS EXPERIENCED AND THE EPM BREAKER TRIPPED.
4. TROUBLESHOOTING EFFORTS:

A. PERFORMED TROUBLESHOOTING AS IDENTIFIED IN PROVIDED TECHNICAL ASSIST MESSAGES.
B. PROBLEM WAS FOUND TO BE THE FIELD RESISTOR WAS EXPERIENCING AN OPEN CIRCUIT DUE TO A LOOSE CONNECTOR LUG CAUSING A HIGH RESISTANCE CONNECTION. THIS PROBLEM WAS IDENTIFIED DURING THE INSPECTION OF EPM CONTROL PANEL AS DESCRIBED IN THE PROVIDED TECH ASSIST MESSAGE.
5. ASSISTANCE DESIRED: PROBLEM CORRECTED, NO FURTHER ASSISTANCE REQUIRED. THIS IS THE FINAL REPORT NO ADDITIONAL ACTION REQUIRED.
6. CO ASSESSMENT AND REPAIR DESIRES: EPM RESTORED TO FULL SERVICE. //
BT
#0054
NNNN

NOTE: **ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT AND CURRENT PLAD IS UTILIZED.**

APPENDIX D

SAMPLE (SUBS) SHIPALT/TEMPALT INSTALLATION MESSAGE

RATUZYUW RHBPHVA0098 0441139-UUUU--RUCBKMC.
ZNR UUUUU ZUI RUCOMCB0075 0472222
R 13XXXXZ FEB XX
FM USS XXXXXX//
TO COMSUBLANT NORFOLK VA//
INFO CNO WASHINGTON DC//
CNO WASHINGTON DC//
COMLANTFLT NORFOLK VA//
COMSUBGRU TWO//
COMSUBRON EIGHT//
NAVSUBSCOL GROTON CT//
NIWC ATLANTIC CHARLESTON SC//
NIWC PACIFIC SAN DIEGO CA//
CBTDIRSYSACT DAM NECK VA//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//
NAVSURFWARCENDIV CRANE IN//
SUPSHIP GROTON CT//
SUPSHIP NEWPORT NEWS VA//
NAVSHIPYD NORFOLK VA//
BT
UNCLAS
MSGID/GENADMIN/**UNIT NAME**/FEB//
SUBJ/**(SUBS)COMPLETION OF TEMPALT XXXXK FIRE FIGHTING STATION
UPGRADE
INSTALLATION (TEMPALT)**//
REF/A/MSG/CSL/XXXXXXJUN05//
REF/B/DOC/NAVSEA/MARXXXX//
NARR/REF A IS COMSUBLANT MESSAGE AUTHORIZING INSTALLATION OF
TEMPALT XXXXK FIRE FIGHTING STATION UPGRADE ON **USS XXXXX**.
REF B IS NAVSEA TECHNICAL SPECIFICATION XXXXXXXXXX SHIP
ALTERATION ACCOMPLISHMENT BY INSTALL TEAMS.//
POC/JOHN SMITH/INSTALLATION MGR/NUWC DIV NEWPORT/-
/TEL:XXX-XXX-XXXX//
RMKS/**1. ACTIVITIES:** THIS IS A JOINT USS XXXXX NUWC DIV NEWPORT
MESSAGE.
2. BACKGROUND: TEMPALT 000K FIRE FIGHTING STATION UPGRADE
WAS INSTALLED DURING PERIOD XXAUGXXXX THROUGH XXSEPXXXXX. SOVT
WAS COMPLETED XXNOVXXXX AND THE FIRE FIGHTING STATION WAS
ACCEPTED AS OPERATIONAL.
3. PROVIDED INFORMATION:
A. TYPE INSTALLATION: FIRE FIGHTING STATION UPGRADE.
B. ALTERATION NUMBER: XXXXK.

C. CERTIFYING STATEMENT: ALL WORK WAS ACCOMPLISHED IN FULL COMPLIANCE WITH APPLICABLE CONTRACTUAL STANDARDS, SPECIFICATIONS AND INSTALLATION DRAWINGS. AS OUTLINED IN REF (A) SYSTEM OPERATION VERIFICATION TESTING (SOVT) WAS COMPLETED ON XXNOVXXXX. RESULTS WERE PROVIDED TO SHIP'S FORCE.

D. INSTALLATION ISSUES: SHIP'S INSTALLATION DRAWINGS (SID) REQUIRE REVISION. ALL LIAISON ACTION REQUESTS (LAR) SUBMITTED TO THE PLANNING YARD WERE RESOLVED. SHIP'S FORCE HAS BEEN PROVIDED COPIES OF ALL LARS. RED LINE SHIPALT DRAWINGS WERE PROVIDED TO THE SHIP AND WILL BE PROVIDED TO PLANNING YARD.

E. ALTERATION COMPLETION REPORT COMPLETED AND FORWARDED XXDECXXXX.

F. EQUIPMENT INSTALLED: FIRE FIGHTING PRESSURE ENHANCER.

G. ILS PROVIDED: TECHNICAL MANUALS ITEM (CD), MIP# 0000/000-00 AND MRC CARDS, FIRE FIGHTING STATION LIBRARY DATA (CLASSIFIED), SSN-XXX COP, (CDMD-OA WORK FILE). THE ON BOARD REPAIR PARTS (OBRP). WILL BE PROVIDED BY NAVICP WHEN THEY ARE PRODUCED BY SHIP'S FORCE.

H. TRAINING PROVIDED: MM1 JONES RECEIVED TWO HOURS OF OPERATIONAL TRAINING.

I. SUMMARY: THE INSTALLATION PROGRESSED ON SCHEDULE WITH NO MAJOR DELAYS. THE SUPPORT PROVIDED BY SHIP'S FORCE WAS EXCELLENT.

J. ANTICIPATED REMOVAL DATE. XXMARXXXX.

4. POC: NUWC DIV NEWPORT POC MR. JOHN SMITH (XXX)XXX-XXXX, E-MAIL SMITH (AT)NPT.NUWC.NAVY.MIL.

5. COMMANDING OFFICERS COMMENTS: NONE//

BT

#0098

NNNN

NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX E

SAMPLE (SUBS) SHIPALT/TEMPALT REMOVAL MESSAGE

RATUZYUW RHBPHVA0098 0441139-UUUU--RUCBKMC.
ZNR UUUUU ZUI RUCOMCB0075 0472222
R 13XXXXZ FEB XX
FM USS XXXXXX//
TO COMSUBLANT NORFOLK VA//
INFO CNO WASHINGTON DC//
CNO WASHINGTON DC//
COMLANTFLT NORFOLK VA//
COMSUBGRU TWO//
COMSUBRON EIGHT//
NAVSUBSCOL GROTON CT//
NIWC ATLANTIC CHARLESTON SC//
 NIWC PACIFIC SAN DIEGO CA//
CBTDIRSYSACT DAM NECK VA//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//
NAVSURFWARCENDIV CRANE IN//
SUPSHIP GROTON CT//
SUPSHIP NEWPORT NEWS VA//
NAVSHIPYD NORFOLK VA//
BT
UNCLAS
MSGID/GENADMIN/**UNIT NAME**/FEB//
SUBJ/**(SUBS) COMPLETED REMOVAL OF TEMPALT XXXXK FIRE FIGHTING
STATION UPGRADE
(TEMPALT)**//
REF/A/MSG/CSL/XXXXXXJUN05//
REF/B/DOC/NAVSEA/MARXXXX//
NARR/REF AIS COMSUBLANT MESSAGE AUTHORIZING REMOVAL OF
TEMPALT XXXXK FIRE FIGHTING STATION UPGRADE ON **USS XXXXX**.
REF B IS NAVSEA TECHNICAL SPECIFICATION XXXXXXXXXX SHIP
ALTERATION ACCOMPLISHMENT BY INSTALL TEAMS.//
POC/JOHN SMITH/INSTALLATION MGR/NUWC DIV NEWPORT/-
/TEL:XXX-XXX-XXXX//
RMKS/**1. ACTIVITIES:** THIS IS A JOINT USS XXXXX NUWC DIV NEWPORT
MESSAGE.
2. BACKGROUND: TEMPALT 000K FIRE FIGHTING STATION UPGRADE
WAS INSTALLED DURING PERIOD XXAUGXXXX THROUGH XXSEPXXXXX. SOVT
WAS COMPLETED XXNOVXXXX AND THE FIRE FIGHTING STATION WAS
ACCEPTED AS OPERATIONAL.
3. PROVIDED INFORMATION:
A. REMOVAL DATE: XXJUNXXXX
B. CERTIFYING STATEMENT: SHIP RESTORED TO ORIGINAL CONFIGURATION.

C. REMOVAL ISSUES: ANY OUTSTANDING ISSUE PREVENTING FULL
RESTORATION.
4. POC: NUWC DIV NEWPORT POC MR. JOHN SMITH (XXX)XXX-XXXX, E-MAIL
SMITH(AT)NPT.NUWC.NAVY.MIL.
5. COMMANDING OFFICERS COMMENTS: NONE//
BT
#0098
NNNN

NOTE: **ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
AND CURRENT PLAD IS UTILIZED.**

VOLUME VI

CHAPTER 41

MAINTENANCE AND PROJECT TEAM

REFERENCES.

(a) NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and Operations Manual (NMP-MOM)

LISTING OF APPENDICES.

A Sample Supervising Authority Report of Availability Lessons Learned

41.1 PURPOSE. The purpose of this chapter is to define and establish the membership and responsibilities of the Maintenance Team and Project Team (PT) and those supplemental members of both that support the maintenance and modernization process. The Maintenance Team, PT and those that supplement under the Planning Process are integral members of a complex evolution that requires communication, coordination and collaboration in order to accomplish availability planning, execution and close out efficiently and effectively. The contents of this chapter complement Volume II, Part II, Chapter 1, Volume VI, Chapter 31, Volume VI, Chapter 33, and Volume VII, Chapter 7 of this manual.

41.2 MAINTENANCE TEAM. Each ship must have a formally structured Maintenance Team. The team is led by the Ashore Ship Maintenance Manager and consists of representatives from the ship and the supporting shore maintenance infrastructure. The responsibility of the Maintenance Team is to manage the advanced planning and planning of maintenance, the routine maintenance of the ship and modernization following the maintenance policies, directives and business rules of the Fleet Commander, Type Commander (TYCOM) and the Naval Supervisory Authority (NSA).

41.2.1 Crew Swap. When a crew swap occurs that rotates a different crew to a hull, the non-crew members of the Maintenance Team must remain with the hull and provide continuity in planning and execution.

41.2.2 Maintenance Team Members. While there are many who contribute to the planning of ship maintenance and modernization, some key personnel have a continuing involvement in and responsibility for management of the overall advanced planning and planning of the ship's maintenance and modernization. The Maintenance Team forms the core of the PT. The Maintenance Team must be permanently assigned to the ship and must consist of the following members:

a. Ashore Ship Maintenance Manager. Validates, screens and brokers all maintenance and modernization, including assessments, requiring off ship assistance. Ensures the Project Manager (PM) has visibility of all assigned work. For all combat systems related maintenance and modernization the Ashore Ship's Maintenance Manager will coordinate with the Combat Systems Port Engineer. Assignments are:

(1) Surface Force   Port Engineer

(2) Naval Air Force   TYCOM Maintenance Program Manager

      (3)   Submarine Force   Maintenance Coordinator

      (4)   NAVIFOR   Maintenance Manager

b.   Ship's Commanding Officer. Primary representative for the ship. (The Commanding Officer may delegate to a representative.)

c.   I-Level Ship Superintendent. Manages Regional Maintenance Center (RMC) or Fleet Maintenance Activity (FMA) Government production work for Continuous Maintenance (CM), Continuous Maintenance Availability (CMAV) and Chief of Naval Operations (CNO) availabilities. Manages I-Level production work planning, integration, execution and close out, reporting progress and status to the Project Manager and Ashore Ship's Maintenance Manager.

d.   Project Manager. NSA support to the Ashore Ship's Maintenance Manager in the advanced planning and close out phases of the maintenance availability (not applicable for Submarine Fleet Availabilities).

e.   Ship Material Maintenance Officer. Coordinates Maintenance Team activities with Ship's Force personnel. Assignments are:

      (1)   Surface Force   Ship Material Maintenance Officer

      (2)   Naval Air Force   Ship Maintenance Manager*

      (3)   Submarine Force   3M Coordinator

      (4)   NAVIFOR   3M Coordinator

* The Reactor Maintenance Officer fills this role for Nuclear Propulsion issues.

f.   Contractor Program Manager (when required). Manages authorized contractor or company work. Assignments are:

      (1)   Surface Force   Prime Contractor Program Manager

      (2)   Naval Air Force   Prime Contractor for RMC contracted (non-Naval Shipyard (NSY)) work

      (3)   Submarine Force   Prime Contractor for RMC contracted (non-NSY) work

      (4)   NAVIFOR   Prime Contractor Program Manager

g.   Maintenance Support Team (LCS class ships only).

h.   Combat Systems Ashore Ship's Maintenance Manager. Coordinates with the Ashore Ship's Maintenance Manager to ensure that combat systems-related maintenance and modernization are scheduled and completed (for Surface Ships only).

41.2.3 The Principal Roles of the Maintenance Team.

a.   Management of Ship Maintenance. The Maintenance Team ensures the ship's Current Ship's Maintenance Project (CSMP) and Availability Work Package (AWP) are validated and accurately reflect the ship's material condition and current maintenance status. The Maintenance Team ensures there is an initial cost estimate in man-days and material dollars for all work candidates, including assessments and technical

assistance. The estimates must be developed by the Ashore Ship's Maintenance Manager during initial review of the work candidates to be as accurate as possible, based on available information such as return costs from similar jobs, Ashore Ship Maintenance Manager experience, NSA and other government prepared or approved estimates. These estimates must be updated within the CSMP, as they are refined in order to provide the Maintenance Team with adequate data to plan maintenance actions. For Aircraft Carriers, these estimates will be entered in the Proposed AWP and finalized in the Authorized AWP. The Maintenance Team coordinates inspections, certifications, assessments and assist visits in support of the class maintenance plan. Additionally, the Maintenance Team may provide on-scene assessment of equipment condition to develop valid and accurate work candidates.

b. Budgeting for Ship Maintenance. The Ashore Ship's Maintenance Manager is responsible for the ship's Maintenance and Modernization Business Plan (MMBP). The Maintenance Team develops the budget recommendation for funding maintenance requirements for the fiscal year. The Maintenance Team assesses the ship's anticipated material condition for budget consideration including the validated CSMP, Class Maintenance Plan, planned fleet alterations, outstanding Departures From Specification (DFS), Temporary Standing Orders and Casualty Reports. This MMBP must address the funding required for execution year maintenance. Ashore Ship's Maintenance Manager and the Maintenance Team members will maintain their ship within the fiscal guidance defined by the approved MMBP. Chapter 33 of this volume describes the development and maintenance of the MMBP.

c. Logistics and Technical Expertise. The Maintenance Team members maintain a current, valid CSMP and AWP that serve as the authoritative source for all information on maintenance requirements. All technical guidance and advice provided by the members of the Maintenance Team must be in compliance with Systems Command approved technical guidance and policy. In instances where action by a Technical Authority is needed, the Project Manager must ensure this authorization is obtained. The effective logistics support for maintenance depends on the accuracy of the ship's configuration records. The Maintenance Team oversees prompt submission of change documentation pursuant to maintenance or modernization, validates change entries and ensures configuration records (e.g., Configuration Data Managers Database - Open Architecture) are updated.

d. Availability Coordination. The Ashore Ship's Maintenance Manager works for the TYCOM to develop, plan and coordinate scheduled availabilities, CM opportunities and emergent repairs of assigned ships within the resources provided. The Ashore Ship's Maintenance Manager must enter CNO availabilities, assessments, associated routine tasks and authorized Fleet and Programmed Alterations into the appropriate Maintenance Automated Information System following standard availability planning milestones. The Maintenance Team serves as the point of contact for the NSA or Lead Maintenance Activity (LMA) in coordinating maintenance and planning activities. The Maintenance Team facilitates the orderly conduct of work candidate identification, validation, screening and brokering.

NOTE: **RESPONSIBILITIES FOR EACH MEMBER HAVE BEEN BROKEN DOWN**

INTO TWO CATEGORIES, ACCOUNTABLE AND RESPONSIBLE.

e.   Accountable: Owns the work, the person who makes the final decision on a task and has the ultimate ownership over that task.

f.   Responsible: A contributor, this will be the person or people assigned to do the work.

41.2.4 <u>Specific Duties of Maintenance Team Members.</u>

41.2.4.1 Ashore Ship's Maintenance Manager.

a.   For Aircraft Carriers, receives the Baseline Availability Work Package (BAWP) from the Carrier Planning Activity. Builds and refines the Proposed and Authorized AWPs.

b.   Accountable:

(1)   Leads the Maintenance Team and maintains frequent contact with the Commanding Officer and conducts personal observations of shipboard conditions. Establishes and maintains an effective communications plan with the ship during deployment. More information can be located in Volume II, Part II, Chapter 1, paragraph 1.2.2 of this manual.

(2)   Maintains the CSMP shore file accuracy and provides recommended changes for the shipboard CSMP to the Ship Material Maintenance Officer and 3M Coordinator. (See Volume II, Part II, Chapter 1, paragraph 1.3.1 of this manual.)

(3)   Validates all off ship maintenance for assigned ship(s), including off-ship assessments. (See Volume II, Part II, Chapter 1, paragraphs 1.3.2, 1.3.4 and 1.3.5 of this manual.)

(4)   Develops initial planning estimates based on information such as return costs from similar jobs and Government prepared or approved estimates. (See Chapter 31, paragraph 31.4.2 of this volume.)

(5)   Screens or schedules work candidates to the right time period and maintenance availability based on the MMBP, operational schedule, material readiness requirements and cost benefit analysis. (See Volume II, Part II, Chapter 1, paragraphs 1.4.1 and 1.4.4 of this manual.)

(6)   Brokering as discussed in Volume II, Part II, Chapter 1, paragraph 1.4.2 of this manual.

(7)   Schedules, and assists the ship's Commanding Officer in conducting the Planning Board for Maintenance meetings, including agenda development. (See Volume II, Part I, Chapter 4, paragraph 4.2.5 of this manual.)

(8)   Coordinates all off-ship maintenance and modernization requirements.

(9)   Screens Automated Work Requests in support of 100%, 80% and 50% package lock, including CSMP, Class Maintenance Plan (CMP) and TYCOM routines.

(10)   Initiates work candidates (OPNAV 4790/2K) for "service" work.

(11)   Develops Business Case Analysis and generates applicable Engineering Services Request, provides advice and serves as the ship's point of contact for

access to technical expertise for all ship maintenance and modernization requirements, including the development of Ship Changes.

c.   Responsibilities:

(1)   Communicates, coordinates and tracks ship and applicable class problems.

(2)   Ensures configuration change requests are promptly submitted.

(3)   Ensures completion work candidates (OPNAV 4790/2K) are entered into the CSMP and the appropriate IT system. (See Chapter 2, paragraph 2.6.2 of this volume.)

(4)   Executes the approved MMBP to best utilize windows of opportunity. (See Volume II, Part II, Chapter 2, paragraph 2.1.2 of this manual.)

(5)   Makes recommendations to the ship's Commanding Officer and management on any deferred work items. (See Volume II, Part II, Chapter 1, paragraph 1.4.5 of this manual.)

(6)   Coordinates maintenance availability scheduling and execution. (See Volume II, Part II, Chapter 2, paragraph 2.6.5 of this manual.)

(7)   (Surface Force only) Supports the RMC in planning assigned ship maintenance and modernization availabilities. (See Volume VII, Chapter 1, paragraph 1.3.8 of this manual.)

   (a)   Develops and schedules work packages. Recommends resolutions to CNO scheduling issues.

   (b)   Recommends CM opportunities to the ship's Commanding Officer and the NSA management. Creates CM availabilities.

   (c)   Screens work candidates (OPNAV 4790/2K) to appropriate level of maintenance (Organizational, Intermediate, Depot (O, I, D)). Reviews assessment results for inclusion in work packages.

   (d)   Assists Project Manager with work package analysis for Private Sector Industrial Activity (PSIA) contracts.

   (e)   Provides availability evaluation input documentation during availabilities supporting Contractors Performance Appraisal Reporting System (CPARS).

(8)   Supports Fast Cruise, Dock Trials, Sea Trials, Propulsion Plant Light Off Assessment (LOA) and Production Completion Date (PCD), Combat Systems or AEGIS Light Off and TYCOM validation of PCD.

(9)   Attends Integrated Project Team Development (IPTD), Work Package Integration Conference (WPIC), Work Package Execution Review (WPER), Lessons Learned Conference (LLC) Life Cycle Planning, Docking, Arrival, 25%, 50% and 75% reviews, Undocking, and Departure conferences,

(10)   Plans, coordinates and executes mid-deployment shipcheck.

(11)   Supports Ship's Force for AWP collection and management of Objective Quality Evidence (OQE).

(12)   Performs AWP risk assessments and verifies deliverables to contractor (O, I, D work items and Alteration Installation Team (AIT) schedule requirements).

(13)   Assists the NSA with technical close out and availability work certification. Assists ship in achieving maintenance phase exit criteria.

(14)   Supports the 100% Package Lock Letter.

(15)   Validates growth and new work, assists with the Regional Calibration Center process.

(16)   Supports and participates in work specification review.

(17)   Provides incremental funds for ordering Long Lead Time Material (LLTM) for both repair and alteration or modification work to meet required dates.

(18)   Submits change deferral request to appropriate platform planning activity.

41.2.4.2 Ship's Commanding Officer. Primary representative for the ship. Works with the Ashore Ship's Maintenance Manager on the development and prioritization of the ship's maintenance and modernization including the MMBP.

a.   Accountable:

(1)   Reports progress weekly to the TYCOM. Recommends urgent and compelling decisions to the TYCOM.

(2)   Works with the Ashore Ship's Maintenance Manager to develop the final work package submission for the ship.

(3)   Directs efforts to identify all shipboard maintenance requirements and ensures accurate and timely entry into the CSMP. Reviews, plans and monitors accomplishment of organizational level work.

(4)   Initiates requests for technical assistance, including distance support.

(5)   Determines the effect of material deficiencies on mission capability and releases Casualty Reports.

(6)   Integrates maintenance planning in the ship's operational schedule.

(7)   Ensures the ship is prepared for and ready to conduct propulsion plant PCD and LOA events (and Command, Control Communications, Computer, Combat Systems, Intelligence Light Off (C5ILO) event for Surface Ships).

(8)   Chairs the Planning Board for Maintenance meeting.

b.   Responsibilities:

(1)   Verifies technical assistance final resolution satisfies ship's maintenance issue.

(2)   Ensures Ship's Force assists with the management and oversight of work execution by maintenance activities and AITs.

(3)   Executes shipboard DFS process.

(4)   Ensures ship properly supports 25%, 50% and 75% reviews; Arrival, Docking, Undocking, Fast Cruise, Dock Trials, Sea Trials, Departure, and Completion key events and conferences; IPTD, WPIC, WPER events; and CSMP, DFS, BAWP Mid-Cycle reviews.

(5)   Ensures Integrated Logistics Support (ILS) is provided.

(6)   Assists in scheduling and execution of mid-deployment shipcheck.

(7)   Collaborates in the authorization of growth or new work.

(8)   Supports the Integrated Test Plan execution and work certification.

(9)   Assists in achieving maintenance phase exit criteria. Ensures proper space turnover, Ship's Force AWP collection and management of OQE, and availability technical closeout.

41.2.4.3 I-Level Ship Superintendent.

a.   Accountable:

(1)   Manages the collection of I-Level OQE.

(2)   Manages RMC or FMA work planning, scheduling, integration, and work execution. Resolves conflicts with other Executing Activities. Ship checks work candidates (2K) as applicable and provides estimates on all I-Level work candidates. Recommends cancellation of invalid work candidates, if applicable.

(3)   Represents the RMC or FMA to Ship's Force for RMC or FMA production maintenance work. Coordinates the performance of I-Level work including all scheduling and availability coordination, ensuring the I-Level work package is fully accepted following the milestones.

b.   Responsibilities:

(1)   Ensures completion of I-Level production work supporting LOA, propulsion plant PCD, AEGIS and Combat Systems Light Off, Docking, Undocking, Fast Cruise, Dock Trials, Sea Trials, and Availability Completion.

(2)   Assists ship in achieving maintenance phase exit criteria. Ensures I-Level work is complete in support of availability certification, completion, and technical close out.

(3)   Attends availability production meetings; Arrival, Docking, Undocking, Departure, WPIC and WPER conferences.

(4)   Coordinates work planned and performed by RMC production department. FMA repair division submits I-Level schedule to NSA or LMA for integration, coordination of I-Level open and inspects, coordination of oversight for I-Level work (Product Verification Inspection (PVI), Procedure Evaluation (PE), Procedure Review (PR)).

(5)   Provides recommendations regarding assignment of work candidates to RMC production department or FMA repair division based on the capabilities and

capacities of the RMC or FMA. Works closely with the Ashore Ship's Maintenance Manager on the validation and screening of all work candidates to the I-Level.

 (6) Ensures completed maintenance action (OPNAV 4790/2K) for completed work.

41.2.4.4 Project Manager.

 a. Accountable:

  (1) Supports the Ashore Ship's Maintenance Manager in the performance of maintenance and modernization.

  (2) Accepts or rejects work candidates to scheduled availability periods and performing activities per guidance in Volume II, Part II, Chapter 1 of this manual. Integrates work candidates to form optimized work packages.

  (3) Establishes the availability in the appropriate maintenance execution IT system.

  (4) Ensures LLTM for Firm Fixed Price and PSIA contracts is ordered to support availabilities.

  (5) Conducts Work Specifications Review with Ashore Ship's Maintenance Manager.

  (6) Serves as the advanced planning manager for contracted maintenance during CNO availabilities and scheduled CMAVs conducted at contractor or Government depots. Coordinates the continuous cost estimate review process.

  (7) Provides timely financial accounting information during the execution of maintenance to customers.

 b. Responsibilities:

  (1) Supports CSMP, DFS and BAWP mid-cycle review.

  (2) Attends IPTD events, scoping conferences (see Volume VII, Chapter 2, paragraph 2.12.1 of this manual), WPIC and WPER.

  (3) Assists in coordinating mid-deployment shipchecks.

  (4) Provides incremental funds for ordering LLTM for both repair and alteration or modification work to meet required dates.

41.2.4.5 Ship's Material Maintenance Officer. (The Reactor Maintenance Officer fills this role for Nuclear Propulsion issues.) Coordinates Maintenance Team activities with Ship's Force personnel.

 a. Accountable:

  (1) Provides the Ship's Force work package to the Project Manager and executing activity. Assists in coordinating the integration of Ship's Force work for CNO or CMAV availabilities. Provides shipboard schedule inputs (see Volume II,

Part II, Chapter 1, paragraph 1.2.2 of this manual). Interfaces with the Project Manager and the executing activity to resolve maintenance issues.

(2)   Commanding Officer's principal assistant for management of ship maintenance. Prepares the ship input to the Planning Board for Maintenance agenda in support of the Ashore Ship's Maintenance Manager. Works with the Maintenance and Material Management Coordinator to maintain an accurate shipboard CSMP. Approves, validates and ensures submittal of accurate work candidates (OPNAV 4790/2K).

(3)   Works with the Quality Assurance Officer and department representatives to submit and track DFSs.

(4)   Ensures initiation of work candidates (OPNAV 4790/2K) to request distance support and technical assists. Works with Subject Matter Experts (SME) to coordinate tech assist visits.

(5)   Monitors timely submission of configuration change requests.

(6)   Ensures Ship's Force verification of completed work and returns Completed Maintenance Action (OPNAV 4790/2K) to the Ashore Ship's Maintenance Manager.

(7)   Ensures valid deferred work is incorporated into the CSMP.

b.   Responsibilities:

(1)   Ensures repair work candidates are submitted supporting 50%, 80% and 100% D-Level lock milestones.

(2)   Ensures Ship's Force I-Level work package 100% brokered and locked.

(3)   Ensures ship's initial conditions are set for work to begin by outside activities and Work Authorization Forms are properly executed. Ensures systems and equipment are properly tagged out, drained and depressurized.

(4)   Generates any new work requests along with supporting urgency information.

(5)   Ensures Ship's Force has planned and prepared for propulsion plant PCD, LOA, and AEGIS or combat systems PCD and light off, Fast Cruise, Dock Trials and Sea Trials mid-deployment shipchecks.

(6)   Attends the Docking, Arrival, 25%, 50% and /75%, Undocking and Departure conferences, WPIC, WPER, IPTD, LLC events, and CSMP, DFS and BAWP Mid-Cycle review.

(7)   Provides oversight and management to ensure AIT controls are in place, Regional Maintenance and Modernization Coordination Office requirements are met prior to starting work onboard ship, and assignment of SMEs to support AITs.

(8)   Ensures Ship's Force work is complete to support end of availability, space turnover, and availability work certification.

(9)   Supports Ship's Force ILS and consolidates software delivery.

(10)   Coordinates with Ship's Force the execution of the Integrated Test Plan.

(11)   Ensures Ship's Force, RMC, LMA, AWP collection and management of OQE.

(12)   Ensures AWP risk assessments are performed and deliverables to contractor verified.

(13)   Collaborates in the authorization of growth or new work.

(14)   Assists ship in achieving maintenance phase exit criteria.

41.2.4.6 Contractor Program Manager. Manages and supervises authorized contractor work (see Volume II, Part II, Chapter 1, paragraph 1.2.2 of this manual).

a.   Accountable:

(1)   Schedules and oversees contractor required open and inspects.

(2)   Provides information and advice to the Government on matters of mutual concern to include contractor cost and time estimates, future work planning, contractor capability and capacity for varied work accomplishment (i.e., port loading), production management, integration of work from multiple activities and production problems for assigned availabilities.

(3)   Establishes and recommends availability milestones. Provides schedule for: Integrated Test Plan (ITP), Universal Process Control Procedure (UPCP), Process Control Procedures (PCP), availability planning and assessments.

(4)   Reviews and submits condition reports, initiates completion reports for authorized work completed.

(5)   Ensures progressing Cost and Schedule Status Reports.

b.   Responsibilities:

(1)   Recommends scheduling of work to best take advantage of port work loading conditions, provides recommendations for reduction of premiums in the accomplishment of work.

(2)   Ensures completion of 50%, 80% and 100% D-Level maintenance work package 2Ks are planned and estimated. Publishes work package in the appropriate IT system. Conducts work specification reviews in support of each milestone, final package submission and cost proposal. Ensures work package is Technical Analysis Reported, negotiated and definitized.

(3)   Attends 25%, 50% and 75% reviews; Arrival, Docking, Undocking and Departure conferences; WPIC, WPER and LLC events.

(4)   Ensures completion of the ITP, propulsion plant PCD and LOA, Combat Systems\AEGIS PCD and Light Off, Fast Cruise, Dock Trials, Sea Trials, and Availability work certification.

(5)   Ensures consolidated software delivery and ILS support is provided.

(6)   Supports the PM to ensure the availability business and technical close requirements are met.

(7)   Supports the DFS process.

(8)   Ensures requirements are met to support the UPCP, PCP, cleanliness processes.

(9)   Provides contractor oversight of LMA checkpoint execution (V, G, I points) as well as PVI, PE, PR.

(10)   Provides personnel to coordinate with AIT, Fleet Maintenance Activity and Ship's Force to update production schedule (NSI 009-060).

(11)   Provides Integrated Total Ship Test Plan (NSI 009-067).

(12)   Ensures contractor work is complete to support space turnover.

(13)   Supports the authorization of growth or new work.

(14)   Ensures habitability items are complete.

(15)   Provides incremental funds for ordering LLTM for both repair and alteration or modification work to meet required dates, ensures delivery of material (LLTM and kitted materials) to executing activity.

(16)   Ensures work and support services are in place to support dock and undock.

41.2.4.7 Combat Systems Port Engineer (for Surface Ships Only)

a.   Accountable

(1)   TYCOM's C5I waterfront representative who identifies, validates and prioritizes the C5I requirements.

(2)   Serve as the TYCOM's Technical Expert for ship C5I maintenance, modernization and repair requirements.

b.   Responsibilities

(1)   Possess the technical knowledge, skills and ability to interface with Subject Matter Experts (SMEs).

(2)   Serve as the Maintenance Team's C5I Subject Matter Expert (SME).

(3)   Attend and provide C5I maintenance status at PB4M.

(4)   Validate C5I work requirements prior to screening and brokering of Work Notifications (WNs) by Ashore Ship's Maintenance Manager.

(5)   Provide input and priorities for final screening of C5I work.

(6)   Maintain cognizance of assigned ship's C5I CASREPS.

(7)   Perform a C5I interface function with class Planning Yard and PEO representatives.

(8)   Schedule and coordinate C5I planning and ship check inspections with ship's force personnel.

(9)   Coordinate C5I Tech Assists, inspections and grooms with customer's support agencies (SYSCOM, NAVWAR, RMC, OEM, Contractor, etc.).

(10)   Review specifications to ensure accuracy and conformance for authorized C5I work.

(11)   Provide C5I input and priorities for MMBP development for assigned ship(s).

(12)   Validate the C5I ICMP or BAWP Program push and pull WNs.

(13)   Coordinate Risk versus Cost Management assessments for C5I systems.

(14)   Concur with proposed C5I growth and new work.

(15)   Get underway on assigned ship(s) for rides of opportunity including, but not limited to INSURVs, Sea Trials and mid-deployment ship checks.

41.3 <u>PROJECT TEAM</u>. (Augmentation to manage RMC-contracted maintenance in availabilities between A-120 and C+60). The PT must be assigned to the ship availability and must consist of those persons listed here and all members of the Maintenance Team. The Project Manager leads the PT and has the responsibility to ensure overall integration, execution and close out of a ship's availability. The PM is responsible for quality, schedule and cost. Some PT members may be assigned responsibilities for more than one ship.

41.3.1 <u>Project Manager.</u>

a.   RMC Project Manager:

(1)   When a RMC is the NSA, the PM is responsible for integration, execution, and close out of the Work Package. When the NSY is the NSA, the RMC PM is responsible for planning, integrating, coordinating, and executing the PSIA contracted maintenance work items, in support of the NSY Project Manager.

(2)   When a RMC is the NSA and the LMA is a contractor, the RMC PM is the senior NSA representative, leads the NSA PT and has the overall responsibility to plan, integrate and execute availabilities.

(3)   When the NSY is the NSA and the LMA, the NSY Project Manager (Superintendent) is the senior NSA representative, leads the NSA PT and has the overall responsibility to plan, integrate and execute availabilities. In this situation, the RMC PM leads the supporting RMC Contract Management PT and is responsible for planning, integrating, coordinating, and executing the contracted maintenance work items in support of the NSY Project Manager (Superintendent), integrates into the NSA PT at the APS Level and operationally reports to the NSA Project Manager (Superintendent) during the project.

b.   Accountable:

(1)   Accepts and tracks all assigned maintenance work items through execution. Coordinates planning, cost estimating and design specification preparation and scheduling. Coordinates and manages shipchecks per Volume II, Part II, Chapter 2, paragraph 2.6.2.3 of this manual. Reviews specifications to ensure completeness and conformance with authorized work. Ensures all specifications for work are developed using approved technical guidelines

ensuring maximum use of current NAVSEA approved Standard Items and Standard Work Item templates (Master Specification Catalogue).

(2)   Analyzes feedback submissions per Chapter 39, Section 39.5 of this volume.

(3)   Briefs Ship's Force on the status of all work, by work item (see Volume VII, Chapter 2, paragraph 2.8.8 of this manual).

(4)   Acts as business agent with other activities on availabilities and contracts assigned that includes ensuring that TYCOM funds are utilized properly. Evaluates all Technical Analysis Reports (TAR) and supports the Contracting Officer in contract negotiations. Acts as assistant funds administrator (when designated in writing from the RMC Commanding Officer) for assigned availabilities and contracts.

(5)   (For Surface Force ships) Documents delay and disruption charges and lessons learned per Chapter 31, paragraph 31.5.3 of this volume.

(6)   Manages ship repair and modernization work items, job orders and contracts assigned by progressing and evaluating all work to anticipate, prevent and minimize delays, resolving all problems that affect the end cost, quality, schedule and performance of assigned availability or contract.

(7)   Evaluates and acts on the reports received from other members of the availability management team. Prepares reports on current status of assigned project or contract.

(8)   Maintains liaison with customers, the ships Maintenance Team, Ship's Force Representatives, and financial or accounting personnel.

(9)   (RMC PM only) Maintains liaison with RMC functional departments and the contractor.

(10)   Arranges and conducts the arrival conference (see Volume VII, Chapter 7, paragraph 7.7.1 of this manual), weekly progress conferences, weekly commanding officer's brief (see Volume VII, Chapter 7, paragraphs 7.7.2, 7.8.8, 7.12.1, 7.9.4 and Volume II, Part I, Chapter 3, paragraph 3.6.3.1 of this manual), Docking conference, and the Availability Completion conference. Attends weekly management meeting and on-site meetings to provide comprehensive information to all concerned and to remain current in all aspects of the project.

(11)   (RMC PM only) Arranges for RMC representation at all conferences pertaining to assigned availabilities and contracts. Coordinates the on-site work effort in observing the contractor's in process production performance and operational testing events for projects assigned to the team.

(12)   Reviews all work accomplished by assigned Shipbuilding Specialists to ensure compliance with regulations, directives, instructions, and policies as well as to ensure that intended work is practical and necessary.

(13)   (RMC PM only) Reviews contractors work schedules, manning curves, material ordering or receipt schedules and special tasking or equipment

requirements. Evaluates contractors' proposals prior to and during contract execution. Takes corrective actions to eliminate conflicts and prevent work stoppages. Identifies and initiates action to correct, prevent, and minimize delays, resolving all problems that affect quality, schedule and contractor performance.

(14) Provides written reports (CPARS) to the Contracting Officer for award fee evaluations on CNO availabilities.

(15) Coordinates required action as a result of post overhaul or repair inspections with the NSA Technical Authority and Maintenance Team per Volume IV, Chapter 4, paragraph 4.3.2 of this manual.

(16) Maintains records for the Contracting Officer to include but not limited to the following:

   (a) Maintains a Significant Event Log (see Volume VII, Chapter 7, paragraphs 7.3.2 and 7.2.4 of this manual). All significant event logs from the shipbuilding specialist.

   (b) Maintains correspondence files containing copies of all correspondence to the contracts office both internal and external.

   (c) Obtains work authorizations for growth and new work. Work authorizations may be in the form of naval messages, speed letters, letters, other transmittals or documents. In the case of growth work, the authorization may be verbal, a memo at a meeting or a telephone call. Verbal authorizations should be documented with a memorandum for the record.

   (d) Maintains a ledger notebook or spreadsheet to assist in funds administration. For each contract modification initiated in the work package, the Project Manager must show the title of the item, cite the proper funding authorization and account and show the Government estimate. The ledger must show funds committed and obligated for each contract modification and other financial transactions and provide an indication of funds available for future use. When changes occur during the negotiation process, the funds reserved or obligated must be changed to reflect the current funding status. Periodically, at least monthly, the Project Manager must reconcile ledger accounts with the Contracting Officer and Comptrollers' accounts to ensure that funds are not over obligated or expended.

   (e) Maintains material requisitions for Government Furnished Material (GFM) with prices.

   (f) Maintains project orders and economy act orders issued to other Government activities.

   (g) Maintains completion reports.

(h)   Maintains departure reports including summary costs of individual work items.

(17)   (RMC PM only) Reviews contractor condition reports (see Volume VII, Chapter 7, paragraphs 7.10.2, 7.12.2 and 7.10.3 of this manual), exceptions list, and contract modifications for approval.

(18)   Maintains contact with the ship through the guarantee period (see Volume VII, Chapter 7, paragraph 7.12.4 of this manual).

(19)   Prepares a "Readiness to Start" report (see Volume VII, Chapter 7, paragraph 7.6.3 of this manual).

(20)   Assists Contracting Officers (see Volume VII, Chapter 2, paragraph 2.7 of this manual), participate in the contract awards phase (see Volume VII, Chapter 7, paragraphs 7.6.1, 7.6.2, and 7.6.7 and Chapter 3, paragraph 3.7.5 of this manual), manages funding for option items per Chapter 31, paragraph 31.5.3 of this volume, participates in the pre-award survey, verifies adequate funding for acceptable berthing and messing and performs contract administration.

(21)   (RMC PM only) Provides appropriate clearance letters to the ship for RMC and contractor personnel (see Volume VII, Chapter 7, paragraph 7.6.9 of this manual).

(22)   Conducts underwater hull inspection and drydock walkthrough (see Volume VII, Chapter 7, paragraph 7.8.9.c of this manual).

(23)   Provides a list of expected prorated items with work numbers assigned (see Volume II, Part II, Chapter 2, paragraph 2.4.6.2 of this manual).

(24)   (RMC PM only) Establishes a Ship Specification Package within Navy Maintenance Database (NMD) Planning for CMAVs and set up availability in NMD to receive Automated Work Requests from the appropriate IT system. (See Volume II, Part II, Chapter 2, paragraph 2.6.2.2 of this manual.)

(25)   (RMC PM only) Reviews and validates Automated Work Requests received in NMD Strategic Systems Programs planning availability daily (see Volume II, Part II, Chapter 2, paragraph 2.6.2.3 of this manual).

(26)   Prepares and schedules the LOA or propulsion plant light off (see Volume II, Part I, Chapter 3, paragraph 3.3.4 of this manual).

(27)   (RMC PM only) Reports costs, schedules and maintains the status of all CNO and CMAV work conducted at contractor and Government facilities.

(28)   Coordinates, schedules and administers advance planning functions. Analyzes work package to maintain available dates and minimize premiums.

(29)   Participates in availability final cost validation.

(30)   Participates in establishing controls to fund all repairs for an availability.

(31)   (RMC PM only) Analyzes work package to level load contractor.

(32)   Assures planning estimates are established for timely receipt of funds, requests funds and distributes relevant availability information.

(33)   (RMC PM only) Coordinates review of both Government and contractor estimates for "reasonableness and fairness". Recommends alternate contracting vehicles if applicable.

(34)   (RMC PM only) Submits contract work packages to appropriate procurement activity for solicitation and monitors progress of contract award.

(35)   (RMC PM only) Responds to contract bidders' questions during Fleet Fast Pay solicitation.

(36)   Provides inputs for funding requirements and serves as the Maintenance Team funds manager for CNO availability preparation and execution.

(37)   Chairs advance planning meetings, reviews and accepts or modifies recommended availability milestones.

(38)   Updates appropriate product and pricing databases.

(39)   Prepares advance planning status messages, fuel and ammunition offload, readiness to start, pre-availability agreement, monthly availability status messages and completion messages for scheduled CNO or CMAV availabilities.

(40)   Coordinates interface of outside activities during availability execution (i.e., Systems Commander, TYCOM, In-Service Engineering Agent, AITs and other customers).

(41)   Oversees contractor or NSY work during availability execution. Progresses and monitors other integrated availability work.

(42)   Assists with business case analysis preparation.

(43)   Verifies that controls are sufficient to fund all repairs required to support operational commitments.

(44)   Reviews cost reports for cost performance.

(45)   Executes availability planning milestones. Enforces depot availability "lock", planning and estimating dates.

(46)   Prepares the business case analysis for growth and new work recommendations and recommends resolutions to the Ashore Ship's Maintenance Manager. Reviews the authorization and funding, and submits information to the contracting officer for negotiation on growth and new work.

(47)   Coordinates urgent and compelling requests.

(48)   Chairs weekly production progress meetings and provides regular status reports to Ashore Ship's Maintenance Manager.

(49)   Reviews condition reports and evaluates submitted time and cost estimates for accomplishment or deferral in concert with the Ashore Ship's Maintenance Manager's concurrence.

(50)   Oversees an independent Government review of brokered work candidates for obligation of Government funds and execution.

(51)   Ensures work candidate 2K documentation is complete and completion reports are initiated by the executing activity.

(52)   Verifies funds availability and maintains funds tracking reports.

(53)   (RMC PM only) Submits I-Level schedule to contractor for integration.

(54)   Ensures work is complete to support PCD, LOA, combat systems light off, propulsion plant light off, Dock Trials, Fast Cruise, Sea Trials (contractual milestone).

(55)   Provides oversight of AIT management.

(56)   Attends 25%, 50%, 75% reviews; Arrival, Docking, Undocking, Departure, and Completion conferences; IPTD, LLC, WPIC and WPER events.

(57)   Ensures work is complete and closed out to support business close.

(58)   Coordinates condition report responses.

(59)   Coordinates consolidated software delivery and ILS support.

(60)   Ensures work is complete supporting habitability completion.

(61)   Provides oversight of (PVI, PE, PR) and LMA checkpoint execution (V, G, I).

(62)   Ensures LMA coordinates with AIT, Fleet Maintenance Activity and Ship's Force to update production schedule (NSI 009-060).

(63)   Ensures LMA provides Integrated Total Ship Test Plan (NSI 009-067).

(64)   Requests funds for repair and modification work LLTM, orders LLTM Firm Fixed Price or PSIA.

(65)   (RMC PM only) Ensures contracted maintenance is complete supporting space turnover.

(66)   (RMC PM only) Performs risk assessments and verify deliverables to contractor (O, I, D work items and AIT schedule requirements).

(67)   Provides funds administration for all depot level funding on assigned ship(s) as designated in writing by the RMC Commanding Officer.

c.   Responsibilities:

(1)   Provides supporting information for Business Case Analysis for new work.

(2)   Participates in CSMP, DFS and BAWP mid-cycle reviews, coordinates mid-deployment shipchecks, and participates in scoping conference (see Volume VII, Chapter 2, paragraph 2.12.1 of this manual).

(3)   Reviews and provides feedback on Engineering Service Request.

(4)   Ensures LMA and I-Level collection and management of AWP OQE.

(5)   Provides oversight of the Integrated Test Plan Execution.

(6) (RMC PM only) Ensures contractor coordination of open and inspects with participating activities.

(7) Progresses Cost and Schedule Status Reports.

(8) Participates in risk letter development and signed out.

(9) Assists with the authorization of growth and new work.

(10) Assists ship in achieving maintenance phase exit criteria.

41.3.2 <u>Contract Specialist</u>. The Contract Specialist who acts as the Administering Contracting Officer (ACO) and whose duties parallel the responsibilities of the Contracting Officer. Their authority is limited as specified by the level of their Defense Acquisition Workplace Improvement Act qualifications level of authority, specific limitations of their warrant and specific assignments made by the Contracting Officer. The ACO is assisted by additional warranted, Defense Acquisition Workplace Improvement Act qualified personnel, who are assigned specific responsibilities for processing contractual issues and to assist with the management and administration of a contract. The contract specialist is a contributor and this will be the person or people assigned to do the work. The contract specialist's responsibilities are listed in sub-paragraphs a. through d.

a. Participates in negotiations. TAR, advance planning funding administration and definitization. Prepares for and participates in the award fee board and CPARS.

b. Ensures financial and contractual requirements are met for availability completion and business close.

c. Assists in developing pre business clearance, progressing Cost and Schedule Status Reports and participates in the Regional Calibration Center process.

d. Provides incremental funds for ordering LLTM for both repair and alteration or modification work to meet required dates.

41.3.3 <u>Quality Assurance Specialist</u>. Supports the administration of the Contract Administration Quality Assurance Program to evaluate the effectiveness of the Contractor's Quality Management System on work being performed both shipboard and in the contractor's or subcontractor's plant.

a. Accountable:

(1) Develops a Quality Management Plan for each CNO availability following Commander, Navy Regional Maintenance Center (CNRMC) Standard Operating Procedure (appropriate local instruction for SRF-JRMC).

(2) Reviews contract specification items to determine inspections or tests required, and PCPs for review (PR, PE, Program Quality Assurance).

(3) Verifies all critical tests and inspections associated with Level I work, Nondestructive Testing and critical welding such as P-1 piping.

(4) Reviews past contractor quality data (Quality Data Evaluation, PVI, Government and contractor generated corrective action reports) to support planned surveillance actions.

(5)   Reviews submitted list of sub-contractors to be utilized to support identification of Defense Contract Management Agency notification requirements.

(6)   Issues the Quality Assurance (QA) plan to the PT for use via the Project Manager.

(7)   Participates in bid specification and work specification review with the PT supporting quality and technical requirements following the invoked milestones. Provides feedback for incorporation into work specification requirements.

(8)   Attends scheduled meetings, assesses contractor capabilities, monitors contract performance, provides technical support to the ACO, and participates in claims avoidance.

(9)   Maintains a Significant Events Log. Provide a copy of the log to the contracting officer and PM at the completion of the availability.

(10)   Completes Past Performance Information Surveys within 14 days of completing each availability and provides written reports to Contracts Department in support of Award Fee Evaluations and CPARS. Conducts Procedure Reviews for PCPs submitted by contractors.

(11)   Maintains a copy of all Corrective Action Requests (CAR) generated by the Government, as well as those written by the contractor (when requested by the Government per NSI 009-04). Maintains a status of all CARs generated by the Government and updates the Project Manager.

(12)   Informs Project Managers of quality problems that are, or have the potential to, affect their ship.

(13)   Accomplishes Ship's Force QA Interface training prior to each CNO availability.

(14)   Assists Shipbuilding Specialist, as functional responsibilities permit, in the coverage of G-Points.

(15)   If, in the course of evaluating the prime contractor, AIT non-conformities are discovered, they are to be addressed to the Project Manager. If it is determined that the non-conformity warrants the issuance of a Government CAR, and the AIT manager or On-Site Installation Coordinator does not issue the CAR to the AIT, the RMC QA department must notify NAVSEA 04Q Quality and Oversight detailing the Government sponsor information.

(16)   Performs 100% final preservation record review to support work certification at the end of the availability.

(17)   Accomplishes in-process reviews of contractor's test and inspection plan to ensure compliance with NAVSEA Standard Item requirements.

(18)   Reviews and oversight of PCP, UPCP.

b.   Responsibilities:

(1)   Provides quality assurance, quality control support of AEGIS Light Off, combat systems light off, propulsion plant light off, production completion date, Fast Cruise, Dock Trials and Sea Trials.

(2)   Provides quality oversight of AIT and AIT management

(3)   Provides quality oversight and input of business close, technical close.

(4)   Provides quality oversight, review, and condition report submission.

(5)   Provides quality review of services request.

(6)   Provides quality oversight of AWP, LMA, I-Level collection and management of OQE.

(7)   Provides quality oversight of the Integrated Test Plan Execution.

(8)   Provides quality oversight of LMA Checkpoint Execution (V, G, I), and (PVI, PE, PR).

(9)   Provides quality control oversight of work certification.

(10)   Provides quality oversight of all work specifications Face-to-Face reviews.

41.3.4 NSA Logistical Representative. Responsible for supporting the configuration management of a ship and validating configuration of the ship following modernization efforts.

a.   Monitors the configuration management process.

b.   Ensures timely action on submittal of configuration change requests and follows up to update configuration records and associated logistics support.

41.3.5 SEA 21 Hull, Mechanical and Electrical and AEGIS Combat Systems On-Site Logistician (Surface Force Ships only). Accountable to ensure that all equipment has proper logistics support completed and available for delivery at the time of installation.

a.   Researches, documents and coordinates delivery of all ILS in support of combat system material readiness to the ship.

b.   Arranges storage and transportation of parts and equipment. Performs inventory audits of installation kits. Assists in the expediting of parts throughout the availability.

c.   Provides applicable logistics data to project engineer's end of availability report.

d.   Provides assessment data, near real time, into ship's CSMP.

41.3.6 Project Support Engineer. The Project Support Engineer is a critical part of availability certification and will work closely with the Project Manager and Chief Engineer to help certify the availability.

a.   Accountable: Provides engineering and technical services during availability planning. The services include:

(1)   Reviews of contractor work specifications ensuring the requirements of tasking documents are met, naval standards are invoked, and final acceptance testing will validate work performed.

    (2)   Attends all pre-availability planning meetings, assuming a leading role in addressing technical issues and coordinating resolution of technical authority issues.

    (3)   Maintains a records system of tasking documents, 2-Kilos, temporary DFS, a listing of specifications reviewed and documented comments forwarded for correction.

    (4)   Coordinates resolution of technical issues during availability execution (i.e., DFS, Condition Reports, Liaison Action Requests).

b.   Provides engineering and technical services in support of ongoing waterfront production work at private contractor facilities. Serves as the principal point of contact for all engineering related technical issues between the Fleet Technical Support Divisions, the PT and other outside commands. These services include:

    (1)   Provides oversight of the contractor's technical performance of shipboard work for compliance to contract specifications.

    (2)   Provides oversight of contractor's quality assurance management program for technical documents and data.

    (3)   Provides oversight of contracted Original Equipment Manufacturer technical representatives.

    (4)   Provides technical evaluation and recommendations for contractor change proposals, growth and new work.

    (5)   Serves as the PT's technical authority point of contact. Assigned to resolve all technical issues, adjudicate non-conformances, DFS, waivers and deviations and provides for technical responses to contractor condition reports.

    (6)   Provides oversight of assigned planning yard on-site field personnel responsiveness and technical adequacy.

    (7)   Reviews and approves or disapproves contractor prepared PCP used to provide contractor mechanics guidance for accomplishment of critical repair processes.

    (8)   Initiates Liaison Action Request to document changes or questions to NAVSEA installation drawings.

    (9)   Technical point of contact for analyses during final acceptance testing, certifications and technical inspections.

    (10)   Attends all production meetings to assist and advise the PT in all matters concerning the repair and modernization of shipboard systems and equipment.

    (11)   Provides coordination for the ship availability technical closeout documents to ensure all technical related documents have been properly answered or adjudicated.

c.   Participates as a member of the Maintenance Control Team.

41.3.7 <u>Integrated Test Engineer</u>. The Integrated Test Engineer is a critical part of availability certification and will work closely with the Project Manager and Chief Engineer to help certify

the availability.

a. Approves and provides oversight of the contractor's development and management of the ITP. Ensures the ITP is functionally linked to the Integrated Production Schedule. Ensures the ITP is responsive to changes in production schedule such that when production items completion dates change, their associated test dates change as well. Ensures the ITP includes all testing for all maintenance activities.

b. Reviews work specification to ensure appropriate work to test relationships have been developed.

c. Reviews AWP to identify testing key events and milestones that may be required in addition to production key events and milestones (i.e., Aviation Certification and Combat Systems Command, Control, Communications and Computer Readiness Assessment).

d. Coordinates with Project Manager to ensure the ITP accurately reflects the AWP and the integrated production schedule.

e. Coordinates with the Program Executive Office, CSPE and Test Coordinator (if assigned) to provide information and status as required.

f. Acts as the Governments primary point of contact to collect scheduling and testing information from all non-LMA maintenance activities including AITs, Fleet Maintenance Activity, In Service Engineering Agent (ISEA) and NSY. Provides this information as Government Furnished Information to LMA for inclusion into the Integrated Schedule and ITP.

g. Acts as Government point of contact to coordinate Ship's Force testing schedule and major training evolution schedule information. Provides this information as Government Furnished Information to LMA for inclusion into the Integrated Schedule and ITP.

h. Evaluates Test Sequence Networks provided by each maintenance activity prior to submitting to the LMA. Evaluates Integrated Test Sequence Networks provided by LMA.

i. Ensures the Integrated Testing Schedule is updated at least weekly or as milestones and growth work changes dictate.

j. Receives OQE for completed test procedures from all maintenance activities and evaluates results for completeness and accuracy. Ensures non-conformances are documented and action is taken to resolve or technically adjudicate.

k. Serves as Government representative on Total Ship Testing Task Group as outlined in NAVSEA Standard Item 009-67.

l. Provides a final report at the completion of the availability showing completion of all testing, or tests that remain unexecuted with exception reasons and plan for completion.

m. Ensures the availability of special instrumentation, recording devices, support services, test ranges and data collection requirements to support Sea Trials events.

Approves the LMA input to the Sea Trials agenda for submission to Ship's Force, ensuring all test procedures with underway requirements are properly scheduled.

n.   Participates as a member of the Maintenance Control Team.

41.3.8 <u>Assessment Director</u>. Leader of assessment execution. Provides management of military personnel, Government engineers and technicians, contractors, data entry personnel and logisticians in support of assessment program visits and events. Plans, schedules, organizes, directs and manages the execution of Total Ships Readiness Assessment visits and CMP assessment events.

a.   Accountable:

(1)   Attends the AWP turnover with SURFMEPP and TYCOM managers to ensure visibility, resource allocation and scheduling of all CMP assessment tasks.

(2)   Augments and assists the PT in CMP assessment accomplishment.

(3)   Updates the PT on progress in meeting established milestones and deadlines for completion of assignments, projects and tasks, and ensures all team members are aware of and participate in planning for achievement of team goals and objectives.

(4)   Manages dedicated Visit Support Team performing logistics validation, data entry and data collection support functions.

(5)   Utilizes data provided by the Fleet Technical Assist (typically RMC Code 200) personnel to assist the Maintenance Team in documenting, completing and closing CMP assessment requirements.

(6)   Assists Ship in achieving Maintenance Phase Exit Criteria through execution of Assessments.

b.   Responsibilities: Participates in CSMP, DFS and BAWP mid-cycle review and life cycle planning conference. Provides open and inspect oversight for screening potential repair.

41.3.9 <u>Technical Matter Expert</u>. The Technical Matter Expert is the Maintenance Control Team leader and acts as the principle assistant to the NSA for non-nuclear propulsion plant work. Accountable as owner of the work and the person who makes the final decision on a task and has the ultimate ownership over that task.

a.   Provides technical guidance in the execution of Controlled Work Packages.

b.   Reviews any revisions for technical adequacy. Verifies and provides recommendations in support of administrative changes. Represents the Government during selective checkpoints, to include testing, and acts as the RMC Chief Engineer's representative.

c.   Participates as a member of the Maintenance Control Team.

41.3.10 <u>Shipbuilding Specialist</u>. Shipbuilding Specialists are individuals that possess a primary trade background but effectively perform across trade lines in two or more trade skill disciplines. Team assignments are made to balance trade expertise appropriately with the type of work in the project. A wide variety of comprehensive duties and responsibilities are assigned to these

individuals who are expected to act as decision makers with comprehensive knowledge of each work item assigned. Typical assignments include the following duties and responsibilities (as with Project Managers, this may vary depending on the supporting organization):

    a.   Accountable:

        (1)   Provides current information relating to assigned work items to the Project Manager (see Volume VII, Chapter 7, paragraph 7.3.4a. of this manual).

        (2)   Attends meetings, resolves production problems, develops scope of work requirements, assists in the development of Government TARs and negotiation positions, assesses contractor capabilities, work progress and performance, provides technical support to the ACO, and participates in claims avoidance and provides other technical support as required (see Volume VII, Chapter 7, paragraph 7.3.4b. of this manual).

        (3)   Interfaces with members of the Ship's Force to provide current project information, notifies responsible personnel of scheduled evolutions and solicits required or desirable Ship's Force (see Volume VII, Chapter 7, paragraph 7.3.4c. of this manual).

        (4)   Receives and investigates contractor reports, assists with the development of the Government's technical response, requests engineering support, prepares necessary contract modifications, develops the Government cost estimates, estimates the delay and disruption that may occur because of a contract modification, assists with negotiation preparation relative to TARs and contract modifications (as authorized by the ACO), provides the ACO support in negotiations and maintains records of actions taken (see Volume VII, Chapter 7, paragraph 7.3.4d. of this manual).

        (5)   Performs and witnesses Government "G" notification points, identified in the work specifications, when the contractor calls them out. Accomplishes random PVIs utilizing checklists or an attribute system to determine contractor compliance with the quality and technical requirements of the work specifications or contract. Writes a Corrective Action Request when nonconformities are detected per Chapter 11 of this volume (see Volume VII, Chapter 7, paragraph 7.3.4e. of this manual).

        (6)   Determines the physical progress, as a percentage of work completed, of each work item and each contract modification assigned. Updates this information weekly in a comprehensive progress report that is used in calculating the contractor's entitlement to progress payments as well as in evaluating the contractor's schedule performance (see Volume VII, Chapter 7, paragraph 7.3.4g. of this manual).

        (7)   Monitors the GFM and Contractor Furnished Material report to anticipate actions that may be necessary to preclude schedule impact by unsatisfactory material delivery dates. Initiates material orders to replace unsatisfactory GFM or to provide items with unique Government control and confirms the necessity for the contractor to make cash purchases from the Naval Supply system when

it is in the best interest of the Government (see Volume VII, Chapter 7, paragraph 7.3.4h. of this manual).

(8)   Monitors the contract guarantee period to help determine whether failure of equipment or systems covered by the guarantee clause is the responsibility of the Government or the contractor, ensures that the work determined by the ACO to be the responsibility of the contractor, whether it is covered by guarantee or was an exception to the completion of the contract, is repaired following the specification requirements and provides cost estimates for incomplete work so that the ACO can ensure that appropriate contract funds are retained in the event that the work must be deleted from the contract requirements or be procured from another contractor (see Volume VII, Chapter 7, paragraph 7.3.4i. of this manual).

(9)   Provides positive and negative lessons learned along with feedback related to deficient or inefficient work specifications or work authorizations to the appropriate planning group for use in improving future procurements (see Volume VII, Chapter 7, paragraph 7.3.4.j. of this manual). Include a brief summary to document the reasons growth or new work was required.

(10)   Conducts oversight coordination and inspection of work-related environmental issues associated with Ship's Force and contractor's operations. This effort includes but is not limited to Hazardous Material and Hazardous Waste handling, removal, storage, transportation and disposal (see Volume VII, Chapter 7, paragraph 7.3.4.k. of this manual).

(11)   Provides input to the Project Manager to support Award Fee Evaluations and CPARS (see Volume VII, Chapter 7, paragraph 7.3.4.n. of this manual).

(12)   Maintains the following records: (see Volume VII, Chapter 7, paragraph 7.3.4.o. of this manual)

(a)   Significant Events Log.

(b)   Work item specifications, references and estimates for the work package, updated to reflect all modifications.

(c)   Contractor condition reports including Government replies.

(d)   New work identified and not authorized.

(e)   GFM delivery status.

(f)   Records relating to the contractor's capabilities and capacity.

(g)   Contractor performance evaluations.

(h)   Supports LMA collection and management of AWP OQE.

(13)   In the course of evaluating the prime contractor, report any AIT non-conformities to the Project Manager.

b.   Responsibilities:

(1)   Provides quality oversight to support propulsion plant, AEGIS and combat systems light off.

(2)   Provides quality oversight of availability completion.

(3)   Provides support of Business Case Analysis for new work.

(4)   Reviews condition report submissions and responses.

(5)   Coordinates consolidated software delivery.

(6)   Provides quality oversight supporting Fast Cruise, Dock Trials, Sea Trials Docking and Undocking.

(7)   Reviews Engineering Services Request.

(8)   Provides quality oversight of Integrated Test Plan execution.

(9)   Participates in quality checkpoints supporting oversight of contracted work, PVI, PE and PR.

(10)   Provides quality oversight of open and inspects.

(11)   Provides quality oversight of the Regional Calibration Center process.

(12)   Participates in work certification.

(13)   Conducts work specification review.

(14)   Capture initial lessons learned by documenting within Work Specification paragraph 4 (Notes) a brief summary concerning why a growth (positive or negative) change was required.

41.3.11 AIT On-Site Installation Coordinator. The AIT On-Site Installation Coordinator is the Government or military employee designated by, and acting with, the authority of the AIT Manager on-site.

a.   Provides the ship with: (see Chapter 3, paragraph 3.3.2 of this volume)

(1)   All ILS equipment (including on-board spares) and documentation.

(2)   Ship's Selected Records documentation.

(3)   A complete set of installation drawings redlined to indicate all variances.

(4)   Hard copy Coordinated Shipboard Allowance List pages.

(5)   A copy of the completion message.

b.   Performs additional duties as required by Appendix H of reference (a).

41.3.12 AIT Manager. The AIT Manager is the Government activity, ISEA, military person or Government civilian tasked and funded by the AIT Sponsor to initiate, fund, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration or ship change.

a.   Coordinates with the NSA to ensure satisfactory completion of alterations. (See Volume II, Part I, Chapter 2, paragraph 2.1.1 of this manual.)

b.   Identifies support, schedule, and impact requirements according to required milestones. (See Volume II, Part II, Chapter 2, Appendix D of this manual.)

    c.   Tasks and funds SID Development according to milestones. (See Volume II, Part II, Chapter 2, Appendix D of this manual.)

    d.   Develops and submits the Memorandum of Agreement. (See Volume II, Part II, Chapter 2, Appendix D of this manual.)

    e.   Performs additional duties as required by Appendix H of reference (a).

41.3.13 <u>Combat Systems Project Engineer (Surface Force Ships only)</u>. These specialists monitor the contractor's performance of work and testing in the combat systems work package. The CSPE provides expert advice in the anticipation, identification and resolution of problems that may occur during the maintenance, repair and alteration installation phases, as well as during the grooming and complex systems level testing phases. The CSPE takes a more active role by accomplishing duties similar to those of production controllers, ship surveyors and shipbuilding specialists in addition to those of electronics engineers or technicians for Combat Systems work items during an availability or project.

    a.   Provides current information relating to assigned work items to the Project Manager. This may also include reports to the ship's assigned Port Engineer for Combat Systems (see Volume VII, Chapter 7, paragraph 7.5.4a. of this manual).

    b.   Attends meetings to resolve production problems, develops scope of work requirements, assists in the development of TARs to support the Government negotiation positions, assesses contractor capabilities, work progress and performance, provides technical support to the ACO, participates in claims avoidance and provides other technical support as required.

    c.   Interfaces with members of the Ship's Force to provide current project information, notifies cognizant personnel of scheduled evolutions, solicits required or desirable Ship's Force participation and provides technical advice.

    d.   Receives and investigates contractor reports, writes and receives answers to Liaison Action Requests, provides interim answers to Test Problem Reports, assists in developing the Government's technical response to contractor requests, assists the TAR writer by providing engineering support and in developing the Government cost estimates, assists in preparing necessary contract modifications, estimates the delay and disruption that may occur because of a contract modification, and provides the ACO support in negotiations and maintains records of actions taken.

    e.   Observes "G" POINTS for electronic systems and equipment identified in the work specifications when they are presented by the contractor, witnesses required equipment or system tests and accomplishes random in-process inspections (PVIs) at the work sites to determine contractor compliance with the requirements of the specification. Documents the contractor's failure to satisfy contractual responsibilities.

    f.   Determines the physical progress, as a percentage of work completed, of each work item and each contract modification assigned. Updates this information weekly in a comprehensive progress report that is used in calculating the contractor's entitlement to progress payments as well as in evaluating the contractor's schedule performance.

g. Monitors the GFM and Contractor Furnished Material report to anticipate actions that may be necessary to preclude schedule impact by unsatisfactory material delivery dates. Assist the Fleet and Industrial Supply Center or RMC Material Department in visually identifying and verifying receipt of GFM. Initiates material orders to replace unsatisfactory GFM or to provide items with unique Government control and authorizes the contractor to make cash purchases from the Naval Supply system when it is in the best interest of the Government.

h. Monitors the contract guarantee period to help determine whether failure of equipment or systems covered by the guarantee clause is the responsibility of the Government or the contractor. Ensures that the work determined by the ACO to be the responsibility of the contractor, whether it is covered by guarantee or was an exception to the completion of the contract, is repaired following the specification requirements. Provides cost estimates for incomplete work so that the ACO can ensure that appropriate contract funds are retained in the event that the work must be deleted from the contract requirements or be re-procured.

i. Provides lessons learned and feedback related to deficient or inefficient work specifications or work authorizations to the appropriate planning group for use in improving future procurements.

j. Maintains a Significant Events Log.

k. Coordinates the efforts of the Master Ship Repair Agreement, Agreement for Boat Repair and each combat systems related AIT.

l. Participates in the Lessons Learned Conference as appropriate.

m. Provides written reports to support Award Fee Evaluations and CPARS.

n. Manages Combat System alteration package and AIT work and facilitates integration with the NSA.

o. Submits work candidates (2K-MAF) for industrial assistance required for AIT efforts.

p. Submits work candidates (2K-MAF) for Attack Weapons Systems Element Assessment CMP task accomplishment and uncovered deficiencies.

q. Ensures that lessons learned identified during availability LLCs are applied across the ship class.

r. Provides Combat System and Command, Control, Communications, Computers and Intelligence (C4I) test requirements and schedules.

s. Coordinates C4I schedules and installations, and manages the AIT execution activities.

t. Provides Combat Systems and C4I reach back to Participating Acquisition Resource Managers and ISEAs.

41.3.14 SEA 21 Hull Manager (Surface Force Ships only). Primary SEA-21 waterfront Surface Combatant Modernization and Integration Representative for execution, engineering, logistic and programmatic support. Primary interface between PT and program office funded activities for all program alterations.

a.   Accountable:

    (1)   Coordinates with ISEA and Participating Acquisition Resource Manager to identify, document and resolve issues of possible concern to the program office as they relate to Navy Modernization Process alteration development or installation.

    (2)   Delivers material (LLTM and Kitted Materials) to Executing Activity.

b.   Responsibilities:

    (1)   Participates in CSMP, DFS and BAWP mid-cycle review.

    (2)   Ensures work supports availability completion.

    (3)   Ensures consolidated software delivery and ILS support.

    (4)   Attends IPTD, Docking, Arrival, Undocking, Departure and 25%, 50% and 75% review events or conferences.

    (5)   Participates in work certification.

    (6)   Participates in work specification review.

    (7)   Performs risk assessments and verifies deliverables to contractor (O, I, D work items and AIT Schedule Requirements).

41.3.15   <u>SURFMEPP Waterfront Engineer</u> (Surface Force Ships only)

a.   Accountable

    (1)   Integral member of the Project Teams, assists in the CNO availability Planning, Execution and Closeout Phases.

    (2)   Located at the waterfront to ensure the accomplishment of mandatory technical requirements.

b.   Responsibilities

    (1)   Communicates the technical requirements identified in the Class Maintenance Plan (CMP).

    (2)   Project Team's advocate for resolution of CMP issues or concerns.

    (3)   Maintain relationships and communications with the RMC, TYCOM, Fleet and numbered Fleet Commander's staff.

41.3.16   <u>Government Availability Planning Manager (GAPM)</u>. (Surface Force Ships only)

a.   Accountable:

    (1)   Coordinates with PM, Planning Floor, Contracts, Engineering, and Quality Assurance Departments to oversee, monitor and develop executable depot level Work Packages.

    (2)   Monitors performance of the Planning Floor.

b.   Responsibilities:

(1)   Provides coordination and oversight of planning, estimating, and work specification development.

(2)   Ensures depot level Work Package development adheres to current business rules; maintenance, modernization and contracting strategies; incorporates lessons learned; and meets planning milestones to support on-time contract solicitation.

(3)   Monitors and coordinates advance planning of maintenance and modernization activities to ensure availability planning milestones are met.

(4)   Reviews authorized Work Notifications and advises the Maintenance Team of deficiencies.

(5)   Coordinates the development of grouping strategy for authorized work.

(6)   Coordinates ship checks per Volume II, Part I, Chapter 2 of this manual.

(7)   Reviews Work Specifications to ensure completeness and conformance with authorized work.

(8)   Reviews Work Specifications and depot level Work Package development processes to ensure compliance with regulations, directives, instructions, and policies.

(9)   Ensures Work Specifications are developed using NAVSEA Standard Items and Master Specification Catalog templates per Volume II, Part II, Chapter 2 of this manual.

(10)   Continuous liaison with customers, Project Team, and Ship's Force Representatives.

(11)   Coordinates with PM to submit depot level Work Packages to the procurement activity for solicitation.

(12)   Monitors and supports contract award.

(13)   Participates in advance planning meetings to include but not limited to: C+21, Life Cycle Planning Conference, mid-cycle reviews, IPTD events and scoping conferences.

(14)   Reviews and provides recommendations concerning availability planning milestones.

(15)   Monitors availability planning milestones and verifies documentation within NMD.

(16)   Monitors, assigns and reviews adjudication of Planning Contractor Furnished Report (CFR).

(17)   Monitors technical adjudication and incorporation of Engineering Service Requests.

(18)   Monitors the identification and ordering of GFM (LLTM, Push, Kitted) for maintenance and modernization.

(19)   Assists in availability risk assessment.

(20)   Assists with the planning of new work.

(21)   Incorporates Lessons Learned with feedback to the Planning Floors and Maintenance Teams related to depot level Work Specifications and planning processes.

(22)   Assists Contracting Officer's Representative by serving as a Technical Point of Contact (TPOC).

41.4 <u>PLANNING PROCESS SUPPORT</u> (Augmentation outside of maintenance availabilities). Supplements both the Maintenance and PTs in the planning and execution of engineered maintenance (CMP, Planned Maintenance System), modernization (Letter of Authorization) and corrective maintenance (CSMP) from advanced planning through close out. Consists of the following members and others as needed:

a.   TYCOM representatives.

b.   Program Executive Officer representatives.

c.   CNRMC representatives.

d.   Systems Command representatives.

e.   SUPSHIP representatives.

f.   Planning Yard representatives.

g.   Carrier Planning Activity representatives.

h.   Submarine Maintenance Engineering, Planning and Procurement representatives (SUBMEPP).

i.   SURFMEPP representatives.

j.   RMC Technical and Logistical SMEs.

k.   RMC Class Team Leaders.

41.5 <u>PLANNING BOARD FOR MAINTENANCE</u>. A regularly scheduled meeting between the ship's Maintenance Team members and stakeholders (e.g., TYCOM, Immediate Superior In Command, planning activity, Ship's Program Manager, etc.) to discuss ship-wide maintenance issues. This forum provides a routine and regularly scheduled management review of current planned off-ship and organizational maintenance, CSMP and AWP quality and accuracy, future maintenance and modernization planning, work prioritization, work integration and fiscal concerns. The objective is to ensure clarity of intent for both the ship's efforts and the shore infrastructure with respect to total ship maintenance, operational schedules and other concerns affecting ship material readiness. While the frequency of Planning Board for Maintenance meetings may vary due to a ship's schedule, a minimum of one meeting per quarter is expected. The Planning Board for Maintenance is the forum for discussing all maintenance issues, including metrics that are currently used to measure the maintenance effectiveness of the ship and the performance of the ship's assigned Maintenance Team. Each maintenance team will incorporate the following business rules.

a.   Ashore Ship's Maintenance Manager will be responsible for all Planning Board for Maintenance decisions.

b.   The frequency of the Planning Board for Maintenance meetings may vary due to a ship's schedule; a minimum of one meeting per quarter is expected.

c.   The meeting will be chaired by the Commanding Officer.

d.   The core Maintenance Team must participate in the Planning Board for Maintenance. Other attendees may participate as required.

e.   The Ashore Ship Maintenance Manager will prepare the agenda and provide it to the Commanding Officer and core team members 48 hours in advance.

f.   The agenda provides a list of topic areas to be reviewed during the Planning Board for Maintenance. It does not require an exhaustive examination of each topic during the meeting. Rather the meeting can be used to report the results of detailed reviews, updates, problem investigations and analyses conducted by assigned teams outside of the Planning Board for Maintenance meeting.

41.6 WORKFORCE DEVELOPMENT PROGRAM (RMC ONLY).

a.   The Work Force Development (WFD) Program is designed as a vehicle for professionalizing the Surface Force Ship workforce. That objective is accomplished through a formal training and certification process that is robust, standardized and repeatable at each RMC. The intent is to support the professional growth of RMC maintenance community personnel and promote career progression opportunities that enhance the long-term prospects for individual work force members, while maximizing overall effectiveness of the maintenance community as a whole. The net result of the WFD Program is a capability that maintenance and modernization work performed at one RMC is both repeatable and standardized with identical maintenance and modernization work performed at any other RMC.

b.   CNRMC serves as the WFD Program sponsor. CNRMC also serves as the Curriculum Control Authority for all WFD training courses and curricula. Each WFD course is delivered via a training team and WFD training covers the vital skills necessary to execute quality Surface Force Ship maintenance and modernization work.

c.   The WFD Program is a requirement for the Surface Force ship contracted maintenance management workforce (except at SRF-JRMC).

d.   All WFD Program courses include comprehensive classroom training, position-specific case studies and practical exercises, and a detailed Job Qualification Requirement (JQR). While JQRs for a given position may be accomplished outside of the associated formal WFD course (i.e., either before or after completing the course), final certification of each course graduate is not granted by CNRMC until each JQR task is completed.

41.7 INTEGRATED PROJECT TEAM DEVELOPMENT (Surface Force Ships only).

41.7.1 Project Team. IPTD provides Project Teams (PT) with a foundation for the successful execution of a CNO Availability. IPTD events improve the functional performance of the Availability PT by ensuring roles and responsibilities of each PT member are known and

understood, enhancing communication skills, team building (promoting relationships) between involved organizations, and developing executable project plans. IPTD is a forum for building relationships among the Surface Team One community. Each event builds a positive team dynamic by creating an environment for approaching and resolving challenges as a team and ultimately improving the availability execution process. Additionally, the events provide a venue for identifying and mitigating availability risks, as well as establishing and tracking progress to availability execution planning milestones.

a.   The IPTD curriculum focuses on development and integration of the PT; development of availability expectations and success criteria; advance planning; development, reviewing, refining, validating and communicating key strategies; aligning all members of the integrated PT; process improvement; availability execution processes; and knowledge sharing. IPTD events develop Availability expectations, success criteria, build and validate strategies, and align members of the integrated PT. Events raise awareness of the Maintenance and Modernization End-to-End policies and processes.

b.   Each IPTD event is tailored to meet the specific needs of the PT and is instrumental in transitioning the independent focus of the maintenance team into the integrated focus of the PT. IPTD personnel facilitate discussions on milestones to increase the probability of successful availabilities while clearly identifying those persons/entities responsible for deliverables throughout each phase of the availability.

41.7.2 Program Events. The IPTD program is notionally conducted in six events prior to the availability start date and one post-availability. FDNF ships will utilize a modified schedule based on their unique milestones. IPTD events are:

a.   Initial Event. Transition ownership and responsibility for the final development of the AWP from the Advanced Planning Phase (SEA 21 - Surface Maintenance Engineering Planning Program (SURFMEPP) responsibility), to the Planning Phase (CNRMC - NSA or RMC responsibility). Review planning milestones and draft execution key events and milestones. Review, update and identify risks.

b.   Pre-Lock Event. Focus on finalizing work package development prior to 100% D-Level lock. Review modernization plan, TYCOM work package, and planning status. Develop draft Planning Event Readiness List. Review, update, and identify risks.

c.   WPIC Event. The primary purpose of this event is to conduct the WPIC. Review approved modernization plan, TYCOM work package, and planning status. Review, update and finalize Planning Event Readiness List. Review, update, and identify risks.

d.   Supplemental Event. At the discretion of the RMC project manager, supplemental event(s) can be scheduled as the need arises.

e.   Post Award Event. This event integrates the LMA. Review critical path work, controlling work, tank sequencing or stability, 20% open and inspect plan, and execution risks. Identify, discuss, and document lessons learned and best practices. Develop plan for conducting RTS/WPER event and follow-on Schedule Model Review.

f.   RTS/WPER Event. The primary purpose of this event is to conduct the WPER. Review LMA integrated production schedule, modernization, I-Level work, and Ships force work list. Discuss first 100-hour plan and execution risks.

g.   Completion Event. The primary purpose of this event, also known as C+21, is to conduct a detailed review to include the LMA of the work package executed during the CNO Availability, and identify Lessons Learned that can be utilized for revising work items and class standard work templates for future maintenance availabilities. A Lessons Learned message from the ship must be sent within 30 days after the Completion Event. A sample message is provided in Appendix A of this chapter. Additionally, this event will serve as the transition (CNRMC - NSA or RMC) back to Advanced Planning (SEA 21 - SURFMEPP) to commence the next cycle in the Fleet Response Plan.

APPENDIX A

**SAMPLE SUPERVISING AUTHORITY REPORT OF AVAILABILITY
LESSONS LEARNED**

ZNR UUUUU
P XXXXXXZ MMM YY
FM USS *SHIP*
TO APPLICABLE TYCOM
INFO COMUSFLTFORCOM NORFOLK VA
COMNAVSEASYSCOM WASHINGTON DC
ISIC
APPLICABLE RMC
ALL OTHER APPLICABLE ADDRESSEES
BT
UNCLAS
MSGID/GENADMIN/USS *SHIP*/-/MMM//
SUBJ/FY XX AVAILABILITY TYPE LESSONS LEARNED//
REF/A/MSGID: INST/COMUSFLTFORCOM 4790.3/-/YMD: YYYYMMDD//
POC/USS *SHIP*/POC NAME/RANK/TITLE/POC EMAIL//
RMKS/1. THE FOLLOWING IS A COLLECTION OF LESSONS LEARNED AND BEST
PRACTICES DURING USS (*Name of ship*)'S CNO AVAILABILITY CONDUCTED AT
(Name of Lead Maintenance Activity) IN (Location) from (Dates).
2. PLANNING LESSONS LEARNED
A. LESSON LEARNED: (Provide general description of the lesson learned)
A.1. OBSERVATION: (Provide description of the principal causal factors)
A.2. DISCUSSION: (Provide description of the impact, and any short term corrective actions
taken by the ship to mitigate the impact)
A.3. RECOMMENDATION: (Provide description of the recommended long term corrective
actions)
3. EXECUTION LESSONS LEARNED
A. LESSON LEARNED: (Provide general description of the lesson learned)
A.1. OBSERVATION: (Provide description of the principal causal factors)
A.2. DISCUSSION: (Provide description of the impact, and any short term corrective actions
taken by the ship to mitigate the impact)
A.3. RECOMMENDATION: (Provide description of the recommended long term corrective
actions)
4. AVAILABILTY CLOSEOUT LESSONS LEARNED
A. LESSON LEARNED: (Provide general description of the lesson learned)
A.1. OBSERVATION: (Provide description of the principal causal factors)
A.2. DISCUSSION: (Provide description of the impact, and any short term corrective actions
taken by the ship to mitigate the impact)
A.3. RECOMMENDATION: (Provide description of the recommended long term corrective
actions)
5. COMMANDING OFFICER'S COMMENTS: (Provide closing comments).//
BT

Note: The following are areas/topics to consider when addressing lessons learned:

GENERAL TOPICS:
1. WAFS AND TAGOUTS, REPAIR ACTIVITY SIGNATURES
2. GFM ISSUES
3. CONTRACTUAL LEVERS
4. QUALITY OF WORK
5. INTEGRATED PROJECT SCHEDULE
6. DAILY/WEEKLY PRODUCTION SCHEDULES AND PRIORIZATION OF WORK WITHIN THE PROJECT
7. SCHEDULE DELAYS
8. RCC CYCLE TIMES
9. PRIORITY OF WORK ACROSS LOCATION PORT
10. SCAFFOLDING
11. MAST PRESERVATION
12. FIRE PREVENTION AND RESPONSE
13. MAINTENANCE REDLINE MANAGEMENT AND MITIGATION
14. IP SERVICES AND WEB-BASED APPLICATIONS
15. MOORING
16. CRANES AND BARGES
17. CALIBRATION LAB
18. I-LEVEL JOB COORDINATION AND COMPLETION
19. RCC PROCESS

ENGINEERING:
1. MAIN ENGINE ROOMS
2. SEA VALVES
3. BIRMIS
4. GAS TURBINES AND DIESEL ENGINES/GENERATORS
5. INTAKE/UPTAKE
6. TANK CLOSE OUTS

AVIATION:
1. NON-SKID TENT
2. NON-SKID SUB-CONTRACTOR
3. JP-5

SUPPLY
1. HAZMAT
2. REEFER TRUCKS
3. MESSING / BARGE MESSING
4. HABITABILITY
5. BERTHING SUPPLIES

MEDICAL/DENTAL (if applicable)

AIMD (if applicable)

SECURITY
1. PARKING PASSES
2. AT DRILLS
3. AT POSTURE
4. PORTABLE SECURITY BARRIER OPENINGS
5. ACCESS CONTROL LIST MANAGEMENT

WEAPONS
1. MAGAZINES
2. ORDINANCE HANDLING EQUIPMENT

3M
1. IEM AND RESTORATION

SAFETY
1. DAILY SAFETY WALKS AND DISCREPANCY TRACKER

TIGER TEAMS
1. BROKERED JOBS
2. OVERALL LEAD
3. MATERIALS AND TOOLS
4. DECKING MATERIALS
5. SPACE PREPPING
BT

VOLUME VI

CHAPTER 42

MATERIAL READINESS ASSESSMENT

REFERENCES.

(a) NAVSEA S9081-AB-GIB-010 - Reliability Centered Maintenance Handbook
(b) CSL/CSPINST 9010.5 - Total Ship Readiness Assessment (TSRA)
(c) CNRMCINST 4790.2 - Submarine Regional Maintenance Center (RMC) Fleet Technical Support (FTS) Roles and Responsibilities
(d) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
(e) COMNAVSURFPACINST 4700.1A/COMNAVSURFLANTINST 4700.1/CNRMCINST 4700.7 - Total Ship Readiness Assessment (TSRA)

LISTING OF APPENDICES.

A   Assessment Process
B   Prerequisites and Test Requirements Message (Example)
C   Readiness to Commence Message (Example)
D   Completion Quicklook Message (Example)
E   Job Originator Identification Table

42.1 PURPOSE. To maintain units in a material condition that supports the required degree of operational readiness and the ability to accomplish assigned missions using a process designed to assess the right things at the right time with the right people using the right standards at the right cost. This process applies to all activities (e.g., Type Commanders (TYCOM), Regional Maintenance Centers (RMC), shipyards, System Commands, etc.) executing periodic material assessments (scheduled event) and focused system assessments (not a scheduled event) of key systems, equipment and programs that follow an established framework and methodology. When evaluating material condition, either partially or in its entirety, the material assessment Common Assessment Procedures or approved technical documentation, must be used and the results properly documented per this chapter via Automated Work Notifications (2-Kilo) to include material assessment tasks, (e.g., Condition-Directed Maintenance Tasks from the Class Maintenance Plan) and any discrepancies. The desired outcome of the assessment process is identification and documentation of required work to maintain adequate material condition. Appendix A provides an outline of the Assessment Process. In addition, this process applies and must be followed for the material evaluation piece of inspections, certifications, and visits (e.g., Board of Inspection and Survey (INSURV), Afloat Training Group, Safety Center, etc.) as defined here:

a.   Assessment: A material assessment is part of the ship's Reliability Centered Maintenance (RCM) plan conducted by Unit personnel or by an external agent (e.g., Command, Control, Communications, Computers and Combat Systems Readiness Assessment (C5RA) and Total Ship Readiness Assessment (TSRA)). Depending on the context, material assessments may be individual "tasks" or "events" that group together numerous individual material assessment tasks for accomplishment during a

period of time in the ship's operational schedule. Discrepancy documentation will be per this chapter.

b.   Certification: A certification is regulatory and is required at some periodicity to authorize operation of equipment or systems (e.g., Flight Deck Certification, Aircraft Launch and Recovery, Magazine Certification). Often, continued certification requires that some material assessments be accomplished or have been accomplished prior to certification. Results of a certification and their distribution will be following the associated certification's instruction.

c.   Inspection: An inspection is an evaluation conducted by an internal or external activity with regards to the performance of equipment, systems, programs or functions to a recognized standard (e.g., Diesel, Boiler, INSURV, 3-M). Depending on the evaluation plan, this may involve judging the material condition of equipment or systems. Results of an inspection and their distribution will be following the associated inspection's instruction. Generally, results of the inspection will be provided to the unit's superior or higher authority.

d.   Visit: A visit is the response to a request to provide technical assistance (e.g., NAVSAFECEN Visit). The technical assistance visit may or may not involve performing a material assessment. Required reports and their distribution from visits will be following the technical representative's organization's standard operating procedures.

e.   Reliability Centered Maintenance: A methodology to develop or revise a maintenance approach with the objective of maintaining the inherent reliability of the system or equipment, recognizing that changes in inherent reliability may be achieved only through design changes.

f.   Common Assessment Procedures: Common assessment procedures are assessments that, to the maximum extent possible, are common across platforms and serve all users for assessments, inspections and certifications. Common assessment procedures are RCM applicable and effective maintenance procedures that can be properly and consistently executed. They deliver accurate assessment and measurement of, determine and document discrepancies to, and specify repairs required to restore satisfactory material condition. Common assessment procedures satisfy the needs of work definition, inspections and certifications in a common document used both across ship classes and by all activities. The two types of commonality invoked are common across functional use and common across platforms with similar systems and equipment.

42.2 APPLICABILITY. This policy applies to all material condition assessments conducted on surface force ships, submarines, aircraft carriers, service craft and afloat or ashore activities under the cognizance of United States Fleet Forces Command and Commander, Pacific Fleet (e.g., Pre-Availability Testing, Point of Entry Testing, Common Assessment Procedures, TSRA, C5RA, Boiler Inspection, Diesel Inspection, etc.). This policy does not apply to the following special categories:

a.   Reactor and Primary support systems under Naval Sea Systems Command 08 cognizance.

b.   Fleet Ballistic Missile systems under the cognizance of Director, Strategic Systems Program.

c.   Naval aircraft and avionics equipment.

d.   Post repair testing (e.g., hydrostatic test, Non-Destructive Testing, etc.).

e.   Operational examinations (e.g., Tactical Readiness Examination, Pre-Overseas Movement certification, etc.).

42.3 OBJECTIVES. The principal objectives are:

a.   Identify and document system or equipment deficiencies.

b.   Improve unit's material readiness at the equipment or systems level.

c.   Identify and define work for upcoming maintenance availabilities.

d.   Standardize how the fleet conducts material assessments.

    (1)   Certifications, inspections and visits tasks must use common assessment procedure standards and criteria in judging material condition.

    (2)   Assessments use standardized detailed procedures to determine material condition.

e.   Identify material assessment training deficiencies and document any deficiencies using a Work Notification (2-Kilo). Conduct over-the-shoulder training for unit personnel.

f.   Identify deficiencies with the Class Maintenance Plan (CMP) and document deficiencies using a Work Notification (2-Kilo).

g.   Identify deficiencies with configuration or configuration data using Maintenance Figure Of Merit (MFOM) or Mission Readiness Assessment System.

42.4 PRINCIPLES. The critical success factors for a single integrated, effective material assessment process are:

a.   Assessment procedures produced using a common assessment procedure development process based on RCM principles as discussed in reference (a).

b.   Assessment procedures standardized to the maximum extent possible and identified in the CMP.

c.   A standardized assessment tool set used to plan, execute and report assessments.

d.   Assessment results recorded in a common shared data warehouse.

e.   Accomplished using a common material assessment process, as defined in paragraph 42.5.2 of this chapter.

f.   Assessment process has an effective method of feedback for periodic reviews and analysis for improvements.

42.5 MATERIAL ASSESSMENT PROCESS.

42.5.1 Discussion. The primary focus of the material assessment process is to coordinate and integrate the various Navy material assessment processes into a single, integrated, effective process designed to evaluate, measure and report individual unit's material condition. This

information will be used to improve fleet readiness, ship design, maintenance and modernization identification, as well as the self-assessment capabilities of fleet units. Activities performing assessments are encouraged to communicate with each other to avoid duplicate work. Additionally, the assessment process will provide data to help determine a unit's ability to reach its expected hull life, measure the effectiveness of the CMP and identify potential crew training deficiencies. (Submarines only) References (b) and (c) are applicable to all performing submarine material and maintainability readiness assessments.

42.5.2 Material Assessments. Units will undergo assessments per the CMP and as scheduled by the TYCOM. Systems and equipment are selected for assessment based upon:

a.   The CMPs.

b.   Ship Class trends.

c.   Unit requests.

d.   Review of the Current Ship's Maintenance Project (CSMP).

e.   Maintenance Team inputs.

f.   Integrated Condition Assessment Systems (ICAS)

g.   Integrated Performance Assessment Reports

h.   Corrosion Control Information Management Systems

i.   Master Assessment Index

42.5.2.1 Submarine TSRA Material Assessments. Reference (b) is applicable to TYCOM managed activities with responsibility to perform submarine material and maintainability readiness assessments. Reference (c) is applicable to Commander, Navy RMC managed activities with responsibility to perform submarine material and maintainability readiness assessments.

42.5.2.2 Surface Force TSRA Material Assessments. TSRA visits are nominally two weeks in duration. However, at the discretion of the TYCOM, TSRA events may be scheduled for more or less than two weeks in order to avoid conflicting with operational schedules. When the TSRA event is scheduled for less than two weeks, the focus of the TSRA will be identification and documentation of systems deficiencies.

42.5.3 Assessment Authorizing. The Platform Program Manager develops the CMP requirements as outlined in reference (d), and provides the requirements to the Platform TYCOM, who develop the assessment work packages and initiate assessments via "go assess work notifications" (GA2-K). Many factors determine what items will be selected for assessment, including the level of risk, funding constraints, ship's availability and ongoing maintenance and modernization. RMCs are tasked by Commander, Naval Sea Systems Command to support surface ships under the cognizance of Commander, Naval Surface Force Atlantic and Commander, Naval Surface Force Pacific to plan and execute TSRAs.

a.   The CMP contains two types of assessment notifications that may influence the agenda:

(1)   Scheduled assessments.

(2)   Unscheduled "As needed" or "pulled assessments" ("Go Assess" maintenance notification). The Go Assess maintenance notification (GA2-K) identifies the equipment and the associated assessment procedure which must be used.

b.   Individual material assessments (not more than five assessment procedures) may be scheduled outside of a scheduled assessment event or availability if they can be planned and coordinated on a not to interfere basis with the unit's combined schedule (operational and maintenance). A larger number of assessments or assessment events require additional planning, integrated scheduling and project management (e.g., C5RA, TSRA, Carrier Material Assessment Team, etc.). In this case, a maintenance availability should be used or added to the ship's schedule. These assessment notifications are screened and brokered to the appropriate executing activity.

c.   All material assessments are scheduled per the CMP and should not be repeated or duplicated by multiple activities. Assessment results must be shared and used by multiple activities.

d.   Surface Force TSRAs will include comprehensive assessments of ship's Hull, Mechanical and Electrical, combat systems, Command, Control, Communications, Computers and Intelligence systems, support equipment and logistics condition per reference (e). TSRAs are tailored material assessment packages scheduled to occur at specific times during a ship's schedule to improve maintenance availability planning, CSMP management, equipment repair, Ship's Force technician proficiency and operational availability. The Master Assessment Index process is used by Surface TYCOM as a risk prioritization model to assist in the development of the TSRA agenda.

42.5.4 <u>Assessment Planning</u>. For scheduled material assessments or events, the Executing Activity identifies a Team Leader and develops the execution plan. The plan contains all of the necessary information required to complete the assigned tasks and should be integrated with the unit's schedule. Conduct assessments using the applicable pieces of the standard assessment tool set. To facilitate planning and scheduling and avoid redundancy, assessments may be consolidated into a material inspection. Deficiencies identified during other major ship inspections and assessments such as C5RAs must be incorporated into the final INSURV inspection report if the assessment was conducted within 60 days of the scheduled material inspection or as negotiated between INSURV and the TYCOM. Although deficiencies generated during the assessment will become part of the final INSURV report, these deficiencies will be annotated as "corrected", where applicable. The TYCOM will document this linked event by message request to INSURV, cognizant RMCs and the affected unit nominally four months prior to the scheduled material inspection. INSURV will evaluate the request and determine the scope and applicability of the linkage.

42.5.5 <u>Assessment Execution</u>.

a.   Work with the unit's personnel to assess, analyze and document the material condition following standard procedures. Maintain good communications with all levels of unit personnel. Train unit personnel in assessment procedures and techniques.

b.   The assessment includes validation of equipment configuration, evaluation of the maintenance periodicity and effectiveness, evaluation of the assessment periodicity.

c.   Documentation of assessment results by the equipment Subject Matter Expert (SME) will include all required data. A maintenance ready work notification (2-Kilo) that is sufficiently defined, contains correct and complete information, provides an accurate diagnosis, and provides an applicable, effective and feasible recommended resolution. A properly validated maintenance ready work notification (2-Kilo) should allow the planning and executing activities the ability to understand the requirement and not to expend additional manpower or time obtaining needed information for any deferred maintenance, and completion of the assessment maintenance notification. All Unclassified Non-Nuclear Naval Propulsion Information or Naval Nuclear Propulsion Information assessment results and data will be handled following current regulations and standing guidance from NAVSEA 08.

d.   During Surface Force TYCOM TSRA assessments, repairs will be accomplished based on priority, availability of parts, Ship's Force support, SME availability or time remaining in the TSRA.

e.   Conduct assessments using the Automated Work Notification software contained in Afloat Toolbox for Maintenance. This software is located in the MFOM Suite. All collected data is stored in the MFOM data warehouse.

f.   Certifications, inspections and visits must document material deficiencies on an Automated Work Notification (2-Kilo) that at a minimum identifies the configuration item and adequately describes the symptoms or conditions that are below standards. For example, the 2-Kilo may identify that a specific component does not function properly and requests assistance to troubleshoot or diagnose system discrepancy. If the deficiency is clearly understood, the assessor is required to record what they know or understand the deficiency to be.

42.5.6   <u>Assessment Reporting</u>.

a.   The Executing Activity conducting the assessment should analyze assessment results and notify the Commanding Officer or his designated representative of any findings that could result in a Casualty Report, underway limiting or Repair Before Operate condition. The System Command (NAVSEA 05, NAVWAR 05 or NAVAIR) must identify material improvement recommendations for new construction, future alterations or further analysis by the technical community.

b.   For Surface Force Ships, RMC must send a Prerequisite and Test Requirements message per reference (e) at least five weeks prior to the start of the event.

c.   For Surface Force Ships, the ship must send a Readiness to Commence message per reference (e) no later than five days prior to the scheduled event.

d.   Report assessment results using the standard assessment tool set:

    (1)   To include whether an assigned assessment procedure was completed, partially completed or not accomplished.

    (2)   To produce a maintenance ready work notifications (2-Kilo) for each discrepancy identified during the assessment. Determine with unit personnel their repair capability or capacity when recommending level of effort, (i.e., Organizational, Intermediate or Depot repair).

e.   To identify Integrated Logistic Support deficiencies and pass to TYCOM or Global Navy Distant Support to research and resolve, reporting any configuration discrepancies.

f.   To provide any procedure discrepancies, validation and periodicity feedback.

g.   To document man-hours and costs.

h.   For Surface Force Ships, RMC must send a TSRA Completion message per reference (e) no later than five business days after TSRA completion.

42.5.7 Standard Assessment Tool Kit. The standard assessment tool kit consists of:

a.   The catalog of approved assessments outlined in the ship's CMP. The procedure should be written in a format appropriate to the activity and experience of the personnel assessing (i.e., Maintenance Requirement Card for Unit personnel, Task Group Instruction for Naval shipyards, standard item for private shipyards, etc.).

b.   If an equipment or system assessment does not exist, one must be developed following the assessment technical guide and identified in the CMP.

c.   All assessments must be planned, executed and reported using the Fleet approved assessment computer application(s) and the results recorded in the Fleet designated data warehouse.

42.5.8 Assessment Personnel.

a.   When assessments are conducted by the unit's personnel, they should be from a rating associated with the equipment being assessed (operationally knowledgeable) and should be experienced in conducting assessments.

b.   Outside activity personnel should be technically knowledgeable in the area they will be assessing and considered SMEs. Additionally, they should be trained on the assessment process, how to document the material condition of the equipment or system and basic RCM principles as discussed in reference (a).

42.6 RESPONSIBILITIES.

42.6.1 Fleet Commander. Fleet Commander must:

a.   Maintain a common material assessment process and policy. Conduct periodic reviews of processes and procedures as recommended by TYCOMs and technical warrant holders.

b.   Be the Fleet's advocate and single point of contact for all material assessment issues to include:

(1)   Policy.

(2)   Training, assessment criteria.

(3)   Procedures.

c.   Provide and support a standard material assessment tool set.

d.   Review the personnel and monetary resources required for the operation, improvement and support of the material assessment process and provide for these requirements in the budget effort.

e.   Establish minimum standards of continuous program improvements for the TYCOMs.

42.6.2 <u>Type Commander</u>. TYCOMs or Immediate Superior In Command must:

a.   Schedule and authorize material assessments.

b.   Define the scope of material assessment.

c.   Provide funding for execution and support when not part of the mission funded executing activities Capabilities Plan.

d.   Conduct periodic reviews of the material assessment process.

e.   Establish standards of effectiveness to ensure continuous program improvement.

f.   Evaluate units ability to self-assess and report training deficiencies to the appropriate activity.

42.6.3 <u>Material Assessment Executing Activity</u>. The Material Assessment Executing Activity must:

a.   For RMC managed assessments, the RMC will send a Prerequisites and Test Requirements Message as directed by the TYCOM. Appendix B provides a sample message template. When requesting SMEs from another RMC for Assessment Events (TSRA, C5RA), the requesting RMC will fund travel and per diem expenses for government and military SMEs. For Surface Force Ships, use reference (e) sample message template and supplemental guidance for all TSRA events.

b.   Conduct unit pre-visit brief in order to affect maximum support for the visit.

c.   Assist the Assessment Team with access to the base and unit.

d.   Review documented system deficiencies. Determine system material condition using established test procedures and unit's input. Unit personnel must be included in this process as a training effort.

e.   Task the Team Leader to provide daily progress reviews to unit assessment event coordinator.

f.   Determine, in concert with Unit personnel, the correct maintenance level (Operational, Intermediate, Depot) to correct deficiencies.

g.   Document man-hours expended and assessment results using the standard assessment tool set and record the results of the "Go Assess" maintenance notification (GA2-K).

h.   Document assessment deficiencies via maintenance notification. Document follow-on repair or technical assist 2-Kilos by always starting the Block 35 narrative with the words "Per Job Control Number (JCN)", where '(JCN)' is the Assessment JCN that generated the repair or technical assist 2-Kilo followed by the characters "XX" (e.g., "Per YYYYYEM01ZA56XX", where "YYYYY" is the ship's Unit Identification Code and "XX" signifies a break between the JCN and the beginning of the 2-Kilo's

text description). This methodology allows maintenance personnel to connect each follow-on repair or technical assist 2-Kilo to its initiating assessment.

i. Establish configuration baseline (sight validation) of selected systems to upgrade logistics support documentation. Initiate configuration changes for direct input into the ship's maintenance management system.

j. Assist unit personnel in repair and groom, as required, and as dictated by time or resource constraints and operational necessity.

k. Assist unit personnel in identifying material requirements to effect repairs.

l. Provide an out brief to the unit's Commanding Officer (or his representative), describing significant findings. Additionally, ensure all maintenance work notifications are loaded into the unit's CSMP and shore files complete and intact.

m. For Surface Force Ships, RMC must send a TSRA Completion message per reference (e) no later than five business days after TSRA completion.

n. Support assessments as requested by the TYCOM.

o. Initiate change recommendations for program improvement.

p. Ensure all assigned personnel are experienced, knowledgeable and qualified as required.

42.6.4 Commanding Officer. Commanding Officers, as directed by the TYCOM, for scheduled assessments should:

a. Prepare for assessments events following this instruction.

b. Designate a senior management representative as the unit's assessment event coordinator.

c. Send, as directed by the TYCOM, a Readiness to Commence assessment message no later than five working days prior to the scheduled start of the assessment event. Appendix C provides a sample message template. Reference (e) provides a sample message template for all TSRA events. Include contact information for the ship's coordinator and key unit personnel.

d. Provide support for assessment team (e.g., ICAS data, access to specific spaces, electrical power and cooling water requirements, man aloft equipment tag-out and Radio Frequency radiation requirements, a secure space, Shipboard Nontactical Automated Data Processing Program or Legacy Organizational Maintenance Management System – Next Generation reports.)

e. Prepare systems or equipment, tag outs, Work Authorization Form, request support services and generate Quality Assurance packages as required.

f. Ensure there are no conflicting evolutions, training, drills, field days, major system overhauls or other events that would detract from the timely and efficient completion of the assessment event that have been planned or scheduled.

g. Reschedule the preventive maintenance requirements that will be accomplished during the assessment event to eliminate redundant accomplishment if the assessment is

scheduled to occur so that no greater than one-half (1/2) of the scheduled periodicity is exceeded.

h.   Host assessment event briefings.

i.   Ensure the 3-M Coordinator, Functional Area Supervisors and the Supply Officer (or representative) are available as needed during the Assessment.

j.   Ensure divisional personnel are assigned to work closely with the Assessment Team SMEs during testing and repair to maximize On the Job Training and awareness of identified equipment problems.

k.   Remove key maintenance personnel from the watch bill during normal working hours in order to improve efficiency of the assessment event.

l.   Correct material discrepancies as time permits.

m.   Send, as directed by the TYCOM, a Quicklook completion message within five working days following the completion of the assessment event. Appendix D provides a sample message template. Additionally, include in the Quicklook report feedback and recommendations to the TYCOM to support continuous improvement of the assessment event process.

NOTE: **INDIVIDUAL MAINTENANCE ASSESSMENTS (NOT MORE THAN FIVE ASSESSMENT PROCEDURES) MAY BE SCHEDULED OUTSIDE OF A SCHEDULED ASSESSMENT EVENT OR AVAILABILITY. HOWEVER, THEY STILL NEED TO BE COORDINATED WITH THE SHIP'S SCHEDULE AND SHOULD NOT INTERFERE WITH OPERATIONAL REQUIREMENTS.**

APPENDIX A

ASSESSMENT PROCESS

1. <u>Assessment Background, Scope, and Organizational Responsibilities</u>.

   a.   The Fleet Material Assessment Process provides comprehensive testing of equipment or system(s) to determine their current state of material readiness. The resultant data assists maintenance efforts to attain a high state of overall material readiness.

   b.   This document provides supplemental information to assist in the execution of a material condition assessment. This material assessment process does supersede or supplant other instructions or notices covering material assessment.

   c.   An SME may elect to conduct a material assessment procedure for the purposes of troubleshooting equipment or system(s) as part of a Fleet Technical Assistance.

   d.   Job Sequence Numbers will be assigned per Appendix E.

   e.   Only material assessment procedures currently identified in the CMP must be used. If a material assessment is not in the CMP, the executing activity must process a Departure From Specification through the appropriate TYCOM and technical authority before it can be scheduled and performed.

   f.   A material assessment is part of the ship's RCM plan conducted by Unit personnel or by an external agent (e.g., C5RA or TSRA). Depending on the context, material assessments may be individual "tasks" or "events" that group together numerous individual material assessment tasks for accomplishment during a period of time in the ship's operational schedule.

2. <u>Individual Material Assessment</u>.

   a.   Scheduling and Preparing for an Individual Material Assessment.

      (1)   The term "Unit" applies to Ship's Force and shore personnel being assessed.

      (2)   Due to the simple nature of this type of assessment, requests will normally be accomplished through a Go Assess Maintenance Notification (GA2-K). The assessment may be requested by a unit's TYCOM, unit's Immediate Superior in Command (ISIC), Maintenance Team or by the unit itself.

      (3)   Once the assessment is scheduled, the SME assigned should ensure there will be proper support for performing the material assessment (e.g., tag-out, equipment operation, initial system conditions, material history, properly calibrated test equipment).

      (4)   If an assessment was scheduled more than two weeks in advance, the SME should make a courtesy phone call or send an e-mail message as appropriate to ensure schedule changes have not occurred.

   b.   Conducting the Individual Material Assessment.

      (1)   Each Individual Material Assessment will have an in brief with the Commanding Officer or his designee. The in brief will include an agenda of the assessment, what procedures will be used to assess the equipment or

system(s) and unit specific safety policies. Daily briefs will occur, as appropriate.

(2)   Upon the completion of the in brief, the SME(s) will team with the unit's point of contact to begin the assessment. Benefits of this teaming arrangement include training of personnel and meeting all safety requirements. Training is part of the material assessment and unit personnel should be present during the assessment.

(3)   In the event the assessment discloses significant equipment or system failure(s) that prevents completion of the assessment, the SME must notify the Commanding Officer or his designee and coordinate repairs if appropriate.

c.   Completing the Individual Material Assessment.

(1)   All material discrepancies will be documented on a maintenance notification (2-Kilo) and uploaded to the CSMP. The goal is to provide an uploadable file (bulkload) of all final discrepancies upon completion of the assessment but no later than five working days.

(2)   The SME must provide the Commanding Officer or his designee with an out brief. If requested by the unit, a formal final report of the assessment will be provided no more than 30 days after the conclusion of the individual assessment.

3. Assessment Availabilities.

a.   Five or more concurrently scheduled assessments require additional planning, integrated scheduling and project management.

b.   Preparing the assessment.

(1)   The size and complexity of an assessment availability generally requires that it be scheduled as part of a maintenance availability or an individual event. All material discrepancies will be documented on a maintenance notification (2-Kilo) and uploaded to the CSMP. The goal is to provide an uploadable file (bulkload) of all final discrepancies upon completion of the assessment but no later than five working days.

(2)   The unit should prepare and release the Readiness to Commence message no later than five working days prior to commencement of the assessment, if required by the TYCOM. Appendix C provides a sample format.

(3)   The person designated to manage the Assessment Availability is referred to as the Team Leader or Assessment Director and his duties are:

(a)   Prepare and release the Prerequisites and Test Requirements message four weeks prior to the start of the assessment. Appendix B provides a sample format.

(b)   Arrange for adequate workspace and computer or network support.

(c)   Ensure all members of the team are on the unit's access list.

      (d)   Work with the unit's maintenance team to ensure that the maximum benefit may be realized for the scheduled material assessments.

   (4)   Extend an invitation to the material assessment out brief to the appropriate TYCOM or ISIC and maintenance team.

c.   Conducting the Assessment.

   (1)   The Team Leader or Assessment Director will:

      (a)   Perform the task listed in paragraph 2.a.(2) of this appendix.

      (b)   Conduct an in brief to ensure all assessment team members and unit personnel are given the latest guidance for the event.

      (c)   Verify the Standard Assessment tool kit is operational, that the proper configuration data is loaded and that the unit has provided the necessary computer network access (i.e., logins, passwords, accounts, etc.).

      (d)   Distribute appropriate technical documentation to conduct the assessment.

      (e)   Liaison daily or as required with the assessment team members to check on progress with their portion of the assessment.

      (f)   Conduct a daily brief of progress and report significant problem status with the Commanding Officer or designated staff.

d.   Completing the Assessment.

   (1)   The Team Leader or Assessment Director will:

      (a)   Specify the time for final submission of assessment results.

      (b)   Provide major findings that pose a threat to personnel safety or equipment (e.g., inoperative alarms or safety devices; readings exceeding the limits of the assessment that are deemed unsafe or excessive fuel or oil leaks).

      (c)   Provide minor findings which are defined as any finding not considered to be a major finding and poses no threat to personnel.

      (d)   Findings for material history which do not impact on equipment system operation.

      (e)   Any repairs performed.

      (f)   Any over-the-shoulder training in support of conducting the assessment.

   (2)   The out brief will include:

      (a)   Report major discrepancies.

      (b)   Report the system(s) or equipment for which testing was not attempted, testing not completed and configuration changes were needed.

(c)   Results of logistics discrepancies.

(d)   Discrepancies assigned for follow-on technical assistance.

(3)   Provide the ship with the draft Quicklook message within five working days of the completion of the assessment. A Quicklook message sample outline is provided as Appendix C.

(4)   All material discrepancies will be documented on a maintenance notification (2-Kilo) and uploaded to the CSMP. The goal is to provide an uploadable file (bulkload) of all final discrepancies upon completion of the assessment but no later than five working days.

(5)   The Team Leader must provide the Commanding Officer or his designee with an out brief. If requested by the unit, a formal final report of the assessment will be provided no more than 30 days after the conclusion of the individual assessment.

(6)   When requested, provide special report(s) or brief(s) to the TYCOM, ISIC, maintenance team or designated representative(s) to facilitate repair of specific deficiencies.

APPENDIX B

PREREQUISITES AND TEST REQUIREMENTS MESSAGE (EXAMPLE)

FM (RMC)
TO USS (SHIP/SUB/CARRIER)
(ISIC)
(ADDITIONAL ADDRESSEES AS APPROPRIATE)
INFO (APPROPRIATE TO SHIP/SUB/CARRIER)
(ADDITIONAL ADDRESSEES AS APPROPRIATE)
(TYCOMS ADDRESSEES AS APPROPRIATE)
BT
MSGID/GENADMIN/(RMC)//
SUBJ/ASSESSMENT TASKING FOR USS (SHIP/SUB/CARRIER)//
REF/A/RMG/(ASSESSMENT)/(REFERENCE)//
REF/B/DOC/ASSESSMENT GUIDEBOOK/(DATE)//
REF/C/DOC/(TEST PLAN PROVIDER IF APPLICABLE)/(DATE)//
REF/D/CON/(SCHEDULING AUTHORITY)/(DATE)//
NARR/REF A IS (ASSESSMENT REFERENCE). REF B IS ASSESSMENT GUIDEBOOK.
REF C IS SHIP'S TEST PACKAGE, IF APPLICABLE, FOR USS (SHIP/SUB/CARRIER).
REF D IS (SCHEDULING AUTHORITY).//
POC/(LIST INFO AS APPROPRIATE)//
RMKS/1. IAW REFS A THRU D, ASSESSMENT WILL BE CONDUCTED ONBOARD USS
(SHIP/SUB/CARRIER) STARTDATE-ENDDATE YYYY.
2. ASSESSMENT WILL PROVIDE THE FOLLOWING:
    A.   READINESS ASSESSMENT OF SYSTEMS MATERIAL CONDITION.
    B.   OVER-THE-SHOULDER MAINTENANCE TRAINING FOR SHIPBOARD
PERSONNEL AS THEY PERFORM REQUIRED MAINTENANCE/CORRECTIVE ACTION.
    C.   ENTRY OF MAINTENANCE READY 2-KILOS INTO THE CSMP AND A CSMP
VALIDATION FOR SYSTEMS ASSESSED.
    D.   (IF APPLICABLE) ASSESSMENT OF SHIP'S ELECTROMAGNETIC
COMPATIBILITY POSTURE.
    E.   (IF APPLICABLE) CONFIGURATION REVIEW OF COSAL/SNAP DATABASE
AND INVENTORY OF TECHNICAL MANUALS FOR SYSTEMS/EQUIPMENT
(ELECTRONICS ORDNANCE) BEING ASSESSED.
    F.   (IF APPLICABLE) A SMALL ARMS READINESS REVIEW (SARR) IS OPTIONAL
AND WILL BE CONDUCTED ONLY IF REQUESTED BY THE SHIP. THE SARR WILL
HELP SHIP'S FORCE TO IDENTIFY POTENTIAL PROBLEM AREAS AND ENSURE
QUALITY SMALL ARMS ARE ONBOARD FOR DEPLOYMENT.
3. BRIEFS AND CLEARANCE DATA:
    A.   PRE-BRIEF WILL BE CONDUCTED TO DISCUSS GUIDELINES, ESTABLISH
REQUIRED SUPPORT, DISCUSS ANY TEST PLAN ISSUES AND REVIEW POSSIBLE
CONFLICTING EVOLUTIONS. RECOMMEND ATTENDANCE BY CO, XO, DEPT
HEADS, PRINCIPAL ASSISTANTS AND 3-M COORDINATOR.
    B.   RECOMMEND KICK-OFF BRIEF BE HELD ON THE FIRST MORNING OF
THE EVENT.

C.   ASSESSMENT DIRECTOR WILL PROVIDE DAILY PROGRESS UPDATES TO CO OR DESIGNATED REP.

D.   AN OUTBRIEF WILL BE CONDUCTED AT THE CONCLUSION OF THE EVENT.

E.   CLEARANCE DATA WILL BE PROVIDED BY SEPCOR.

4. USS (SHIP/SUB/CARRIER):

A.   (IF APPLICABLE) RMC LOG REP WILL CONTACT SHIP FOR LOG DATA REQUIREMENTS PRIOR TO START OF ASSESSMENT.

B.   TRAINING IN MAINTENANCE PROCEDURES AND PRACTICAL APPLICATION OF ONBOARD TEST EQUIPMENT AND TOOLS FOR INSTALLED SYSTEMS IS CONDUCTED. (IF APPROPRIATE) FOR MAXIMUM BENEFIT, REQ ALL TECHS, SUPPLY SUPPORT PERSONNEL AND 3-M COORDINATOR BE AVAILABLE FOR DURATION OF EVENT.

C.   (IF APPLICABLE) TO FACILITATE CRYPTO VOICE/DATA CKT TESTING, REQ LOAD ALL APPLICABLE CRYPTO PRIOR TO EVENT START.

D.   (IF APPLICABLE) DUE TO LARGE NUMBER OF PERSONNEL BOARDING EACH DAY, REQ PROCESS BE ESTABLISHED TO EXPEDITE BOARDING ACCESS.

E.   THIS ASSESSMENT IS NOT AN INSPECTION AND NO PRE-EVENT TESTING IS REQUIRED. CONTINUE NORMAL PMS SCHEDULE.

F.   IAW REF B, REQ TRANSMIT "READINESS TO COMMENCE" MESSAGE NLT ONE WEEK PRIOR TO START OF THE EVENT.

G.   (IF APPLICABLE) RMC 2-M FLEET COORDINATOR WILL REVIEW SHIP'S 2-M PROGRAM. REQ SHIP'S 2-M COORDINATOR PROVIDE MODULE TEST AND REPAIR TRACKING SYSTEM (MTRTS) DATA FOR THE LAST TWO QTRS.

H.   REQ ADVISE EARLIEST OF ANY SCHEDULE EVOLUTIONS WHICH COULD IMPACT THE CONDUCT OF THIS EVENT.

5. (ISIC): REQ ADVISE ALCON NAME AND TELEPHONE NUMBER OF STAFF MEMBER DESIGNATED AS ISIC REP.

6. REQ ALL SUPPORT ACTIVITIES ADVISE ALCON NAME/CLNC LEVEL OF REP(S) PROVIDING SUPPORT.
(LIST AS APPLICABLE TO THE ASSESSMENT)

7. REQ ALL TEAM MEMBERS REPORT ONBOARD NLT (TIME), DD MMM YY TO MEET WITH THE ASSESSMENT DIRECTOR (AND AS APPROPRIATE) TO OBTAIN TEST PLANS AND CONTROL SHEETS.

8. FOR FURTHER INFO CONTACT (LIST POC E-MAIL ADDRESS). (RMC) STANDS READY TO SUPPORT ALL FLEET UNITS 24/7 THROUGH THE COMMAND DUTY OFFICER: COMM (###) ###-####, DSN ###-####, UNCLASSIFIED E-MAIL (INSERT ADDRESS), CLASSIFIED E-MAIL (INSERT ADDRESS), AND BATTLE-CHAT SERVER (INSERT ADDRESS).//
BT

NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS UTILIZED.

APPENDIX C

READINESS TO COMMENCE MESSAGE (EXAMPLE)

FM USS (XXX)
TO (ISIC)
INFO (AS APPROPRIATE TO ACTIVITY)
BT
UNCLAS
MSGID/GENADMIN/USS XXX/-/OCT//
SUBJ/READINESS TO COMMENCE (ASSESSMENT)//
REF/A/DOC/TYCOM/YMD:2003XXXX//
AMPN/XXX INSTRUCTION 9093.1J PROVIDED INSTRUCTIONS TO CONDUCT XXX//
POC/XXX/LCDR/CMD/LOC:NORFOLK VA/TEL:XXX-XXX-XXXX//
RMKS/FOLLOWING IS SUBMITTED IAW REF A:
1. XXX ASSESSMENT SCHEDULED FOR: XXOCTOBERXX THRU XXOCTOBERXX.
2. ASSESSMENT TEST PLAN NEGOTIATED DURING PRE-BRIEF ON XXOCTXX.
COMMAND PREPARED TO SUPPORT ASSESSMENT EXCEPT FOR THE FOLLOWING
CONFLICTING EVOLUTIONS:
XXX INSPECTION XX-XX OCT XX
FORCE PROTECTION/DIET DRILLS WITH DUTY SECTIONS-DAILY
ALL HANDS TRAINING CONDUCTED WEEKLY.
3. TEST EQUIPMENT: FOLLOWING TEST EQUIPMENT AT CAL OR REPAIR
FACILITY. TEST EQUIPMENT SCHEDULED TO BE TURNED IN TO RMC
PRODUCTION DEPT FOR CAL DURING WEEK OF XXOCTXX. EDD BASED ON
SHOP LOADING:
(LIST ALL APPLICABLE EQUIPMENT)
4. PERSONNEL SHORTAGES/CRITICAL NEC
RATE NEC NMP ONBRD REMARKS
(LIST APPLICABLE BILLETS)
5. THE FOLLOWING SYSTEMS HAVE HAD MAJOR AITS/UPGRADES WITHIN
LAST 90 DAYS:
SYSTEM TYPE OF WORK DATE COMPLETED
(LIST ALL APPLICABLE EQUIPMENT)
6. THE STATUS OF THE FOLLOWING:
   A. CURRENT ASI TAPES LOADED-823.
   B. CURRENT CRYPTO LOADED DAILY AT 0001Z.
   C. CURRENT SOFTWARE TAPES AVAILABLE IN ADP AND CS OFFICE.
   D. MESSAGES TO SUPPORT RADAR RADIATION, SONAR AND COMMS
TRANSMISSIONS ARE IN PROGRESS. WILL COORDINATE WITH ASSESSMENT
TEAM TO DETERMINE ACTUAL RADIATION REQUIREMENTS.
   E. KEYS FOR ORDNANCE ARE AVAILABLE.
   F. TEST EQUIPMENT (253) AND GAUGES (112) ARE IN CALIBRATION;
WEIGHT TESTS AND CERTIFICATIONS ARE UP TO DATE FOR ORDINANCE
HANDLING EQUIPMENT, STAR GAUGES, ETC.
   G. ULM-4 COMPLETED ON 10SEP07.
   H. TACAN HAS BEEN FAA CERTIFIED.

  I. OCSOT COMPLETED ON 30SEP07.
7. LIST OF WORK CENTER 1ST/2ND POCS FOR SYSTEMS WILL BE
PROVIDED AT 0900 IN-BRIEF ON 22OCT07 ON BOARD IWO JIMA.
8. UNCLAS NETWORK ACCESS AND OUTSIDE PHONE LINE WILL BE
PROVIDED IN CSMC.
9. ALL PRE-ASSESSMENT PMS CHECKS HAVE BEEN COMPLETED.
10. USS XXX IS READY TO COMMENCE ASSESSMENT ON XXOCTOBERXX.//
BT

**NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
    AND CURRENT PLAD IS UTILIZED.**

APPENDIX D

COMPLETION QUICKLOOK MESSAGE (EXAMPLE)

FM (ASSESSMENT ACTIVITY OR USS)
TO (ISIC)
INFO (AS APPROPRIATE TO THE ACTIVITY)
BT
MSGID/GENADMIN/ASSESSMENT ACTIVITY OR USS/-/MAR//
SUBJ/QUICKLOOK REPORT FOR USS XXX MATERIAL INSPECTION (MI)//
REF/A/MSG/ASSESSMENT ACTIVITY/161402ZXXX04//
AMPN/REF A DOCUMENTS//
RMKS/1. AN ASSESSMENT WAS CONDUCTED ON USS XXX AT NAS NORTH
ISLAND, CA DURING THE PERIOD XX-XX MAR 200X. CERTAIN DEFICIENCIES
EXIST WHICH DEAL WITH THE XXX DEPARTMENT. THESE DEFICIENCIES ARE
NOTED IN REF A.
2. SENIOR MEMBER COMMENTS:
   A. THE SHIP WAS CLEAN AND WELL PREPARED FOR THE INSPECTION.
   B. THE SHIP REPORTED A HISTORY OF XXX(SYSTEM AND DISCREPANCY).
   C. THE RELIABILITY OF THE XXX SYSTEM IS SUSPECT. DURING THE COURSE
OF THE INSPECTION, XXX WERE INOP DUE TO A NUMBER OF MATERIAL
DEFICIENCIES AND XXX WERE INOP DURING THE DTE. THE SHIP HAS A
MATERIAL HISTORY FILE THAT INDICATES A RECORD OF POOR RELIABILITY
WITH XX CASUALTIES, INCLUDING XX CASREPS, DOCUMENTED OVER A PERIOD
OF XXX DAYS. MANY OF THE CASREPS ARE RELATED TO PARTS NOT IN STOCK
OR NOT CARRIED.
   D. THE CONDITION OF THE DISTRIBUTED ELECTRICAL SYSTEM OUTSIDE OF
THE XXX SPACES IS OF CONCERN. NUMEROUS UNLABELED/MISLABELED
CIRCUITS, OVERSIZED/UNDERSIZED PROTECTIVE DEVICES, AND OTHER SAFETY
DEFICIENCIES WERE NOTED.
   E. TOPSIDE CORROSION, ESPECIALLY ALONG THE CATWALKS AND UNDER
SPONSONS, WAS NOTED. THE SERIOUSLY DETERIORATED MAIN SPACE INTAKE
PLENUMS SHOULD BE ADDRESSED IMMEDIATELY.
   F. THE SHIP HAS NEVER HAD A COMPLETE OIL POLLUTION ABATEMENT
SYSTEM (SPECIFICALLY AN OILY WATER SEPARATOR AND OIL CONTENT
MONITOR) INSTALLED AND CONSEQUENTLY CANNOT COMPLY WITH EXISTING
ENVIRONMENTAL PROTECTION LAWS. THE SHIP HAS ROUTINELY USED SPACE
EDUCTORS TO REMOVE BILGE WATER WHILE AT SEA.
   G. MINIMUM ACCEPTABLE EQUIPMENT FOR UNDERWAY OPERATIONS WAS
ACHIEVED AT 1100 ON DAY TWO OF INSPECTION.
   H. THE SHIP'S SELF-ASSESSMENT CAPABILITY WAS EVALUATED AS
SATISFACTORY.
      I. THE SHIP'S ABILITY TO RESOLVE SIGNIFICANT MATERIAL ISSUES
DURING THE INSPECTION WAS EVALUATED AS SATISFACTORY.
3. THE FOLLOWING CASREPS WERE ACTIVE PRIOR TO THE MI:
NUMBER   NOMENCLATURE   CATEGORY
04XXX   XXXX   2

04XXX   XXXX   2
04XXX   XXXX   2

4. DEMONSTRATION RESULTS: SAT (0.80 - 1.00)/DEGRADED (0.60 - 0.79)/UNSAT (0.00 - 0.59):

- THE SELF-DEFENSE DTE WAS UNSAT (SCORE: 0.58) BECAUSE OF REDUCED DETECTION RANGES ON THE XXX SYSTEM, 3 OF 6 XXX WERE INOP OR DEGRADED, AND XXX FAILED TO CYCLE ROUNDS.
- THE XXX DEMONSTRATION WAS SAT (SCORE: 0.80).
- THE FULL POWER DEMONSTRATION WAS SAT (SCORE: 0.91). SEE REF A.
- THE QUICK REVERSAL AHEAD WAS SAT (SCORE: 0.98).
- THE QUICK REVERSAL ASTERN WAS UNSAT (SCORE: 0.50). SEE REF A.
- THE STEERING DEMONSTRATION WAS DEGRADED (SCORE: 0.63) BECAUSE THE RUDDER SWING RATES WERE OUT-OF-SPEC SLOW AND IMBALANCED.
- THE ANCHOR DROP DEMONSTRATION WAS SAT (SCORE: 0.89).

5. SIGNIFICANT MATERIAL DEFICIENCIES AND EQUIPMENT OPERATIONAL CAPABILITY (EOC) INCLUDE:

   A. PROPULSION: 0.88. REF A DOCUMENTS DEFICIENCIES AND OBSERVATIONS NOTED IN THE XXX DEPARTMENT.

   B. AUXILIARIES: 0.74.
- THE XXX WAS EXCESSIVELY WORN.
- 5 OF 8 XXX INDICATORS WERE INOP (CORRECTED).
- 10 OF 10 XXX HAD INOP OR OUT-OF-SPEC SAFETY SWITCHES (5 CORRECTED).
- 5 OF 5 XXX WERE INOP (3 CORRECTED).
- 17 OF 23 XXX HAD SIGNIFICANT DEFICIENCIES OR WERE INOP (13 CORRECTED).
- THE ACCOM LADDER UPPER PLATFORM WAS MISSING A THIRD LIFELINE.

   C. COMBAT SYSTEMS: 0.83.
- 5 OF 6 XXX WERE INOP (2 CORRECTED).
- 2 OF 10 XXX WERE UNSAFE TO OPERATE (CORRECTED).
- 8 OF 10 XXX WERE UNSAFE TO OPERATE (CORRECTED).
- 25 OF 25 XXXX DID NOT HAVE REQUIRED FLOATATION AND HOLSTER SAFETY MODIFICATIONS INSTALLED.
- THE XXX WARNING BELL WAS INOP (CORRECTED).
- THE XXX WAS INOP (CORRECTED).
- THE CONDITION OF ELECTRONIC MATTING IN MANY XXX SPACES WAS NOT INSTALLED IAW NSTM CH 634 AND COVERED SIGNIFICANTLY CORRODED DECKS.
- THERE WERE SEVERAL SIGNIFICANT TOPSIDE AND MAST INSPECTION DISCREPANCIES INCLUDING VARIOUS CORRODED FERROUS FASTENERS AND ASSOCIATED HARDWARE, MISSING OR IMPROPERLY INSTALLED CLIMBER SAFETY RAIL PINS, AND MISSING ANTENNA SAFETY CUTOUT SWITCH RF HAZARD LABELS.
- THE CLIMBER SAFETY RAILS LOCATED ON THE XXX, NAVIGATION POLE, AND FANTAIL WERE NOT INSTALLED IAW THE NAVSEA STANDARD DRAWING.
- THE XXX WATER CIRCULATING PUMP WAS INOP (CORRECTED).

   D. QUALITY OF SHIPBOARD LIFE: 0.83.
- THE FLAG PANTRY GARBAGE DISPOSAL HAD EXPOSED ELECTRICAL WIRES IN THE CABINET BENEATH THE SINK (CORRECTED).

PAGE 08 RUCOMFB8675 UNCLAS.
- THERE WERE NO DEEP FAT FRYER EMERGENCY DISCONNECT SWITCHES
INSTALLED IN 5 OF 7 GALLEYS/PANTRIES.
- 17 OF 44 NEWLY INSTALLED GAYLORD HOOD FAIL-SAFE SWITCHES WERE INOP
(CORRECTED).
   E.   NAVOSH: 0.84.
- 38 OF 41 XXX SAFETY NETS HAD DISCREPANCIES.
- IMMUNIZATION SUPPLIES WERE NOT STORED IN A BIOLOGICAL REFRIGERATOR
THAT HAD HIGH/LOW TEMPERATURE AND LOSS OF POWER ALARMS INSTALLED
(CORRECTED).
- 1 OF 5 BIOLOGICAL REFRIGERATORS WAS INOP.
- THE XXX CALL BUTTON SYSTEM AND XXX HEADS WAS INOP.
- 1 OF 3 MEDICAL/DENTAL STERILIZERS WAS INOP (CORRECTED).
6. VADM XXX, (CMD), RADM XXX, (CMD), AND RADM XXX, (CMD), WERE
PRESENT FOR THE INSPECTION. CAPT XXX WAS THE SENIOR INSPECTOR.
7. PRESIDENT, BOARD OF INSPECTION AND SURVEY, CONCURS WITH THE
FINDINGS.//
BT

**NOTE: ENSURE MESSAGES ARE FOLLOWING CURRENT MESSAGE FORMAT
         AND CURRENT PLAD IS UTILIZED.**

APPENDIX E

JOB ORIGINATOR IDENTIFICATION TABLE

Code	Short Description
A	HM&E RA (SUB/AIR)
B	C5RA (AIR) - Local TYCOM
C	C5RA (National)
D	C5RA (AIR) - Local TYCOM
G	RMC Inputs (AIR) - Local TYCOM
H	RMC Inputs (AIR) - Local TYCOM
J	ICAS (National)
K	C5RA (SURF) - Local TYCOM
P	PMT OSAR (SUB) - Local TYCOM
Q	Created by RMAIS (National)
R	INSURV (National)
S	Sail Deficiencies (SUB) - Local TYCOM
W	Class Maintenance Plans (AIR, SUB, SURFACE)
X	Class Maintenance Plans (AIR, SUB)
Y	MST (SURF) Class Maintenance Plans (AIR) - Local TYCOM
Z	MST (SURF), CMP (National) - Z-alpha (National), Z-numeric (MST)

References to "National" values indicate that, per SHIPMAIN direction, an Information Technology product has been identified as the only authorized tool that will create 4790-2-Kilos containing the respective Job Originator code.

VOLUME VI

CHAPTER 43

**GUIDANCE FOR ENHANCED MODERNIZATION AND ALTERATION
INSTALLATION TEAM INTEGRATION DURING AVAILABILITIES**

REFERENCES.

    (a)   NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and
Operations Manual

43.1 CONCEPT.

    a.   Scope. This policy applies to all modernization work (Ship's Force, shipyard,
Intermediate Maintenance Activity and Alteration Installation Team) conducted
during all types of Availabilities (Chief of Naval Operations, Continuous Maintenance
Availability, Fleet Maintenance Availability, etc.) on all platforms. This chapter
compliments the support policy of the Fleet Modernization Program as described in
Chapter 3 and Chapter 36 of this volume.

    b.   Overview. Ship availability duration must be limited to only that required to
accomplish planned repairs and alterations. Unnecessary time in depot maintenance
periods reduces the time when ships are operationally available to support the Fleet
Response Plan. Accordingly, scheduling of production and test activity for all work
must be optimized to keep availability schedule duration to a minimum. The key to
duration optimization is rigorous, inclusive and detailed integrated planning, which
encompasses all anticipated work into a balanced schedule. Once an integrated and
executable schedule is established and agreed to by all participating activities, the
Naval Supervisory Authority (NSA) must be responsible and have the authority to
manage the execution of the modernization through its completion.

    c.   This chapter provides planning and execution requirements for all modernization
activities participating in an availability. Disconnected or diffused planning and
execution creates local delays and disruption to the overall availability effort, creates
additional coordination challenges for NSAs and Ship's Force, and results in excessive
availability durations and higher secondary costs.

    d.   Essential to establishing an integrated and executable schedule is a stable and properly
funded repair and modernization work package. Type Commanders and Program
Managers must structure, plan and program repairs and installations with an
understanding that they will be executed not in isolation, but as part of a larger,
integrated effort with competing constraints and requirements. Accordingly, repair
candidates and alterations not authorized at the Work Package Integration Conference
(WPIC) will not be included in the integrated schedule, and will only be authorized
after the WPIC when the NSA has advised the customer of the cost and schedule
impact associated with a proposed late work addition.

NOTE: **FOR SURFACE FORCE SHIPS SUSTAINMENT, TYPE 1 AND 2
ALTERATIONS (TERMED "INTERNAL EQUIPMENT ALTERATIONS")**

MAY BE INCORPORATED INTO THE PACKAGE UP TO THE 100 PERCENT LOCK.

43.2 <u>AVAILABILITY PLANNING BUSINESS RULES</u>.

a.   The NSA or Lead Maintenance Activity (LMA) has overall responsibility for the availability and possesses the authority to organize, structure and coordinate availability execution matters. All other participants must support the NSA or LMA in this regard. Accordingly, it is paramount that the NSA or LMA balance the needs of all participants and customers in the availability.

b.   All participating activities must provide all availability requirements (specifications, Automated Work Requests, major Planned Maintenance System and Ship's Force projects, approved installation drawings, schedule needs, system and compartment release dates, industrial support requirements, etc.) to the NSA or LMA as specified by other applicable milestones in this manual. Technical Points of Contact (TPOC) for each repair or installation activity must also be provided to the NSA or LMA to assist with integrated planning questions. These TPOCs must also be present during the execution of the availability and have authority to represent their organization's interest in matters relating to their repair or installation. For Aegis ships, all Combat System upgrade packages must be assembled, scheduled and integrated by the Aegis Combat System Project Engineer and submitted to the NSA or LMA as a package via the SEA21 Hull Manager.

   (1)   Alteration Installation Teams must provide requirements per reference (a).

   (2)   The LMA must develop an inclusive, detailed, integrated and resource-loaded schedule of all participating activities. All participants must meet and review the proposed plan and make necessary adjustments to render a balanced and optimized integrated schedule. This formal schedule review must occur after the WPIC, but no later than the Work Package Execution Review. The NSA or LMA must serve as the final arbiter of conflicts. By the Work Package Execution Review, all integrated schedule conflicts must be resolved by the NSA or LMA.

   (3)   The LMA must be specifically tasked to accomplish integrated availability planning and execution. For Regional Maintenance Centers, the following related set of specifications achieving end-to-end integration must be invoked in the availability Contract Line Item Number at a lead-time commensurate with the complexity of the work package:

      (a)   "Availability Program Management Alteration Installation Team Integration" Standard Work Template 897-04 (Appendix ___).

      (b)   Combat Systems Light-off or AEGIS Light-off Compartment Release Schedule, SWT 813-01 (Appendix ___), as applicable.

      (c)   Propulsion Plant Light-off Assessment Standard Item(s), as applicable.

      (d)   Aegis Light-off NAVSEA Standard Item(s), as applicable.

**NOTE: TASKING MUST ENSURE THE NSA OR LMA CAN PROVIDE INITIAL
"SCHEDULE CONFLICT AWARENESS" AT THE WPIC.**

    c.   Costs for this integration effort must be prorated amongst the participating customers using existing, standardized proration conventions.

43.3 AVAILABILITY EXECUTION BUSINESS RULES.

    a.   During availability execution, the LMA must manage and coordinate the project and recommend resolutions to conflicting issues. The NSA will exercise final arbiter for conflict resolution.

    b.   The LMA must host weekly production progress and work review meetings. All activity participants must ensure their TPOC is present to assist in coordination and conflict resolution.

    c.   LMAs also conduct daily production coordination meetings. It is recommended that all activity participants and TPOCs attend these on an as-needed basis to assist (in real-time) with coordination and conflict resolution.

    d.   In all availability meetings, communications and forums, a forward-looking, anticipatory focus should be applied by all parties to intercept potential problems and resolve them as soon as possible and with least cost and schedule impact.