

JOINT FLEET MAINTENANCE MANUAL**VOLUME VI****MAINTENANCE PROGRAMS****LIST OF EFFECTIVE PAGES**

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FROM: ACTIVITY/SHIP _____	E-MAIL ADDRESS _____
CODE/DEPT/SHOP _____	DATE _____
ORIGINATOR _____	TEL EXT () _____
VOL-PART-PARA NO. _____	FIGURE _____ TABLE _____
PROCESSING NORMAL _____ URGENT* _____	
* (Justify in rationale below if urgent is marked and transmit via e-mail as "High Importance")	
PROBLEM DESCRIPTION:	
RECOMMENDED CHANGE: (Include any proposed text addition/deletion)	
RATIONALE:	

E-mail to PTNH.SUBMEPP.JFMMMGR@Navy.Mil

(If mailing, fold on dotted line on reverse side and mail to Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity **or** send facsimile to (207) 438-6210.)

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Commanding Officer

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P.O. Box 2500
Portsmouth Naval Shipyard
Portsmouth, NH 03804-2500

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2-Kilo	3-M Maintenance Action Form
2M	Miniature/Microminiature
3-M	Maintenance and Material Management
3-MC	Maintenance and Material Management Coordinator
3-MPR	3-M Performance Rate
A&I	Alteration and Improvement
ACAT	Acquisition Category
ACCCIT	Aircraft Carrier Climate Control Investigating Team
ACF	Accomplishment Confidence Factor
ACN	Advance Change Notice
ACO	Administering Contracting Officer
ADP	Automated Data Processing
AEL	Allowance Equipage List
AER	Alteration Equivalent to Repair
AERP	Advanced Equipment Repair Program
AF	Advance Funding
AFOM	Alteration Figure of Merit
AIMD	Aviation Intermediate Maintenance Department
AIS	Automated Information Systems
AIT	Alteration Installation Team
Ao	Operational Availability
AOR	Area of Responsibility
AP	Advance Planning
APL	Allowance Parts List
APPN/PE	Appropriation/Preliminary Engineering
ARRS	Analysis, Records and Reports Section
ASDS	Advanced SEAL Delivery System
ASI	Automated Shore Interface
ASTM	American Society for Testing and Materials
ATE	Automated Test Equipment
AWP	Availability Work Package
AWR	Automated Work Request
AWS	Attack Weapons Systems
BAF	Business Adjustment Factor
BART	Beartrap Acoustic Radiated Trials
BCA	Business Case Analysis
BCE	Battery Charging Electrician
BCEF	Battery Charging Electrician Forward
BER	Beyond Economical Repair
BRB	Battery Record Book
BSC	Balanced Score Card
C5RA	Combat Systems, Command, Control, Communications and Computer Readiness Review
CAL STD	Calibration Standard
CAQAP	Contract Administration Quality Assurance Program
CAR	Corrective Action Request
CAS	Contract Administration Services
CASCAN	CASREP Cancellation or Cancellation of Casualty Report

<p>CASCOR CASREP CBA CCT CD-ROM CEIPRP CFFC CFOSS CFT CHENG CLASSRON CM CMAV CMF CMO CMP CNO COMFLTFORCOM COMLANTFLT COMLOGWESTPAC COMNAVAIRFOR COMNAVAIRLANT COMNAVAIRPAC COMNAVAIRSYSCOM COMNAVRESFOR COMNAVSEASYSYSCOM COMNAVSURFGRUMIDPAC COMNAVSURFGRUPACNORWEST COMNAVSURFLANT COMNAVSURFOR COMNAVSURFPAC COMPACFLT COMPATRECONFORLANT COMPATRECONFORPAC COMSPAWARSYSCOM COMSUBGRU COMSUBLANT COMSUBPAC COMSUBRON</p> <p>COMUSFLTFORCOM COSAL CPO CPR CQA CREI CRES CRL CS CS/CCS CSMP CSRR CTL CTRA CVF CVN CWP</p>	<p>CASREP Correction or Correction of the Casualty in the Casualty Report Casualty Report Cost Benefit Analysis Customer Contract Team Compact Disk - Read Only Memory Continuous Estimating Incremental Planning Review Process Commander, Fleet Forces Command Cargo Fuel Operational Sequencing System Cross Functional Team Chief Engineer Class Squadron Continuous Maintenance Continuous Maintenance Availability Confidence Management Factor Contract Management Office Class Maintenance Plan Chief of Naval Operations Commander Fleet Forces Command Commander, Atlantic Fleet Commander Logistics Western Pacific Commander Naval Air Forces Commander Naval Air Force Atlantic Commander Naval Air Force Pacific Commander, Naval Air Systems Command Commander Naval Reserve Force Commander, Naval Sea Systems Command Commander Naval Surface Group Middle Pacific Commander Naval Surface Group Pacific North West Commander Naval Surface Force Atlantic Commander Naval Surface Forces Commander Naval Surface Force Pacific Commander, Pacific Fleet Commander Patrol Reconnaissance Forces Atlantic Commander Patrol Reconnaissance Forces Pacific Commander, Space and Naval Warfare Systems Command Commander Submarine Group Commander Submarine Force Atlantic Commander Submarine Force Pacific Commander Submarine Squadron Commander United States Fleet Forces Command Coordinated Shipboard Allowance List Chief Petty Officer Calibration Problem Report Contract Quality Assurance Cost Reduction and Effectiveness Improvement Corrosion Resistant Steel Calibration Requirements List Combat Systems Command and Control Systems Current Ship's Maintenance Project Combat Systems Readiness Review Class Team Leader Consolidated TMDE Readiness Assessment CSMP Validity Factor Nuclear Powered Aircraft Carrier Controlled Work Package</p>
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DCMA	Defense Contract Management Agency
DDS	Dry Deck Shelter
Det/DET	Detachment
DFS	Departure From Specification
DLR	Depot Level Repairable
DMP	Depot Modernization Period
DO	Duty Officer
DoD	Department of Defense
DPP	Deployment Preparation Period
DRRS	Defense Readiness Reporting System
DSN	Defense Switched Network
DSRA	Dry-Docking Selected Restricted Availability
DSS	Deep Submergence System
EDO	Engineering Duty Officer
EGL	Equipment Guide List
EIC	Equipment Identification Code
EM	Electronic Module
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EMO	Electronics Material Officer
EOC	Equipment Operational Capability
EPCP	Electric Plant Control Panel
EPY	Expanded Planning Yard
EQOL	Enhanced Quality Of Life
ERR	Engineering Readiness Review
ESD	Electrostatic Discharge
ESL	Equipment Status Log
ETR	Estimated Time to Repair
FC	Field Change
FCA	Field Calibration Activity
FCFBR	Fleet COSAL Feedback Report
FFP	Firm Fixed Price
FLR	Field Level Repairable
FMA	Fleet Maintenance Activity
FMP	Fleet Modernization Program
FMPMIS	Fleet Modernization Program Management Information System
FPY	First Pass Yield
FS&L	Food Service and Laundry
FTA	Fleet Technical Assistance
FTSCLANT	Fleet Technical Support Center Atlantic
FTSCPAC	Fleet Technical Support Center Pacific
FY	Fiscal Year
GDSC	Global Distance Support Center
GPETE	General Purpose Electronic Test Equipment
GSI	Government Source Inspection
HIP	Hull Integrity Procedure
HM&E	Hull, Mechanical and Electrical
HMERA	Hull, Mechanical, Electrical Readiness Assessment
HRMC	Hawaii Regional Maintenance Center
HW	Hot Wash
HWAT	Hot Wash Analysis Team

ICAS	Integrated Condition Assessment System
ICCP	Impressed Current Cathodic Protection
ICR	Independent Cost Review
ICV	Individual Cell Voltage
IGE	Independent Government Estimate
ILRRR	Inflatable Life Raft Recertification Record
ILS	Integrated Logistics Support
IMA	Intermediate Maintenance Activity
IMF	Intermediate Maintenance Facility
IMI	Intermodulation Interference
INSURV	Board of Inspection and Survey
IPE	Industrial Plant Equipment
ISEA	In-Service Engineering Activity
ISIC	Immediate Superior In Command
IT	Information Technology
UUID	Item Unique Identification
JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
JRMC	Japan Regional Maintenance Center
JSN	Job Sequence Number
LCM	Life Cycle Manager
LDS	Logistics Data System
LMA	Last Maintenance Action
LMA	Lead Maintenance Activity
LOD	Letter of Delegation
LOEP	List Of Effective Pages
LSD	Logistics Support Data
LTD	Logistics Technical Data
LWC	Lead Work Center
MACHALT	Machinery Alteration
MARMC	Mid-Atlantic Regional Maintenance Center
MCF	MDS Confidence Factor
MCV	Maximum Corrected Voltage
MDCO	Maintenance Document Control Office
MDS	Maintenance Data System
MDT	Mean Down Time
MEASURE	Metrology Automated System for Uniform Recall and Reporting
METCAL	Metrology and Calibration
MFOM	Maintenance Figure of Merit
MFOM _a	Average Maintenance Figure of Merit
MFOM _w	Weighted Maintenance Figure of Merit
MILCON	Military Construction
MILSPEC	Military Specification
MIP	Maintenance Index Page
MJC	Master Job Catalog
MMBP	Maintenance and Modernization Business Plan
MMP	Major Maintenance Period
MOA	Memorandum of Agreement
MOGAS	Motor Gasoline
MP	Modernization Plan
MPR	MDS Performance Rate
MR	Maintenance Requirement

MRC	Maintenance Requirement Card
MRI	Machine-Readable Information
MRMS	Maintenance Resource Management System
MS	Maintenance Standard
MSDS	Material Safety Data Sheet
MSF	Magnetic Silencing Facility
MS/MO	Multi-Ship/Multi-Option
MSRA	Module Screening and Repair Activity
MSS	Major Shore Spares
MTBF	Mean Time Between Failures
MTR	Module Test and Repair
MTRF	Module Test and Repair Facility
NACE	National Association of Corrosion Engineers
NAVAIR	Naval Air Systems Command
NAVICP	Naval Inventory Control Point
NAVSEA	Naval Sea Systems Command
NAVSEA 08	Naval Sea Systems Command Nuclear Propulsion Directorate
NAVSEALOGCEN	Naval Sea Logistics Center
NAVSUP	Naval Supply Systems Command
NC	Critical Noise Deficiency
NCR	No Calibration Required
NDE	Navy Data Environment
NDE-NM	Navy Data Environment-Navy Modernization
NDT	Nondestructive Testing
NEC	Navy Enlisted Classification
NEMAIS	Navy Enterprise Maintenance Automated Information System
NFE	No Fault Evident
NIIN	National Item Identification Number
NMD	Navy Maintenance Database
NP	Potential Noise Deficiency
NPBI	NAVSEA Paint Basic Inspector
NPV	Net Present Value
NRPO	Noise Reduction Petty Officer
NSA	Naval Supervisory Authority
NSN	National Stock Number
NSSA	Norfolk Ship Support Activity
NSSC	Naval Submarine Support Center
NSTM	Naval Ship's Technical Manual
NSWC	Naval Surface Warfare Center
NSWCCD	Naval Surface Warfare Center, Carderock Division
NSY	Naval Shipyard
NUCALT	Nuclear Alteration
NWRMC	Northwest Regional Maintenance Center
OARS	Open Architecture Retrieval System
OJT	On the Job Training
OMMS	Organizational Maintenance Management System
OMMS-NG	Organizational Maintenance Management System – Next Generation
OOC	Out Of Commission
OOD	Officer Of the Deck
OPALT	Operational Alteration
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval Operations Instruction
OPTAR	Operating Target
ORATA	Other Restricted Availability/Technical Availability

ORDALT	Ordnance Alteration
PARM	Participating Managers
PCMS	Passive Countermeasure System
PDS	Product Data Sheet
PEO	Program Executive Officer
PEP	Plant Equipment Project
PFR	Periodic Force Revision
PHD	Port Hueneme Detachment
PHNSY	Pearl Harbor Naval Shipyard
PHNSY-IMF	Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility
PIRA	Pre-Inactivation Restricted Availability
PLAD	Plain Language Address Directory
PM	Program Manager
PMR	Periodic Maintenance Requirement
PMS	Planned Maintenance System
PMT	Performance Monitoring Team
POC	Point of Contact
POM	Pre-Overseas Movement
PPE	Personal Protective Equipment
PPR	PMS Performance Rate
PQS	Personnel Qualification Standard
PRWL	Planned Refit Work List
PSNS	Puget Sound Naval Shipyard
PSNS-IMF	Puget Sound Naval Shipyard and Intermediate Maintenance Facility
PVI	Product Verification Inspection
PY	Planning Yard
QA	Quality Assurance
QAR	Quality Assurance Representative
QBR	Quarterly Battery Report
QC	Quality Control
QOS/QOL	Quality of Service/Quality of Life
RAB	Registrar Accreditation Board
RAF	Reporting and Automated Shore Interface Processing Confidence Factor
RAR	Recorded Accomplishment Rate
RCC	Regional Calibration Center
RCM	Reliability Centered Maintenance
RCP	Recommended Change Package
REC	Re-Entry Control
RFI	Ready For Issue
RH	Relative Humidity
RIP	Readiness Improvement Program
RLP	Regional Loan Pool
RMAIS	Regional Maintenance Automated Information System
RMC	Regional Maintenance Center
ROI	Return On Investment
ROV	Repair Other Vessel
RPCCR	Reactor Plant Configuration Change Report
RPPO	Repair Parts Petty Officer
RPSM	Reactor Plant Ship Modification
RSG	Regional Support Group
SC	Ship Change

SCAT	Sub-Category
SCD	Ship Change Document
SCLISIS	Ship's Configuration and Logistics Support Information System
SCP	System Calibration Procedures
SDI	Ship's Drawing Index
SEF	Ship's Equipment File
SEMAT	Systems and Equipment Material Assessment Team
SEMCIP	Shipboard Electromagnetic Compatibility Improvement Program
SEOC	Submarine Engineered Operating Cycle
SERMC	Southeast Regional Maintenance Center
SF	Ship's Force
SFWL	Ship's Force Work List
SG	Specific Gravity
SGCP	Shipboard Gage Calibration Program
SHIPALT	Ship Alteration
SHIPMAIN	Ship Maintenance
SHW	Super Hot Wash
SISCAL	Shipboard Instrumentation System Calibration
SKED	Scheduling Software
SLICR	Ship's Logistics Indicator Computerized Report
SME	Subject Matter Expert
SNAP	Ship's Non-Tactical Automated Data Processing System
SOC	Scope of Certification
SOS	Source of Support
SOVT	System Operation Verification Testing
SPALT	Strategic Systems Programs Alteration
SPAWAR	Space and Naval Warfare Systems Command
SPETE	Special Purpose Electronic Test Equipment
SPETERL	Ship's Portable Electronic Test Equipment Requirements List
SPM	Ship's Program Manager
SPRUCE	Scheduled Preservation Upkeep Coordinated Effort
SRA	Selected Restricted Availability
SRF	Ship Repair Facility
SRF-JRMC	Ship Repair Facility and Japan Regional Maintenance Center
SSBN	Nuclear-Powered Ballistic Missile Submarine
SSES	Ship Systems Engineering Station
SSGN	Nuclear-Powered Guided Missile Submarine
SSM	Ship Systems Manual
SSP	Strategic Systems Programs
SSPC	Society for Protective Coatings
SSPINST	Strategic Systems Programs Instruction
SSR	Ship's Selected Records
STAN	Shipboard Electromagnetic Compatibility Improvement Program Technical Assistance Network
SUBMEPP	Submarine Maintenance Engineering, Planning and Procurement Activity
SUBSAFE	Submarine Safety
SUPSHIP	Supervisor of Shipbuilding
SUPSHIP NN	Supervisor of Shipbuilding Newport News
SWE	Surface Warfare Enterprise
SWLIN	Ship Work List Item Number
SWRMC	Southwest Regional Maintenance Center
SWS	Strategic Weapon System
SYSCOM	Systems Command
TA	Technical Analyst

T/A	Type of Availability
TAMS	TYCOM Alteration Management System
TAMS	Test and Monitoring System
TAR	Technical Analysis Report
TAT	Technical Assessment Team
TAVR	Technical Assistance Visit Report
TCV	Total Corrected Voltage
TDMIS	Technical Document Management Information System
TEMPALT	Temporary Alteration
TFBR	Technical Feedback Report
TFBR H/T	Technical Feedback Report History Tracking
TMA	Top Management Attention
TMDE	Test, Measurement and Diagnostic Equipment
TMDER	Technical Manual Deficiency/Evaluation Report
TMI	Top Management Issues
TOMA	Technical Onboard Monitoring Assist
T(pf)	Time (problem free)
TPOC	Technical Point of Contact
TPS	Test Program Set
TRF	TRIDENT Refit Facility
TRIPER	TRIDENT Planned Equipment Replacement
TRIREFFAC	TRIDENT Refit Facility
TRS	Technical Repair Standard
TVG	Temperature Voltage Gassing
TYCOM	Type Commander
TYKIT	TYCOM Alteration Kit
TZ	Type Zero
UIC	Unit Identification Code
URO	Unrestricted Operation
VIDS/MAF	Visual Information Display/Maintenance Action Form
WC	Work Center
WCS	Work Center Supervisor
WCWL	Work Center Work List
WFT	Wet Film Thickness
WP	Work Package
WPIC	Work Package Integration Conference
WPS	Work Package Supplement

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CHAPTER 3

SUBMARINE FLEET MODERNIZATION PROGRAM

REFERENCES.

- (a) NAVSEA SL720-AA-MAN-010 - Fleet Modernization Program (FMP) Management and Operations Manual
- (b) OPNAVINST 4720.2 - Fleet Modernization Program (FMP); Policy for
- (c) NAVSEAINST 9210.14 - Changes to Submarine Tenders and Destroyer Tenders with Nuclear Support Facilities, Requirements Concerning
- (d) NAVSEAINST C9210.4 - Changes, Repairs and Maintenance to Nuclear Powered Ships
- (e) NAVSEAINST 4720.14 - Temporary Alterations to Active Fleet Submarines; Control of
- (f) NAVSEA Technical Specification 9090-310 - Ship Alteration Accomplishment by Installation Teams
- (g) NAVSEA T9044-AD-MAN-010 - Requirements Manual for Submarine Fly-By-Wire Ship Control Systems
- (h) NAVSEAINST 4790.8/OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
- (i) NAVSEA 0989-LP-037-2000 - Commissioned Submarine General Reactor Plant Overhaul and Repair Specification
- (j) NAVSEA 0989-LP-058-1000 - Destroyer Tender and Submarine Tender Nuclear Support Facilities Overhaul and Repair Specification
- (k) COMLANTFLT/COMPACFLTINST 4720.3 - Management of Afloat Combat Systems and C41 Installations and Improvements

LISTING OF APPENDICES.

- A Major Ship Alteration Types Executive Summary
- B Submarine Alteration Request Format
- C RPCCR Forwarding Letter Format
- D Sample TEMPALT/OPALT Reporting Message
- E TYKIT Requisition Form
- F Sample Alteration Feedback Message
- G TYCOM Alteration Management System Interpretation Guide

3.1 PURPOSE. To establish procedures, policy and responsibilities for the management and execution of the Submarine Fleet Modernization Program (FMP). Amplifying 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, Alteration and Improvement (A&I) items, Machinery Alterations (MACHALT), 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. Appendix A of this chapter provides an executive summary of these major alteration types.

3.1.2 Definition. 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 (SYSCOM) approval and TYCOM authorization. For tenders and nuclear powered ships, the requirements concerning SYSCOM approval are contained in references (c) and (d).

3.2 RESPONSIBILITIES.

3.2.1 Immediate Superior In Command. The Immediate Superior In Command (ISIC) is responsible for managing the alteration program for each assigned unit as follows:

- a. Informing the Fleet Maintenance Activity (FMA) of upcoming availabilities.
- b. Monitoring FMA long range modernization and availability planning.
- c. Establishing installation priorities.
- d. Ensuring no action is taken to accomplish alterations which are not authorized for Forces Afloat accomplishment. TYCOM concurrence is required for exceptions.
- e. Maintaining a file of alteration briefs and other related documentation.
- f. Assisting units in the preparation of alteration requests (Appendix B of this chapter). Reviewing alteration requests for technical adequacy, applicability and recommend the level of accomplishment. Alteration requests should be limited to alterations affecting ship and personnel safety or providing a substantial maintenance or operational benefit.
- g. Identifying deficiencies, changes to the hull applicability of alterations, or the availability of material/design.
- h. Ensuring that only TYCOM authorized or 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).
- i. Ensuring that the Master Job Catalog (MJC) contains all alterations authorized for Forces Afloat accomplishment. The TYCOM representative and Maintenance Document Control Office (MDCO) are responsible for the retrieval of authorized alteration information from the MJC and its addition to the Regional Maintenance Automated Information System (RMAIS)/Logistics Data System (LDS) master CSMP. If an authorized alteration is not contained in the MJC, take appropriate steps to add it.
- j. Ensuring that all OPNAV 4790/CKs are collected three days prior to the end of the availability, and that Reactor Plant Configuration Change Reports (RPCCR) are collected prior to critical operations. Within two days of receipt, the MDCO will input the original OPNAV 4790/CK and Section I of the RPCCR into the on-site RMAIS/LDS computer. MDCO/TYCOM will stamp all documents "ADP PROCESSED" to verify RMAIS/LDS reporting.
- k. (Nuclear Powered Vessels only) Ensuring RPCCRs are distributed by the ship's Commanding Officer within seven days of receipt in accordance with Appendix C of this chapter and that they identify all applicable FCs and Reactor Plant Ship Modifications (RPSM) to the correct revision level.
- l. Scheduling required ship checks prior to accomplishment of the alteration.
- m. Ensuring situational alterations are accomplished when conditions warrant.
- n. 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.).
- o. Reviewing reports of alteration completions provided by the industrial activity during Chief of Naval Operations (CNO) Maintenance Availabilities.

- e. Ensuring that all OPNAV 4790/CK forms provided by the installing activity are expeditiously completed and submitted to MDCO in accordance with reference (h) three days prior to end of upkeep.
- f. Ensuring that all RPCCRs provided by the installing activity are expeditiously completed in accordance with references (i) and (j) and forwarded in accordance with Appendix C of this chapter three days prior to end of upkeep.
- g. Monitoring the accomplishment of alterations during CNO 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/TYCOM.
- h. Ensuring proper 3-M reporting by monitoring the submission of OPNAV 4790/CK forms or RPCCRs regardless of the installing activity or availability. If an OPNAV 4790/CK form or RPCCR has not been submitted for a completed alteration, obtain one. The certification letter of alterations accomplished by industrial activities will be processed as an OPNAV 4790/CK as shown in reference (h).
- i. Ensuring an MOA is in place before installation of an alteration or TEMPALT/OPALT by any industrial activity. Ensure the MOA provides the duration of installation and scheduled removal date for TEMPALTs/OPALTs. (See Volume II, Part I, Chapter 4 of this manual.)
- j. Ensuring installation of TEMPALTs/OPALTs is in accordance with reference (e) and installation/removal is reported in the format provided in Appendix D of this chapter.
- k. Ensuring TEMPALTs are removed by the scheduled removal date.
- l. Ensuring all TEMPALTs are removed prior to an industrial availability.
- m. Ensuring installation of alterations by an AIT is in accordance with reference (f).
- n. Verifying the accuracy of the TAMS Report, a Non-Nuclear Title "K" SHIPALT Report (available from TYCOM), and a NUCALT Technical Documentation CD report and reporting any discrepancies to the ISIC/TYCOM.
- o. When reporting a Category "A" A&I item as complete, ensure the REC number (if required) is specified on the OPNAV 4790/CK or RPCCR reporting completion.
- p. (Nuclear Powered Ships only) Ensuring onboard repair parts are ordered in sufficient time to ensure availability prior to a reactor plant SHIPALT installation.
- q. Ensuring all Fly-By-Wire Ship Control System alterations are in accordance with reference (g).
- r. 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 shall evaluate the need to perform Unrestricted Operation (URO)-29. If access to vital equipment could be restricted, the Ship shall 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 Naval Inventory Control Point (NAVICP) Mechanicsburg for requisition and installation by Forces Afloat. RFI reactor plant alteration packages should be requisitioned via official correspondence to the following address:

Department of the Navy
Naval Inventory Control Point
Code 009F, Building 07
5450 Carlisle Pike
P.O. Box 2020
Mechanicsburg, PA 17055-1788

3.3.2 Alteration Installation Team Program. A program to support installation of alterations by an industrial team outside of an industrial availability. Specific guidelines governing AITs are contained in references (f) and (k). The AIT is responsible for providing the ship with:

- a. All Integrated Logistics Support (ILS), equipment (including on-board spares) and documentation.
- b. Ship's Selected Records (SSR) documentation.
- c. A complete set of installation drawings red-lined to indicate all variances.
- d. For Ship's Non-Tactical Automated Data Processing System II/III ships, appropriately formatted media for updating databases to properly reflect any configuration changes, new repair parts, and support requirements.
- e. For Non-Ship's Non-Tactical Automated Data Processing ships, hard copy Coordinated Shipboard Allowance List (COSAL) pages.
- f. A copy of the completion message.

NOTE: IF ANY OF THE ITEMS IN PARAGRAPH 3.3.2 OF THIS CHAPTER ARE NOT PROVIDED BY THE AIT, REPORT THE MISSING ITEMS IN THE COMPLETION REPORT, WITH A COPY TO THE TYCOM FMP MANAGER.

3.3.3 Type Commander Alteration Kit Program. A TYCOM program which packages all hardware and software required to plan, install and report completion of the alteration. No action should be taken by Forces Afloat to obtain material to accomplish an alteration designated as a TYKIT. Accomplishment will be authorized in TAMS when the TYKIT becomes available. The installing activity should request shipment of RFI TYKITs from the TYCOM using Appendix E of this chapter.

3.4 MONITORING OF ALTERATION STATUS.

3.4.1 Type Commander Alteration Management System. An automated system operated by COMSUBLANT/COMSUBPAC containing information relating to an alteration's completion status, authorization, scheduling and designated accomplishing activity for all A&I items, TZ Improvements, TEMPALTs/OPALTs and all SHIPALTs with the exception of Title K non-reactor plant SHIPALTs. TAMS is the instrument by which the TYCOM authorizes the accomplishment and maintains a completion status. Appendix G of this chapter provides a TAMS Interpretation Guide.

3.4.2 Navy Data Environment - Navy Modernization. The official automated system supporting the information and decision support requirements of FMP managers Navy wide. The Navy Data Environment - Navy Modernization database contains data related to: ships and their availability schedules; alteration applicability; alteration material requirements and procurement status; and material, installation and outfitting costs for non-nuclear alterations. The Navy Data Environment - Navy Modernization database is the authoritative planning baseline for FMP operation throughout the Navy FMP community.

VOLUME VI**CHAPTER 5****DEFICIENCY DOCUMENTATION AND REPORTING**REFERENCES.

- (a) OPNAVNOTE 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 Ship/Aircraft Carrier Modernization Program (SHIPMAIN)) 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/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 Scope. 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 Definitions.

5.1.3.1 Material Readiness. 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 Maintenance Figure of Merit Index Value. 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 Maintenance Worthy. Maintenance Worthy is any object (system, equipment, component, sub component, part, etc.) that is Danger/Caution tagged or part of a tag out (i.e., tag hung on it) in accordance with reference (d), has maintenance performed 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 Current Ship's Maintenance Project. The CSMP, in accordance with 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 shall be maintained by Ship's Force in a complete and current status at all times. The CSMP shall be used by the activity to document all completed without prior deferral preventive and corrective maintenance requirements. These deferred items shall be validated by Ship's Force and entered into the CSMP in accordance with 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 in reference (e), 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, in accordance with 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 can not be corrected within 48 hours and the maintenance requirement reduces the activity's ability to perform an assigned task or mission (primary or secondary) by that activity's chain of command. The CASREP category (C2, C3, and C4) shall be determined in accordance with 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/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 and/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 in accordance with 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 below 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 paragraph 3.1 of this chapter when submitting a 4790/2K.

- b. Ship's Force will comply with guidance provided in reference (f) and paragraph 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/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 Fleet Maintenance Activity. The Fleet Maintenance Activity, as described in Volume II, Part I, Chapter 4 of this manual, will comply with paragraph 1.3.6.c of this chapter when preparing end of availability completion data associated with each 4790/2K.

5.3 GUIDANCE.

5.3.1 Generation of a Ship Maintenance Action Form OPNAV 4790/2K. 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. This chapter 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 Required Instance for Documenting. A 4790/2K or Fleet approved equivalent is required:

- a. To document a material deficiency.
- b. When requesting help from outside activities (technical assistance, repair, calibration, etc.).
- c. When ordering parts or materials.
- d. For Selected Level Reporting.
- e. When requesting special support or test equipment (hydrostatic pumps, rigging equipment, etc.).

- f. For documenting a completed maintenance action (corrective or preventative).
- g. When submitting a CASREP.
- h. When submitting a temporary Departure From Specifications (DFS).
- i. For any change in system or equipment configuration. (i.e., 4790/CK).
- j. For documenting the results of an inspection or assessment.
- k. For installation of a Ship Alteration (SHIPALT).
- l. For support services during a maintenance availability.
- m. For a CMP maintenance action.

5.3.1.2 Procedures for Documenting a Maintenance Action. A 4790/2K shall be filled out in accordance with reference (e) and the Software Users Guide for the Automated Information System being used. All Unclassified Non-Nuclear Naval Propulsion Information will be handled in accordance with 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 shall be updated concurrently. If circumstances dictate, a more appropriate active 4790/2K may be associated with the CASREP and the existing 4790/2K closed/canceled.
- c. The associated 4790/2K to the CASREPs shall have a comparable or equivalent severity coding in accordance with reference (e). In particular, Ship's Force will ensure that the Equipment Status Code corresponds directly to the equipment configuration (Allowance Parts List (APL)/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. Job Control Number (JCN). Only the approved Work Center codes found in Chapter 19 of this volume are to be used.
- e. 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's important to specify which application. Determine if the reported configuration would support an equipment Tag-Out. Configuration elements include:
 - (1) APL/Allowance Equipage List (AEL). Shall be written against the sub APL/AEL where applicable. Avoid using just any higher level APL/AEL for the system or equipment.

- (2) EIC. Shall 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/EIC, ensure the serial number designation is appended.
 - (4) Location.
 - (5) Equipment Noun Name. Shall be the same name that would be used on a Danger/Caution Tag in accordance with reference (d).
- f. Type of Availability (T/A).
- (1) T/A recommended for performance of a deferral, reference (e), is provided in Table 5-1.

Table 5-1

T/A Code	Description
1	Depot (shipyard or ship repair facility)
2	Intermediate Maintenance Activity (tender, repair ship, etc.)
3	TYCOM Support Unit (floating dry dock, etc., or technical assistance from Systems Command, Organic Technical Authority or contractor representative)
4	Ship's Force
0	Not Applicable
U	(Mission Degrading) (entered on 2K) Used by Board of Inspection and Survey, field identifies certain deficiencies which are considered as preventing the activity from carrying out some part of its mission.

- (2) Table 5-2 provides guidance for documenting deferred maintenance actions.

Table 5-2

Scenario/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 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/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

g. Status Code (STA).

- (1) OPERATIONAL shall 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 Appendix A)
- (2) NON-OPERATIONAL shall 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 Appendix A)
- (3) REDUCED CAPABILITY shall 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 Appendix A)
- (4) NOT APPLICABLE (Equivalent to EOC 1.0) shall 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. Safety Hazard Code. Enter the applicable Safety code in accordance with reference (e).

- i. Ship's Force Man-Hours expended (S/F MHRS. EXP). Accurately document Ship's Force man-hours expended. Do not include man-hours expended by outside agencies as those agencies will document their own man-hour expenditures.
- j. Ship's Force Man-Hours Remaining (S/F MHRS. REM.). Enter only the estimate of future required Ship's Force man-hours remaining. If estimate changes, update the 4790/2K.
- k. 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 (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.
- l. Meter Reading. A meter reading is required for components or equipment outfitted with a meter whenever a 4790/2K is submitted or updated.
- m. Remarks/Description. Comments shall be accurate and concise with clarity. The wording must accurately portray present and potential impacts on the object or system material condition. 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 and outside activities to troubleshoot and correct the failure or malfunction. Include initial follow-up and troubleshooting, Ship's Force 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 Ship's Force and outside activities to troubleshoot and correct the failure or malfunction. Include initial follow-up and troubleshooting, Ship's Force 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 Ship's Force to troubleshoot and correct the failure or malfunction. Include initial follow-up and troubleshooting, Ship's Force 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 shall 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 service 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 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 Ship's Force to correct the failure or malfunction. Include initial follow-up and troubleshooting, Ship's Force repair efforts or previous technical assistance.
 - (c) Include any test results from either troubleshooting or post repair testing.
- n. Priority code is required.
- (1) Mandatory. The system or equipment is not functioning within designed parameters and may only be operated under emergency conditions. May be a threat to personnel safety or is a critical damage control item. Required to sustain bare minimum acceptable level of human needs and sanitation. The system or equipment failure/malfunction causes a major degradation or total loss of primary mission (C-4 CASREP equivalent).
 - (2) Essential. The system or equipment is severely degraded with major operational restrictions and may only be operated under emergency conditions. Further damage may result from continued operations. Poses no threat to personnel safety. Extremely important safety or damage control item. Required to sustain normal level of basic human needs and sanitation. Will contribute so markedly to efficient and economical operation and maintenance of a vital system that the payoff in the next year will overshadow the cost to accomplish. Required for minimum acceptable level of preservation and protection. Required for sustained performance of activity's mission. Required to maintain overall integrity of activity or a system essential to activity's mission. Under emergency. The system or equipment failure/malfunction causes a major degradation but not the total loss of primary mission (essentially a C-3 CASREP equivalent).
 - (3) Highly Desirable. The system or equipment is operable with deficiencies that affect performance. No restrictions on operation. The system or equipment is capable of performing intended functions, but not to all designed performance standards, or not capable of performing required functions in all operating modes. Important safety or damage control item. Required for normal level of human comfort. Required for efficient performance of activity's mission. Required for overall integrity of equipment or systems that are not essential, but are required as backups in case of primary system failure. Will contribute so markedly to efficient and economical operation and/or maintenance of a vital system that the payoff in the next year will at least equal the cost to accomplish. Will effect major reduction in future maintenance in an area or system that presently cannot be maintained close to acceptable standards. Required to achieve minimum acceptable level of appearance. The system or equipment failure/malfunction causes a major degradation or total loss of a secondary mission (may be similar to a C-2 CASREP equivalent).
 - (4) Desirable. The system or equipment is operable with minor discrepancies that do not impact performance. Required for overall integrity of other than an essential system or its backup system. Some contribution to efficient performance. Some contribution of normal level of human comfort and welfare. Will contribute to appearance in an important area. Will significantly reduce future maintenance.

5.3.2 Generation of a Casualty Report. 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 one time 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 Guidance on Initial Documenting with a Casualty Report. A CASREP shall be prepared in accordance with 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 in accordance with current regulations and standing guidance from NAVSEA 08. The following policy guidance is provided:

- a. C3/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 shall be assigned in accordance with reference (f). It shall not be elevated solely to expedite onboard technical assistance, services, parts delivery or repairs.
 - (2) Any outstanding C3/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. An activity shall 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.
- c. 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).
- d. 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.
- e. Any system or equipment casualty that would threaten to cause or cause a discharge of oil or oily waste to sea shall be reported with a CASREP.
- f. Any equipment mishap involving damages or losses exceeding \$50,000 shall be reported with a CASREP. The CASREP alerts the Naval Safety Center an incident has occurred that requires a mishap investigation.

- g. 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.
- h. A 4790/2K is required to receive off-ship assistance (technical, repair, parts) or to document Ship's Force work. Every active CASREP shall be associated with an active JCN – no exceptions.
- (1) CASREPs shall 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 shall be listed in the amplification line of the parts section.
- i. 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/Distance.
 - (2) Assist/other/Distance.
 - (3) Assist/none.
- j. 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 shall indicate the affected assembly. Wording shall accurately portray present and potential impacts on the task or mission. The remarks section for an initial CASREP shall contain the paragraphs below. Indicate the classification at the beginning of individual sub-paragraphs to facilitate access to non-classified information.
- (1) Summary/Impact: Brief executive overview of casualty and impact to the activity's task or mission is clearly identified in the opening paragraph. (e.g., Summary/Impact: 2 of 5 fire pumps degraded (OOC) with 2 of 2 fire pumps in Fire Zone 2 degraded (OOC). CASREP 2009001 refers. Loss of redundancy in supplying firemain. Major degradation in MOB-D. Fully Mission Capable.)
 - (a) Indicate if this message reflects a downgrade to C2 or upgrade to C3/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 equipments (backup or redundancy).
 - (d) Identify warfare areas degraded and assess capability to perform current or future scheduled missions.

- (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.
- k. CASREP transmission/receipt/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 Addresseees (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) shall be included on all CASREPs to ensure the CASREP is captured in the shore based CASREP Automated Information System.
 - (2) Ship's Force shall ensure CASREPs are forwarded in a timely manner when requested.

5.3.2.2 Guidance on Updating a Casualty Report. 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/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 SHALL BE SUBMITTED.

5.3.2.3 Guidance on Deferral of a Casualty Report. 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 shall not report a CASREP as deferred until directed by the TYCOM or his designated representative.
- b. The activity shall submit a CASREP update with the word DEF RD in the estimated time of repair section of a CASREP update. See reference (f) for details.

NOTE: CASREPS SHALL 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 Guidance on Correction of a Casualty Report.

- 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 shall 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 in accordance with all technical requirements.
- b. Include in the remarks section of the CASCOR:
 - (1) A detailed but concise summary 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 Guidance on Cancellation of a Casualty Report.

- a. An activity shall 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 found below:

<p>EOC Value - 1.0 (Green)</p> <p>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.</p> <p>Actions – Document man-hour expenditures.</p>	<p>EOC DEFINITION - Fully Operable.</p>
<p>EOC Value - 0.9 (Green)</p> <p>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.</p> <p>Actions - Equipment requires cleaning or minor maintenance that may be accomplished by Ship's Force. Document man hour expenditures.</p> <p>Shipboard Examples:</p> <p>AIR - Minor leaks (moisture, drips) that do not present a safety hazard. Missing label plates and/or stenciling. Worn paint/scratches on consoles. Surface Dirty. Minor Surface rust present.</p> <p>C4I/CS - Minor leaks (moisture, drips) that do not present a safety hazard. Missing label plates and/or stenciling. Worn paint/scratches on consoles. Surface Dirty. Minor Surface rust present.</p> <p>HM&E - Minor leaks (moisture, drips) that do not present a safety hazard. Missing label plates and/or stenciling. Worn paint/scratches on consoles. Surface Dirty. Minor Surface rust present.</p> <p>Corrosion - Minor Surface rust present. Few corroded topside fasteners. Tank coatings recently inspected. Lifelines have light rust.</p>	<p>EOC DEFINITION - Fully Operable with Cosmetic Discrepancies.</p>
<p>EOC Value - 0.8 (Green)</p> <p>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.</p> <p>Actions – Document man-hour expenditures and 4790/2K deferral for future Ship’s Force actions.</p> <p>Shipboard Examples:</p> <p>AIR - Centrifugal pumps cavitate too much. Indicator lights are burnt out. Filters need to be changed.</p> <p>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.</p>	<p>EOC DEFINITION – Fully Operable with No Performance Impacting Discrepancies.</p>

<p>HM&E - Centrifugal pumps cavitate too much. Indicator lights are burnt out. Filters need to be changed.</p> <p>Corrosion - Some running rust topside. Bilge foundations need preservation. Discolored deck non-skid. Vent plenums have some minor corrosion damage</p>	
<p>EOC Value - 0.7 (Yellow)</p>	<p>EOC DEFINITION - Operable with minor discrepancies that do not impact performance.</p> <p>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.</p> <p>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.</p> <p>Shipboard Examples:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
<p>EOC Value - 0.6 (Yellow)</p>	<p>EOC DEFINITION - Operable with discrepancies that could potentially impact performance in the future. No Restrictions.</p> <p>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.</p> <p>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.</p> <p>Shipboard Examples:</p> <p>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.</p>

<p>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.</p> <p>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/sounding tanks manually with alarms disabled. Shifting steering could only be accomplished in after steering with bridge syncro OOC.</p> <p>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.</p>
<p>EOC Value - 0.5 (Yellow) EOC DEFINITION - Operable with discrepancies that effect performance. No restrictions on operation.</p> <p>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.</p> <p>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/systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags for troubleshooting.</p> <p>Shipboard Examples:</p> <p>C4I/CS - Primary power to weapons system has failed and system is operating on alternate power.</p> <p>HM&E - Ship speed degraded due to hull fouling. Evaporators operating at reduced capacity (less than 50% of optimum capacity).</p> <p>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.</p>
<p>EOC Value - 0.4 (Red) EOC DEFINITION - Restricted operation. Significant discrepancies.</p> <p>EOC Description – Maintenance worthy object not operating correctly and no means or work arounds allow the object to do everything it was designed to perform.</p> <p>Actions – 4790/2K notification needs to be created for discrepancies. Based on status of related equipment/systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.</p> <p>Shipboard Examples:</p> <p>AIR - Radar operates but to a reduced range.</p> <p>C4I/CS - Radar operates but to a reduced range.</p> <p>HM&E - Main Engine Lube Oil Pump sequencing not consistent.</p>

<p>Corrosion - Tank contents contaminated due to leakage. Ladder corrosion limits personnel access. Many tanks require immediate preservation. Non-skid Coefficient of Friction failures.</p>	
<p>EOC Value - 0.3 (Red)</p>	<p>EOC DEFINITION - Severely degraded with major operational restrictions.</p>
<p>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.</p>	
<p>Actions – 4790/2K notification needs to be created for discrepancies. Based on status of related equipment/systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.</p>	
<p>Shipboard Examples:</p>	
<p>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.</p>	
<p>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.</p>	
<p>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.</p>	
<p>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.</p>	
<p>EOC Value - 0.2 (Red)</p>	<p>EOC DEFINITION - Repair Before Operation (RBO).</p>
<p>EOC Description – Maintenance worthy object not functioning within designed parameters and may only be operated under emergency conditions.</p>	
<p>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/systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.</p>	
<p>Shipboard Examples:</p>	
<p>AIR - Certified Inspector identifies a RBO discrepancy. Loss of dry air system (or electronic cooling water) to a Radar.</p>	
<p>C4I/CS - Certified Inspector identifies a RBO discrepancy. Loss of dry air system (or electronic cooling water) to a Radar.</p>	
<p>HM&E - Certified Inspector identifies a RBO discrepancy. Boiler inspection device not available.</p>	
<p>Corrosion - Significant tank leakage due to corroded structure. Evidence of cracking in structural elements. Lifelines corroded through.</p>	

<p>EOC Value - 0.1 (Red)</p> <p>EOC Description – Maintenance worthy object not functioning. Secure or turn off immediately.</p> <p>Actions - Secure or turn off immediately. 4790/2K notification needs to be created for discrepancies. Based on status of related equipment/systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.</p> <p>Shipboard Examples:</p> <ul style="list-style-type: none"> 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). 	<p>EOC DEFINITION - Should not be operated/Battle Short.</p>
<p>EOC Value - 0.0 (Red)</p> <p>EOC Description – Maintenance worthy object does not work at all.</p> <p>Actions – 4790/2K notification needs to be created for discrepancies. Based on status of related equipment/systems, consult reference (f) for requirements for submitting a CASREP. Consult reference (d) for proper usage of Red Tags.</p> <p>Shipboard Examples:</p> <ul style="list-style-type: none"> 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. 	<p>EOC DEFINITION - Totally Inoperative.</p>

The EOC range of values and definitions are provided below:

Title	EOC value or range	Description/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)	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.
Repair Before Operation	0.2 (Red)	Maintenance worthy object not functioning within designed parameters and may only be operated under emergency conditions.
Should not be operated/Battle Short	0.1 (Red)	Maintenance worthy object not functioning. Secure or turn off immediately.
Totally Inoperative	0.0 (Red)	Maintenance worthy object does not work at all.

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- d. (Aircraft Carriers only) Establish a MTRF with the EMO, Combat Systems Officer, or, for FMAs, the Electronics Repair Officer as the overall coordinator.
- e. (Aircraft Carriers only) Maintain an active MTRF. Use the Module Test and Repair (MTR) Tracking System to maintain the ship's MTR performance and production database. Ensure quarterly production/performance reports are submitted in accordance with reference (e).

8.2.4 Miniature/Microminiature Repair Program Coordinator/Module Test and Repair Facility Coordinator. The 2M/MTRF Coordinator shall:

- 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) and (f).
- c. Submit additional/new 2M and test equipment requirements to the TYCOM Representative, providing complete justification (e.g., workload, documented manhours, added capabilities with addition of new equipment).
- d. Ensure adequate numbers of 2M trained and technically qualified personnel support the WC.
- e. Ensure 2M personnel and station requirements are met per the criteria of Section 8.4 of this chapter.
- f. Ensure 2M WC personnel are formally trained in the operation and maintenance of all ATE and MTRF equipment.
- g. Maintain an up to date library inventory of Gold Disks for the AN/USM-674(V)(2) and test documentation for other installed ATE, in accordance with TYCOM outfitting requirements. Develop and submit Silver Disks to Naval Undersea Warfare Center, Fleet Engineering Office for CCAs/EMs which are not supported by Gold Disks.
- h. Ensure all 2M repair actions are documented per reference (d).
- i. Ensure the Electrostatic Discharge (ESD) procedures of references (g) and (h) are implemented within the 2M WC to provide adequate protection for ESD sensitive CCAs/EMs.
- j. Coordinate with supply to ensure all CCAs/EMs meet the packaging requirements of per reference (i).
- k. Ensure all CCAs/EMs certified RFI are processed as discussed in Section 8.5 of this chapter.
- l. Maintain a complete inventory of 2M, ATE, AN/USM-674(V)(2), materials and consumables.
- m. Ensure compliance with all applicable safety procedures in accordance with reference (j).
- n. Ensure that the MTR Tracking System is used to record all maintenance actions and produces required production reports.

8.2.5 Commander, Navy Regional Maintenance Center. The Commander, Navy Regional Maintenance Center shall maintain qualified 2M/MTR Fleet Coordinators at Norfolk Ship Support Activity (NSSA) Regional Maintenance Center (RMC)/Southwest RMC. Fleet Coordinators are responsible for 2M/MTR Inspections and Certifications in their respective geographical areas (i.e., NSSA RMC is responsible for Atlantic and Southwest RMC is responsible for Pacific).

8.2.5.1 Regional Maintenance Center. The RMC 2M/MTR Inspection and Certification Branch (NSSA RMC, Southeast RMC, Southwest RMC, Pearl Harbor, Sasebo, Yokosuka, Everett) shall:

- a. Maintain a certified laboratory for the purposes of recertifying technicians, where Field Service Engineers are assigned.
- b. Maintain certified **2M/MTR Inspectors**.
- c. Test operate and certify all 2M/MTR related equipment and report inspection results to the appropriate TYCOM.
- d. Conduct technician recertifications and issue operator proficiency cards to qualified 2M technicians.

8.3 AUTHORIZED MINIATURE/MICROMINIATURE OUTFITTING. Authorized 2M outfitting is identified in reference (b).

8.4 MINIATURE/MICROMINIATURE PERSONNEL AND STATION REQUIREMENTS. References (f) and (k) provide certification criteria for all 2M stations and technicians. Reference (f) contains information on 2M repair stations and the Quality Assurance (QA) standards for workmanship.

8.5 PROGRESSIVE REPAIR PROCESS. The progressive repair process is the sequential attempt to test and repair CCAs/EMs. Reference (l) 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/EMs within their training and capability, regardless of cognizance or the Source Maintenance and Recoverability code.

8.5.1 Repair Process. The two principal categories of 2M repair are normal and emergency as defined in reference (l). Appendices A and B of this chapter define the emergency and normal processes respectively.

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 (MN or MC) and outfitting of test capability (AN/USM-674(V)(2), Huntron 2000, GPETE, etc.). These factors plus 2M technicians' training/certification dictate Ship's Force ability to screen and repair CCAs/EMs. Regardless of these differences, an attempt should be made to repair all CCAs/EMs prior to their forwarding to the FMA.

- a. The 2M WC shall be designated as CSE3 (OE15 for Aircraft Carriers). All 2M work will be documented using these WCs. Final action codes will use "7 series" in accordance with reference (d).
- 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/EM to the FMA if the CCA/EM repair is beyond the capability of the 2M WC.
- c. Supply Officers have different responsibilities for DLRs or FLRs, per references (a) and (m).
 - (1) DLRs. Carcass tracking procedures are delineated in local command instructions and will identify supply/maintenance personnel responsibilities for tracking CCAs/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 OE15 MTRF will use the Progressive Repair Program with the MTR Tracking System to support Supply/MTRF interaction.
 - (2) FLRs. Disposal of FLRs can be accomplished by either Ship's Force or the FMA.

8.5.3 Fleet Maintenance Activity Process. FMAs have additional 2M repair and ATE capabilities exceeding the Ship's Force level. The FMA will conduct repairs to CCAs/EMs if it is within their capability.

VOLUME VI

CHAPTER 9

METROLOGY AND CALIBRATION PROGRAM

REFERENCES.

- (a) OPNAVINST 3960.16 - Navy Test, Measurement and Diagnostic Equipment (TMDE), Automatic Test Systems (ATS), and Metrology and Calibration (METCAL)
- (b) COMNAVAIRFORINST 4790.2 - Naval Aviation Maintenance Program
- (c) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
- (d) OPNAVINST 4000.57 - Logistic Support of the TRIDENT and POSEIDON Fleet Ballistic Missile (FBM) Systems
- (e) NAVSEAINST 4734.1 - NAVSEA Test, Measurement, and Diagnostic Equipment (TMDE) and Calibration Programs
- (f) NAVSEA ST700-AA-LST-010/NAVAIR 17-35NCA-1 - Navy Calibration Activity (NCA) List
- (g) NAVSEA OD 45845/NAVAIR 17-35MTL-1 - Metrology Requirements List (METRL)
- (h) NAVSEA ST000-AG-IDX-010 - Test, Measurement and Diagnostic Equipment Index (TMDEI) CD-ROM Version
- (i) NAVSEA ST700-AM-GYD-010/METCAL - METCAL Calibration Laboratory Requirements and Certification Guide
- (j) NAVAIR 17-35QAL-15 - Naval Aircraft Carrier (METCAL) Program Manual
- (k) OPNAV 43P6 - MEASURE Users Manual
- (l) NAVSEAINST 4790.8/OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
- (m) NAVSUP Publication 485 - Afloat Supply Procedures
- (n) COMNAVSEASYS COM WASHINGTON DC 03004Z FEB 09 - SISCAL Policy Guidance - Level 2 Calibrations
- (o) NAVSEA S0400-AD-URM-010/TUM - Tag-Out Users Manual
- (p) NAVSEAINST C9210.4 - Changes, Repairs and Maintenance to Nuclear Powered Ships

9.1 PURPOSE. To promulgate 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, in accordance with reference (a).

9.1.1 Scope. 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 Policy. 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).

9.2 RESPONSIBILITIES.9.2.1 Fleet Commanders.

- a. Operationally administer the TMDE and METCAL programs in accordance with 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 in accordance with reference (e) as required.
- g. Provide funding for calibration and repair of TMDE including calibration standards, except as follows:
 - (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)/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 Type Commander.

- a. Assign a METCAL Manager to administer TMDE and METCAL program requirements in accordance with 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 in accordance with reference (a) and the guidance provided by the appropriate Systems Command (SYSCOM).
- 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/RCC.
- h. Coordinate with NAVSEA 04RM34 for Sub-Category (SCAT) assignments and Ship's Portable Electrical/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 NAVSEA Technical Authority.

- a. The NAVSEA METCAL TWH is the Technical Authority for all equipment/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)) in accordance with 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, Carderock Division, Ship Systems Engineering Station (NSWCCD-SSES) is the TWH's EA for all shipboard installed instrumentation. NSWCCD-SSES 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/systems, develops and validates associated calibration procedures and publishes related calibration documentation such as ship-specific Calibration Requirements Lists (CRL), calibration procedures that are promulgated via the Planned Maintenance System (PMS) (Maintenance Requirement Cards (MRC)), and System Calibration Procedures (SCP) in accordance with NAVSEA directives (see paragraph 9.7 of this chapter). NSWCCD-SSES may be contacted by telephone or message for resolution of urgent technical problems related to calibration of shipboard instrumentation, calibration PMS and/or SCPs. (SSES).
- d. NSWC Corona Division, Seal Beach Detachment 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) Ensure each activity actively supports the Periodic Maintenance Requirement (PMR)/Maintenance Resource Management System scheduling program by maintaining at least 95% accomplishment rate for all calibration equipment in its inventory. The PMR reports or equivalent will be used to monitor the program.

9.2.5 Commanding Officers All Forces.

- a. Maintain a high degree of TMDE calibration readiness **including installed instruments**.
- b. Appoint in writing, a calibration coordinator/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.
- c. Maintain TMDE allowances in the SPETERL. Advise the TYCOM METCAL Manager and contact the CTRA to fill deficiencies prior to submitting requisitions for replacement test equipment through the supply system. Deliver excess test equipment to the CTRA facility.
- d. 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. Special Purpose Electronic Test Equipment (SPETE) that is approved per reference (e) is authorized for designated systems only. SPETE shall not be used as a general purpose test requirement.
- e. Ensure TMDE is submitted for calibration prior to the calibration due date, with all accessories, power cords and technical manuals required to complete calibration.
- f. Submit pre-deployment calibration requirements to the RMC METCAL Coordinator at least 60 days before deployment. Conduct an inventory of all SPETE to confirm material condition and calibration due dates.
- g. Calibration Readiness Goal: Submarine Force - 95%
Air Force and Surface Force - 85%

9.2.6 Commanding Officers Surface Force.

- a. Ensure the SGCP FCA is currently certified and properly staffed with trained personnel, documentation and calibration standards (allowance quantities listed in the SPETERL).
- b. Ship's Force is responsible for the calibration of all instrumentation within their SGCP FCA capability. SGCP trained technicians are the only authorized personnel to accomplish calibration using SGCP calibration standards. The SGCP calibration procedures are found in the shipboard Planned Maintenance System (PMS), workcenter FCA1, MIP 9802 series. SGCP calibration standards allowance quantities are listed in the SPETERL per reference (i).
- c. 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). All other instruments are classified as non-critical, No Calibration Required (NCR).
- d. Use a TYCOM approved formal recall system for scheduling, planning and monitoring the ship's calibration status.
- e. Ensure FCA equipped ships offer support to other ships in company on a not-to-interfere basis with own ship's work schedules.
- f. Request calibration services, beyond the capability of the onboard FCA, from the RMC METCAL Coordinator.
- g. Maintain liaison with the RMC METCAL Coordinator to make sure TMDE scheduled for off-ship calibration are delivered and returned according to the agreed upon schedule.

- (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). NSWC SSES will coordinate with NAVSEA Program Offices to resolve.
- c. Current Ships Maintenance Project (CSMP). Ship's Force will submit a ships maintenance action form OPNAV 4790/2K or Automated Work Request, to identify the deferred maintenance for the instruments not calibrated during the SISCAL visit. Following additional guidance is provided to assist in drafting the 2K or the Automated Work Request.
- (1) CSMP Summary: Identify either as "SISCAL call-back" or "SISCAL II". SISCAL II is used when more than 100 instruments require calibration.
 - (2) Problem Description: Instruments were not calibrated during the SISCAL visit.
 - (3) Problem Solution: Calibrate following level 2 instruments (list by CRL reference number or attach a 2L as required with the CRL reference numbers for each instrument). Rejected, CNI and OOC items would be identified in a separate 2K for ordering replacement parts and called down from the CSMP for accomplishment when instruments are replaced or repaired.
- d. Departure From Specification (DFS). SISCAL DFS messages are requests for minor temporary departures and are submitted in accordance with Volume V, Chapter 8 of this manual. A SISCAL DFS would be submitted for the following reasons:
- (1) 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.
 - (2) Extending the periodicity for individual level 2 and 3 instruments with expired calibration due dates or replaced while away from homeport/calibration facility.
 - (3) Level 2 instruments that were not calibrated during SISCAL due to lack of a calibration procedure or calibration standard.
 - (4) Other shipboard SISCAL DFS requests will be evaluated on a case-by-case basis.
- e. DFS requests will not be approved for the following:
- (1) Instrumentation within the calibration capability of the SGCP FCA.
 - (2) Instrumentation not calibrated during a SISCAL visit due to an out of commission or rejected status.

- f. SISCAL workload may only be contracted out if certified as a Navy lab and approved by NAVSEA 04 to use SCPs (system calibration). Commercial activity must calibrate using periodicities listed in the CRL. The commercial activity must provide calibration data to Ship's Force in format to accommodate entry into TCR.

9.7.1 Calibration Requirements List. The CRL is the technical reference for installed calibration requirements and includes data pertinent to each instrument (e.g., nomenclature, system, periodicity, calibration activity, etc.). SISCAL teams, SGCP, Aviation Intermediate Maintenance Departments (AIMD) and Regional Calibration Centers provide SISCAL calibration support. Approved calibration procedures include MIP 9802, SCP and Instrument Calibration Procedures. Only SISCAL Teams are authorized to use SCPs.

- a. The CRL is the primary technical reference for shipboard installed instrumentation. The CRL is distributed to the Engineer Officer and AIMD Officer (LHA/LHDs/CVNs).
- b. CRL Validation.
 - (1) Ship's Force validates CRL to make ship specific. Validate SGCP responsible instrumentation and submit TMDER changes for conflicts in nomenclature, function, range, location or calibration requirement. The SISCAL team is responsible for validating SISCAL instruments.
 - (2) Feedback to CRL changes for add/deletes or changes can be submitted using MCMS or TMDER, via mail or email

Hardcopy changes shall be addressed to:

COMMANDER, CODE 310
TMDER BLDG 1388
NAVSURFWARCENDIV NSDSA
4363 MISSILE WAY
PORT HUENEME CA 93043-4307

TMDERs can also be generated and sent electronically at the NSDSA website:
<https://nsdsa2.phdnswc.navy.mil/tmder/tmder.asp?lvl=1>

- (3) Ship's Force match CRL data to the METCAL AIS or Calibration Recall and Inventory System inventory and submit changes to the MEASURE Operational Control Center East or West. The CRL and METCAL AIS do not have matching data elements as MEASURE and Calibration Recall and Inventory System; refer to the CRL CD-ROM Users Guide.
- c. The CRL is the technical authority document for all shipboard instrumentation calibration requirements. To preclude continuous and duplicative review of TMDERs, 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 is not required to calibrate these instruments unless specifically approved by NAVSEA METCAL TWH.
- d. Calibration intervals in the CRL take precedence over the intervals in technical manuals and the Metrology Requirements List.
- e. Broken or inoperative Level I installed instruments identified as CAL=Y in the CRL that are replaced during deployment must be calibrated prior to use. If unable to calibrate due to lack of Calibration Standard, qualified personnel or calibration procedure, submit a DFS in accordance with paragraph 9.7d. of this chapter and use an "Out-of-Cal" label in accordance with 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.

9.7.3 Markings for Test, Measurement and Diagnostic Equipment.

- a. **Installed Instrumentation.** All instrumentation will be clearly labeled with current calibration stickers and have easily read serial numbers. 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 + CRL reference number (i.e., DDG5100025).
- b. **Serial Numbers for TMDE other than Installed Instrumentation.** All TMDE will be clearly labeled with current calibration stickers and have easily read serial numbers. 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 + Work Center + four digit sequential number starting with 0001 (i.e., DDG510E010001). The new serial number should be annotated in the TYCOM Calibration Program, either 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.**

9.8 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 promulgated 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/electrical and weapons systems; and the Engineering SGCP for installed instrumentation associated with Hull, Mechanical and Electrical (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/intermediate maintenance. In the event the contents of this guidance or reference (j) conflict with any directive issued by higher authority, the latter shall prevail.

9.8.5 Applicability. 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 Action.

- a. Commanding Officers shall have the overall responsibility for maintaining a high degree of calibration readiness for all TMDE.
- b. AIMD Officers shall:
 - (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 shall be authorized and scheduled in accordance with 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 SHALL BE AUTHORIZED AND SCHEDULED IN ACCORDANCE WITH 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 shall:

- (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 SCLISIS.
- (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 shall:

- (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 shall:
- (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/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 SCLISIS.
 - (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 in accordance with the requirements of the applicable Reactor Plant Manual. Other nuclear-powered ship's system calibration must be performed per the requirements of reference (a).

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- (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/surveyor will ensure all inspection data is entered into the CCIMS database within three working days upon completion of inspection.

13.4.3 Surface Ships.

- 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 and/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) 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 are qualified to conduct inspections in accordance with reference (c). All inspection results will be entered into the CCIMS database. Departures From Specifications (DFS) shall be submitted in accordance with this manual and as defined in reference (c).
- e. (Aircraft Carriers only) For any tanks and/or voids which are not normally filled with seawater and/or not designed to be exposed to seawater, Ship's Force will ensure the following:
 - (1) Only fresh water may be used in any tanks and/or voids which are not normally exposed to seawater (e.g., water transferred to peak tanks and/or dry voids for use in controlling list and/or ballasting the ship must be fresh water).
 - (2) Report to the TYCOM those tanks and/or voids in which fresh water is being used for controlling list and/or ballasting the ship.

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- d. Administer the Ship's configuration management program.

19.2.1.9 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 3-M Coordinator. 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:

- a. Technical review of work requests submitted for FMA accomplishment.
 - (1) Ensure readability and technical correctness.
 - (2) Prevent duplication of work requests for Ship Alterations/Unrestricted Operation and other MJC originated deferrals.
 - (3) (Submarine Force only) Ensure corrective maintenance described in Block 35 (Remarks) of the Ship's Maintenance Action Form OPNAV 4790/2K of reference (a) (2-Kilo) includes reference to the associated Maintenance Standard when applicable.
 - (4) Collect supplemental 2-LIMA requests for routine work (i.e., lagging, painting, label plates, tiling, etc.) from all Work Centers (WC) and prepare an integrated priority list for each type of routine work to maximize the FMA's effectiveness.
- b. (Non-Automated Commands) Ensure all FMA level work included on the Equipment Status Log is documented on 2-Kilo deferrals.
- c. Ensure Command's preparations for an FMA availability are conducted in accordance with Volume II, Part I, Chapter 4 of this manual.
- d. Meet daily, during an availability, with the assigned Ship Superintendent to discuss the status of all active jobs.
- e. Attend all FMA production, night work, and management meetings.
- f. Provide a daily FMA job status to each Department Head, Division Officer, and Leading Petty Officer.

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 in accordance with reference (b).

19.2.3 Maintenance and Material Management Operation and Administration.

19.2.3.1 Standard Force Work Center Numbering System. The production of automated products in support of the 3-M system, as well as the various Maintenance Automated Information Systems, dictate that a standard force WC organization be maintained. Commanding Officers shall designate their Command organization and applicable WC codes as listed in Appendix C of this chapter. Additionally:

- a. Commands shall not allow the use of any WC codes not authorized by reference (a) or this manual.
- b. 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. This does not affect the re-assignment of a MIP to another WC (shift of maintenance responsibility). Reference (a) provides guidance for the shift of maintenance responsibility.

- c. (Submarine Force only) Small boat, tug, receiver, and service craft managers will use the specific WCs identified in Appendix C3 of this chapter for MDS documentation, however, for PMS management they may assign a "**00" WC to consolidate PFRs, MIPs, scheduling, etc., (e.g., PY30 through PY84 may consolidate PMS under WC PY00, or PY01-Mechanical, PY02-Electrical, etc.). The Unit Identification Code will be that of the parent command.
- d. (Surface and Submarine Forces only) Standard MJC assigned WC codes are reflected in Appendix D of this chapter.

19.2.3.2 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 the maintenance action and to relate all of the parts used when a ship reports a maintenance action and it links all associated reporting of a maintenance action. The JCN is comprised of three blocks as defined by the Ship's 3-M manual. Block 1 is the Ship's Unit Identification Code (5 numeric characters), Block 2 is the WC (4 alphanumeric characters, left justified) and Block 3 is the Job Sequence Number (JSN) (usually 4 numeric characters).

19.2.3.3 Job Sequence Number. The first position of the JSN is used to identify the tool or organization that created the 2-Kilo. In the case of activities other than the ship creating jobs for the ship, this first character of the JSN will be an "ALPHA" character. The control over which organizations/tools "OWN" which "ALPHA" character(s) is provided by the Job Originator Values, Appendix E of this chapter, developed within the Maintenance and Modernization Business Unit and is available through the NAVSEALOGCEN website 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.

19.2.3.4 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 is as follows:

NOTE: WHERE THE GOAL OF 100% ACCOMPLISHMENT CANNOT BE REACHED, THE UNIT'S CHAIN OF COMMAND SHALL BE KEPT INFORMED OF THE CIRCUMSTANCES WHICH PREVENT ACCOMPLISHMENT OF SCHEDULED MAINTENANCE.

- a. (Submarine Force only) An asterisk (*) will be inserted in SKED against any Maintenance Requirement (MR) which is a "Safety of Ship" item. A "Safety of Ship Item" is defined as any maintenance action vital to the maintenance of a submarine's watertight integrity or its ability to return safely to the surface. "Safety of Ship" MRs, so designated by the cognizant technical authority, are annotated on the MIP with a single asterisk (*) in the periodicity code column. Commanding Officer notification is required for non-accomplishment of any "Safety of Ship" designated MR.
- b. Situational reference sheets will be maintained/posted in the WC PMS Manual. These sheets will contain a brief description of the situation and the maintenance action for all situational requirements listed in the right hand column of the weekly schedule. Appendix F of this chapter provides a typical situational reference sheet.

19.2.3.5 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. With shrinking budgets, Maintenance Effectiveness Reviews, Reliability Centered Maintenance and "fewer individuals to do more" the complete "step-by-step" performance of assigned maintenance is of paramount importance. To maintain

APPENDIX C₁

STANDARD WORK CENTER CODES FOR NAVAL AIR FORCE SHIPS

1. Afloat Departmental Codes.

	<u>WC CODE</u>
Safety	A
Command Religious Ministries	B
Combat Systems	C
Deck	D
Engineering	E
Graphics Media	G
Aviation Intermediate Maintenance Department (AIMD)	I
Legal	L
Dental	MD
Medical	MH
Navigation	N
Operations	O
Maintenance	P
Reactor	R
Supply	S
Training	T
Air	V
Weapons	W
Administration	X
Airwing (when assigned)	Z

2. Afloat Professional WC Codes.

a. <u>Safety Department.</u>	AS01
b. <u>Command Religious Ministries Department.</u>	BC01
c. <u>Combat Systems Department Administration.</u>	CS00
Telecommunications Division Administration	CS10
Message Processing	CS11
Tech Control/Antenna	CS12
Network Security Division Administration	CS20
Information Systems Security	CS21
Automated Data Processing Division Administration	CS30
Unclassified Appts/Hardware/LAN	CS31
Classified Appts/Hardware/LAN	CS32
NTCSS	CS33
PC Copier Repair	CS34
Distributed Data Communications Maintenance (includes ICAN, DDCN, and MCS)	CS35
Data Systems Division Administration	CS50
C2/Display Systems Maintenance/ISIS	CS51
Tactical USW Systems Maintenance	CS52
INTEL Systems Maintenance	CS53

	WC CODE
2-M Repair/Fiber Repair	CS54
Tactical Data Links	CS55
Radar Division Administration	CS60
Air Traffic Control	CS61
Surface Search/Air Search/IFF	CS62
Navigation/NAVAIDS/Gyro	CS63
Meteorology	CS64
Test Equipment	CS65
Combat Systems Department Tool Issue	CS66
Self Defense Weapons Division Administration	CS70
CIWS	CS71
RAM	CS72
NSSMS	CS73
SPS-48/SPQ-9B/TAS	CS74
IC Systems Division Administration	CS80
SITE-TV	CS81
Telephone	CS82
Announcing Systems	CS83
Alarm/Sensors	CS84
External Communications Repair Division Administration	CS90
HF/LOS/SATCOM Systems	CS91
Peripherals/NAVMACS/Crypto Equip	CS92
FDCS/BDCS/HYDRA	CS93
d. <u>Deck Department Administration.</u>	DX00
1st Division	DA01
2nd Division	DB02
3rd Division	DC03
e. <u>Engineering Department Administration.</u>	EX00
Auxiliaries Division Administration	EA00
Hydraulics	EA01
Steam Heat/Galley/Laundry	EA02
Air Conditioning & Refrigeration	EA03
Diesels (CVN-65)	EA04
Oxygen & Nitrogen	EA06
Boats	EA07
Outside Repair	EA08
Catapult Steam	EA10
Filter Shop	EA11
Waste Management	EA14
Damage Control Division Administration	ED00
Damage Control Training	ED01
Chemical/CBR-D	ED02
Damage Control Systems	ED03
SCBA/BARS/SAR-SCBA/EBACS/Gas Free	ED04

	WC CODE
Damage Control Repair Stations	ED05
Electrical Division Administration	EE00
Lighting/Battery Shop	EE01
Rewind	EE02
Power (Non-nuclear)/General	EE03
Hotel Services	EE04
Electrical Safety	EE20
<u>Machinery Division.</u>	
#1 Plant Machinery Division (CVN-65)	EM11
#4 Plant Machinery Division (CVN-65)	EM14
#2 Plant Machinery Division (CVN-65)	EM22
#3 Plant Machinery Division (CVN-65)	EM23
#1 Auxiliary Machinery Room (CVN-65)	EM31
#2 Auxiliary Machinery Room (CVN-65)	EM32
Repair Division Administration	ER00
General Work Shop	ER01
Carpenter	ER02
Pipe Shop/Marine Sanitation Device (MSD)	ER03
Machine Shop/Locksmith	ER04
f. <u>Graphics Media Department Administration.</u>	GM00
PAO	GM11
Photo Shop	GM12
Print Shop	GM13
g. <u>AIMD Department Administration.</u>	IM00
PC/QA division (NALCOMIS reported equipment)	IM01
Mechanical Repairs	IM02
Avionics	IM03
Ground Support	IM04
Field Calibration Activity	FCA1
h. <u>Legal Department.</u>	LN01
i. <u>Health Services.</u>	
Dental Department	MD01
Medical Department	MH01
j. <u>Navigation Department.</u>	NN01
k. <u>Operations Dept Administration.</u>	OX00
Meteorological	OA01
Air Ops/CATCC	OC01
Security Department Administration (when assigned).	OF00

WC CODE

	Ship's Security Force	OF01
	Force Protection	OF02
	Brig	OF03
	CDC	OI01
	Undersea Warfare/Acoustics	OI02
	Comm Intel/SESS	OS01
	Electronic Warfare	OS02
	Intelligence Department Administration (when assigned).	OZ00
	Intelligence	OZ01
i.	<u>Maintenance Department Administration</u> (when assigned).	PM00
	3-M	PM01
	MSC	PM02
	Quality Assurance (QA)	PM03
m.	<u>Reactor Department Administration.</u>	RX00
	Reactors Auxiliaries Division Administration	RA00
	Emergency Diesels	RA01
	Reactor Controls Division Administration	RC00
	#1 Reactor Plant	RC11
	#1 Reactor Plant (Non-Nuclear CVN-68 Class)	RC12
	#4 Plant Reactor Control Division (CVN-65)	RC14
	#2 Reactor Plant (CVN-68 Class)	RC21
	#2 Reactor Plant (CVN-65, (Non-Nuclear CVN-68 Class)	RC22
	#3 Plant Reactor Controls Division (CVN-65)	RC23
	Reactor Instrumentation and Maintenance	RC30
	Reactor Electrical Division Administration	RE00
	#1 Reactor Plant	RE11
	#1 Reactor Plant (Non-Nuclear CVN-68 Class)	RE12
	#4 Reactor Plant (CVN-65)	RE14
	#2 Reactor Plant (CVN-68 Class)	RE21
	#2 Reactor Plant (CVN-65, (Non-Nuclear CVN-68 Class)	RE22
	#3 Reactor Plant (CVN-65)	RE23
	Tool Issue and Technical Support	RE30
	Reactor Laboratory Division Administration	RL00
	#1 and #4 Reactor Plants (CVN-65)	RL00
	#2 and #3 Reactor Plants (CVN-65)	RL01
	#1 Reactor Plant (CVN-68 Class)	RL11
	#1 Reactor (Non-Nuclear CVN-68 Class)	RL12
	#2 Reactor Plant (CVN-68 Class)	RL21
	#2 Reactor (Non-Nuclear CVN-68 Class)	RL22

	WC CODE
Dosimetry	RL30
Reactor Mechanical Division Administration	RM00
#1 Reactor Room	RM11
#1 Reactor Room (Non-Nuclear CVN-68 Class)	RM12
#4 Reactor Room (CVN-65)	RM14
#2 Reactor Room (CVN-68 Class)	RM21
#2 Reactor Room (CVN-65 , (Non-Nuclear CVN-68 Class)	RM22
#3 Reactor Room (CVN-65)	RM23
Technical Support	RM30
Reactor Propulsion Division Administration	RP00
#1 Main Machinery Room (CVN-68 Class)	RP01
#2 Main Machinery Room (CVN-68 Class)	RP02
Shaft Alley/Reboiler/Oily Waste (CVN-68 Class)	RP05
Technical Support	RP30
Reactor Training Division Administration	RT00
Student Training	RT01
n. <u>Supply Department Administration.</u>	SS00
S-1 Stock Control	SS01
S-2 Food Services	SS02
S-3 Retail Operations	SS03
S-4 Disbursing	SS04
S-5 Hotel Services	SS05
S-6 Aviation Support	SS06
S-7 Morale, Welfare and Recreation	SS07
S-8 Material	SS08
S-8A Hazardous Material	SS09
S-10 Supply Quality Assurance	SS10
S-11 CPO Mess	SS11
S-1A Customer Service (Post Office)	SS12
S-13 Supply Department 3M/DC	SS13
o. <u>Training Department.</u>	TX01
p. <u>Air Department Administration.</u>	VV00
V1 Division Administration	VA00
Flight Deck	VA01
Crash and Salvage	VA02
V2 Division Administration	VB00
#1 Catapult	VB01
#2 Catapult	VB02
#3 Catapult	VB03
#4 Catapult	VB04
#1 Arresting Gear	VB05
#2 Arresting Gear	VB06

	WC CODE
#3 Arresting Gear	VB07
#4 Arresting Gear (#3A CVN-76 Class)	VB08
Barricade	VB09
Improved Fresnel Lens Optical Landing System (IFLOLS)	VB10
Integrated Launch and Recovery Television System (ILARTS)	VB11
Flight Deck Lighting	VB12
Maintenance Control	VB20
QA	VB21
Maintenance Support	VB22
V3 Division Administration.	VC00
Hanger Deck	VC01
V4 Division Administration.	VF00
JP-5 Hanger Deck/Flight Maintenance	VF01
JP-5 Below Deck Equipment Maintenance	VF02
EM and IC Repair	VF03
JP-5 QA/Testing Lab	VF04
V5 Division Administration.	VX00
PRIFLY	VX01
q. <u>Weapons Department Administration.</u>	WG00
Weapons Handling G1 Division	WG01
Ship's Armory G2 Division	WG02
Weapons Magazine G3 Division	WG03
Weapons Elevator G4 Division	WG04
Weapons Control G5 Division	WG05
Weapons Electrical Tool Issue	WG20
r. <u>Administration Department.</u>	
CO's Admin	XX01
XO's Admin	XX02
Administration	XX03
Personnel	XX04
Special Assistants - ESO/CCC/CMC/DAPA/EOA	XX05
Flag/Embarked Staff	XF01
s. <u>Airwing (when assigned).</u>	
CAG	ZW00
Reserved for Assignment to Embarked Airwings	ZW01 thru ZW11
3. Afloat <u>Damage Control WC Codes.</u>	
a. <u>Safety Department DC.</u>	AS40

	WC CODE
b. <u>Command Religious Ministries Department DC.</u>	BC40
c. <u>Combat Systems Department DC (note 1).</u>	CS40
Telecommunications Division DC	CS41
ADP Division DC	CS43
Data Systems Division DC	CS45
Radar Division DC	CS46
Self Defense Weapons Division DC	CS47
IC Systems Division DC	CS48
External Communications Repair Division DC	CS49
d. <u>Deck Department DC (note 1).</u>	DX40
1st Division DC	DA40
2nd Division DC	DB40
3rd Division DC	DC40
e. <u>Engineering Department DC (note 1).</u>	EX40
Auxiliaries Division DC	EA40
Damage Control Division DC	ED40
Electrical Division DC	EE40
Machinery Division DC (CVN-65)	EM40
Repair Division DC	ER40
f. <u>Graphics Media Department DC.</u>	GM40
g. <u>AIMD Department DC (note 1).</u>	IM40
IM1 Division DC	IM41
IM2 Division DC	IM42
IM3 Division DC	IM43
IM4 Division DC	IM44
h. <u>Legal Department DC.</u>	LN40
i. <u>Health Services.</u>	
Dental Department DC	MD40
Medical Department DC	MH40
j. <u>Navigation Department DC.</u>	NN40
k. <u>Operations Department DC (note 1).</u>	OX40
OA Division DC	OA40
OC Division DC	OC40
OF Division/Department DC (as assigned)	OF40
OI Division DC	OI40
OS Division DC	OS40
OZ Division/Department DC (as assigned)	OZ40

WC CODE

l.	<u>Maintenance Division/Department DC</u> (as assigned).	PM40
m.	<u>Reactor Department DC</u> .	RX40
n.	<u>Supply Department DC</u> (note 1).	SS40
	S-1 Stock Control	SS41
	S-2 Food Services	SS42
	S-3 Retail Operations	SS43
	S-4 Disbursing	SS44
	S-5 Hotel Services	SS45
	S-6 Aviation Support	SS46
	S-7 Morale, Welfare and Recreation	SS47
	S-8 Material	SS48
	S-8A Hazardous Material	SS49
	S-10 Supply Quality Assurance	SS50
	S-11 CPO Mess	SS51
	S-1A Customer Service (Post Office)	SS52
o.	<u>Training Department DC</u> .	TX40
p.	<u>Weapons Department DC</u> (note 1).	WG40
	G1 Division DC	WG41
	G2 Division DC	WG42
	G3 Division DC	WG43
	G4 Division DC	WG44
	G5 Division DC	WG45
q.	<u>Air Department DC</u> (note 1).	VV40
	V1 Division DC	VA40
	V2 Division DC	VB40
	V3 Division DC	VC40
	V4 Division DC	VF40
	V5 Division DC	VX40
r.	<u>Administration Department DC</u> .	XX40

Note 1: Damage Control (DC) work centers are assigned at the division level, therefore, the department work center is usually not applicable. When authorized by the Commanding Officer to combine division DC work centers at the departmental level, the division work center is not applicable.

4. Afloat Maintenance Availability WC Codes.

a.	<u>Ship Alteration</u> (N/A for Ship's Force, used by TYCOM for planning purposes).	
	Combat Systems SCD	CSSA
	Deck Department SCD	DXSA
	Engineering Department SCD	EXSA
	AIMD SCD	IMSA
	Health Services Department SCD	MXSA

WC CODE

Navigation Department SCD	NNSA
Operations Department SCD	OXSA
Reactor Department SCD	RXSA
Reactor Department TYCOM Alts	RXTY
Supply Department SCD	SSSA
Air Department SCD	VXSA
Weapons Department SCD	WGSA
Graphics Media Department SCD	GMSA

b. Availability Maintenance Teams.

Work Control	PM10
Habitability	PM11
Paint	PM12
Deck	PM13
Valve Barge	PM14
Vent Cleaning	PM15
Tank and Void	PM16
Cable Way	PM17
Door Repair	PM18
GSE	PM19
Lagging	PM20
Joiner Door Repair	PM21
Ladder Repair	PM22
Electrical Repair	PM23
Fan Room Restoration	PM24
LIFAC	PM25
Plenum Repair	PM26
Matting	PM27
Interior Communications	PM28
Head Repair	PM29
Damage Control	PM30
Island Painting	PM31
JP-5	PM32

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APPENDIX E**JOB ORIGINATOR VALUES**

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
V	Created by NEMAIS Broker (National)
W	Class Maintenance Plans (AIR, SUB)
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, in accordance with 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.

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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/SSGN 726 Class Submarines. These maintenance plans are written to the system, equipment and/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), Maintenance Standards (MS) 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. An SSBN/SSGN 726 Class Submarine Maintenance Plan comprising all individual maintenance plans is issued periodically by NAVSEA. In accordance with reference (a), the Type Commander will identify and prioritize corrective maintenance actions for SSBN/SSGN Class Submarine emergent repairs. Programs and requirements supporting the SSBN/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 shall 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 shall manage emergent repairs requiring use of TRIPER assets. In accordance with reference (a), the Type Commander will identify and prioritize corrective maintenance actions for SSBN/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. Stake holders 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/or "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 Major Shore Spares. 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 shall require Type Commander authorization. Typically, MSS equipments include 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 Fleet Logistics Agent. The function of the fleet logistics agent for SSBN/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/MMP.
- c. Assessing the logistic impact and reporting of, configuration changes effected by all sources in SSBN/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/SSGN 726 Class Submarines during refit/MMP and shall 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/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 and/or Date Time Group of message:

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/PMA _____

Signature: _____ Date: _____

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CHAPTER 24

PERIODIC MAINTENANCE REQUIREMENT PROGRAM

REFERENCES.

- (a) NAVSEAINST 4790.8/OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
- (b) NAVSUP Publication 485 - Afloat Supply Procedures
- (c) NAVSEAINST 4790.19 - Submarine Engineered Operating Cycle (SEOC) Program
- (d) OPNAVINST 3120.33 - Submarine Extended Operating Cycle (SEOC) Program

LISTING OF APPENDICES.

- A SUBMEPP Maintenance and Shipwork Planning (MSWP) Periodic Maintenance Schedule - I Level
- B SUBMEPP Maintenance and Shipwork Planning (MSWP) Inventory of Periodic Maintenance Requirements - I Level
- C SUBMEPP Maintenance and Shipwork Planning (MSWP) Inventory of Periodic Maintenance Requirements - I/D Level
- D Submarine Periodic Maintenance Requirement (PMR) Management Process
- E Work Package Supplement - Shipyard Planning and Feedback Report
- F 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 C 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 approving, inspecting, monitoring, interference removal, delivery of ship to shop items, retesting and accepting work. Ship's Force 991 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 (991).

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 Maintenance Standards (MS)), URO MRCs, and provides PMR configuration and scheduling information to the Submarine Force. Appendices A and B of this chapter show examples of the SUBMEPP PMR Inventories and Schedules provided in support of the Type Commander (TYCOM) PMR Scheduling System. A description of the data elements utilized is provided in each issue of the PMR Inventories and Schedules, which is issued quarterly, or as requested by the Immediate Superior in Command (ISIC). 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/SSGN 726 Class submarines. The quarterly 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 shown in Appendix C of this chapter. This inventory identifies the availability for which the "D" level PMRs are planned for accomplishment.
- b. For SSBN/SSGN 726 Class submarines. 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, scheduling/configuration files (M79EII), and a Master Job Catalog (MJC) update file are distributed automatically by SUBMEPP to the parent ISIC every three months or as requested. SUBMEPP informs the ISIC of the latest update information. Appendix D of this chapter provides a flow chart of the Submarine PMR Management System.

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 work load 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 shall be maintained by the parent ISIC.

24.2.3 Periodic Maintenance Requirements Calldown/Brokering. I-Level PMRs which are due for accomplishment are called down from the local scheduling systems, and brokered to the FMA. JCNs for PMRs consist of ship's Unit Identification Code (five characters) plus WC (Department/Division + □JC□) (four characters) plus Job Sequence Number (four characters, sequentially assigned, numeric).

24.2.4 Calculating Adjusted Last Maintenance Action Date.

- a. Fleet Availabilities. When a PMR is accomplished during a Fleet availability (Fleet Maintenance Activity (FMA)/Refit, Voyage Repair, Planning), the adjusted Last Maintenance Action (LMA) date will be the first of the month following actual completion.
- b. CNO Availabilities. When a PMR is accomplished during a CNO Availability (Selected Restricted Availability, Interim Drydocking, Extended Refit Period, Depot Modernization Period (DMP), Engineered Refueling Overhaul or a Major Maintenance Period (treated as a CNO availability for scheduling purposes only)), the adjusted LMA date will be the first of the month following the scheduled availability's actual completion date. ISICs operating with the on-site PMR Scheduling System must ensure that Availability Dates are accurately maintained so that completed Automated Work Request (AWR) reported data reflects the adjusted LMA 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/year (number) and adding the periodicity months (number) to show the month/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 in accordance with specifications can safe and reliable operation be ensured and the period between CNO Availabilities be extended.

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CHAPTER 31

SURFACE SHIP MAINTENANCE PLACEMENT
AND OVERSIGHT BUSINESS RULESREFERENCE.

- (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 alterations. 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 Commander to execute maintenance in accordance with Fleet and TYCOM maintenance policies and directives. The TYCOM shall ensure that each ship's Business Plan is tailored to fit the 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. The Maintenance Team's performance shall in part be evaluated on conformance with the individual ship MMBP or in the larger scope, the ability of the maintenance team to execute required maintenance without exceeding funding controls. 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. No more than 25% of the CM controls for an individual ship shall be moved to the CNO availability without TYCOM approval.
- e. The Maintenance Team shall schedule continuous maintenance availabilities per Volume II, Part II, Chapter 2 of this manual. Adjustment of Continuous Maintenance Availability dates shall be coordinated with the RMC and requested from the Immediate Superior In Command via naval message. Date changes shall 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 shall resolve CNO availability scheduling issues with the TYCOM via the RMC. The TYCOM shall 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 shall 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 shall 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 Multi-Ship/Multi-Option (MS/MO) contractor. The Maintenance Team may go to other contracting vehicles when:
 - (1) The MS/MO contractor and government cannot agree on cost and scope.
 - (2) The MS/MO contractor does not have the capability or capacity.
 - (3) Indefinite Delivery, Indefinite Quantity/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.
- 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 shall 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/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 shall 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. MS/MO 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 MS/MO contractor and address items of concern to the RMC and/or TYCOM.

31.3.3 Regional Maintenance Center Business Responsibilities.

- a. The RMC Commander has the authority from the Fleet Maintenance Officer and TYCOM to execute surface ship maintenance and shall do so in accordance with 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 in accordance with 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 shall request approval from the TYCOM whenever redistribution of annual ship funding is required. The RMC shall 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 shall:
 - (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 shall evaluate the financial status of each of the Maintenance Teams on a monthly basis.
- h. The RMC shall 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/C4 Casualty Reports (CASREP), or a C2 CASREP with reasonable potential to become a C3/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 in accordance with reference (a), the RMC will forward the deferral recommendation to the TYCOM for approval. Measures of command efficiency used in the past, such as sailing "CASREP free" are no longer appropriate.
- k. The RMC Commander will generate monthly maintenance availability Spot Light reports for all assigned ships planning for a CNO availability, ships in a CNO availability and ships that have completed their Hot Wash following the completion of a CNO availability. These Spot Light reports

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 shall 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 MAINTENANCE PROPOSAL REVIEW. 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 Concept. 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 Business Rules.

- a. The Ashore Ship's Maintenance Manager with support from the Maintenance Team shall 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 shall 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 shall resolve scheduling issues with the TYCOM via the RMC. The TYCOM shall include PEO Ships in any discussions resulting in availability date changes when Program Alterations are scheduled for the availability.
- d. Work packages shall be developed on a continuous basis starting no later than A-240 days in order to realize cost savings and avoid premiums associated with late identification of work in accordance with the business rules contained in Volume II, Part II, Chapter 2 of this manual.
- e. Depot level maintenance will normally be screened to the MS/MO contractor. The Maintenance Team may go to other contracting vehicles when:
 - (1) The MS/MO contractor and government cannot agree on cost and scope.
 - (2) The MS/MO contractor does not have the capability or capacity.
 - (3) Indefinite Delivery, Indefinite Quantity/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.
- f. The Maintenance Team shall 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 MS/MO 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, final 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 MS/MO contractor continuously submits Planning Estimates. 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 final TAR process. Following the 100% package lock, the planning activity completes planning, the MS/MO 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 in order to ensure on-time funding. This is followed by completion of the final TAR and business clearance processes.

31.4.3.2 Business Rules.

- a. The Planning Estimate will be continuously submitted 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 MS/MO 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 and differences in scope or cost estimates.
- c. The package will be "Locked" 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 package Locks, the planning activity will complete planning and estimating.
- d. Upon completion of the Planning Activity Estimate, that estimate will be compared to the IGE for the "locked" portion of the package as a snapshot of the status of the work package development.
- 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 or addendum.
- f. The Final Funding Notification with Estimates of Prorates will be a formal communication with resource sponsor (Email 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 final TAR (total package) 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 shall 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, shall include the appropriate members of the Maintenance 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 shall 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 Maintenance Team will minimize growth and overtime. Growth items that cannot be settled by the Maintenance Team shall be forwarded to the Technical Analyst to be settled in the TAR process.

31.5 GUIDANCE FOR FIRM FIXED PRICE CONTRACTS.

31.5.1 Overall Process. Unless specifically noted otherwise, the following are common practices in both the MS/MO 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 Firm Fixed Price Planning. Government activities shall accomplish FFP planning with the goal of compiling a complete, clear, concise and well-defined work package. The Ashore Ship's Maintenance Manager shall work with the Maintenance Team to define the work scope and solicitation in a FFP environment. The following points shall 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 shall ensure assessment results are considered for inclusion into the work package. The Ashore Ship's Maintenance Manager shall 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 can not 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 shall be informed. Conversely, the RMC Commander shall also be informed when there is insufficient work to justify a CNO availability.
- e. The use of proven, re-useable FFP work specifications by Maintenance Teams and planning activities should be the norm, not the exception.
- f. Ashore Ship's Maintenance Manager with assistance from the Maintenance Team shall review all contract work specifications prior to issue, and specification review changes shall 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 shall 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 shall be evaluated to ensure each Option Item can be accomplished during the contract performance period.

- (3) Material status shall 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 shall 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, shall 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 shall 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 shall 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 shall refer the bidder to the Advance Planning Manager.
 - (2) The RMC Procurement Contracting Officer shall ensure the Maintenance Team is provided with e-mail notification of all bidder's questions.
 - (3) The Maintenance Team shall 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 input shall be considered when formulating the Government's response.
 - (5) The final answer to bidder's questions shall be made available to the Maintenance Team 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 shall 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, shall document "lessons learned" during availabilities and provide these to the RMC for proper distribution and training of other Maintenance Teams.
- (5) Departure Reports shall be provided to the Maintenance Team, ensuring all applicable safeguards are in place to handle Business Sensitive Information.

APPENDIX A

RMC SPOTLIGHT REPORTS

1. PURPOSE. Establish guidelines for preparing an RMC Spotlight Presentation. This presentation is applicable to all ships undergoing planned (CNO/CMAV) availabilities.
2. SCOPE.
 - 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. GENERAL REQUIREMENTS/BACKGROUND.
 - 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 MS/MO 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. PROCESS.
 - a. This appendix defines the RMC Spotlight Presentation, but additional slides may be included for amplification on a conservative basis. The RMCs shall comply with standard formats.
 - b. Project Spotlight Chart.
 - (1) The left column of the chart shall 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 in accordance with 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/green (R/Y/G) after the milestone has been accomplished.
 - 1 Green – milestone met on schedule.
 - 2 Yellow – milestone 1-7 days late.
 - 3 Red – milestone >7 days late.
 - (d) The bottom row is colored with a R/Y/G 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.
 - 1 Green hash – next milestone will be met.
 - 2 Yellow hash – moderate risk for next milestone.
 - 3 Red hash – high risk for next milestone.
- (3) Comment blocks/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/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/balloons may be used to provide amplifying information as necessary.
- e. The Hot Wash Status Report is maintained by the RMC Hotwash 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.

- d. Chair the surface ships and carrier TMI Panel and establish the NAVSEA response to Fleet identified TMI issues.

32.4.2.1.2 Commander, Naval Sea Systems Command (07)/Program Executive Officer Submarines. COMNAVSEASYSKOM (07)/Program Executive Officers (PEO) Sub shall:

- 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.

32.4.2.1.3 Commander, Naval Sea Systems Command Program Offices. COMNAVSEASYSKOM Program Offices (and Commander Space and Naval Warfare System Command for subparagraphs b. through f. of this paragraph) shall:

- a. Chair TMA Panels in accordance with paragraph 32.4.2.1.4 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.

32.4.2.1.4 Program Executive Officers and Direct Reporting Program Managers. PEO and Direct Reporting Program Managers shall:

- 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.

32.4.2.1.5 Top Management Attention/Top Management Issues Panels. The TMA/TMI Panels shall:

- a. Review, discuss, and agree on the course of action to resolve each technical issue presented.
- b. Publicize minutes of the Panel Meetings.

32.4.2.1.5.1 Top Management Attention Panels. 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 surface ship and submarine 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) COMNAVSEASYSYSCOM (05) representative as chairman for the Surface, Carrier and CS panels and COMNAVSEASYSYSCOM (SEA 07) representative as chairman for the Submarine 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) COMNAVSEASYSYSCOM Program Offices, engineering codes and logistics codes representative(s).
 - (5) Commander, Space and Naval Warfare Systems Command (COMSPAWARSYSYSCOM) Program Office representative(s) as requested.
 - (6) Commander, Naval Air Systems Command (COMNAVAIRSYSYSCOM) 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 TMI Panel: The Submarine 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) COMNAVSEASYSYSCOM program offices, engineering code and logistics code representatives.
 - (5) COMSPAWARSYSYSCOM representative.
 - (6) COMNAVAIRSYSYSCOM 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 Ship TMI Panel: The Surface Ship TMI Panel is chaired by NAVSEA 05. NAVSEA 05, PEO Theater Surface Combatants, PEO Expeditionary Warfare, PEO Mine and Undersea Warfare, PEO

- (1) The CLASSRON will receive the initial TYCOM target control and modify it as deemed appropriate before forwarding to the NSA with ships of their class. This modification of targets should support the CLASSRON mission to ensure ships of the class are ready for tasking and that ships of the class receive the proper amount of maintenance in an efficient manner such that the ships achieve their full service life. Any modifications to issued controls shall be in accordance with paragraph 33.2.2.d of this chapter.
- (2) CLASSRONS will provide NSAs target controls in March.
- (3) CLASSRONS will submit MMBPs to the TYCOM for approval in July. Included in that submission, the CLASSRON shall provide a consolidated list of risk (deferred maintenance) by hull and by funding type (CM, CNO, Advance Planning/Advance Funding (AP)/(AF)) as well as a narrative assessment of the risks identified in the MMBPs under their purview. The risks should be categorized by their general risk categories (high, medium, low) as described in the business case analysis tool located in Volume II, Part I, Chapter 4, Appendix D of this manual.
- (4) The CLASSRON ensures that the established Fleet modernization plan is accurate and issues Fleet Alteration Letters of Authorization.

33.2.4 TYCOM Responsibilities. The TYCOM establishes Force maintenance policies and directives and authorizes the NSA to execute those policies and directives.

- a. (Surface Ships only) The TYCOM will provide the CLASSRONS with TYCOM Target Controls in March of each year and will revise these controls as required by the budget approval process.
- b. The TYCOM ensures that the established modernization plan is accurate and issues Fleet Alteration Letters of Authorization. (CLASSRON performs this for surface ships.)
- c. The TYCOM establishes the percentage of CNO Availability and CM funding controls to be allocated to the Maintenance Figure of Merit (MFOM) Funding Distribution Pools. A MFOM Funding Distribution Pool will be established for each ship class at each NSA. (CLASSRON performs this for surface ships.)
- d. The TYCOM has final approval of all MMBPs and will promulgate 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 CLASSRON 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 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/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 Controls and Phasing Sheet. 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 Unfunded Requirements Sheet.

- 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, and/or
 - (2) The work can be accomplished in the execution year if additional Continuous Maintenance Availability (CMAV)/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 Prioritization. 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 Maintenance Summary and Risk Assessment. The Maintenance Team and CLASSRONS 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/CLASSRON/TYCOM to make critical decisions with respect to funding adjustments. Photographs, inspection reports, docking reports, operating logs, vibration analysis, 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 BUDGET PROCESS AND MMBP DEVELOPMENT TIMELINE.

33.4.1 Guidance. 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 shall develop MMBPs using the following guidance and timeline. For submarines and aircraft carriers, actions assigned below 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 Initial Budget Guidance (March).

- 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. For surface ships only, these TYCOM Target Controls are passed from the TYCOM to the Maintenance Team via the CLASSRON as the initial input to the MMBP process.
- b. The TYCOM/CLASSRON 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 discussed above will be separated into Fleet maintenance and Fleet funded alteration controls by the TYCOM before the controls are passed to the CLASSRON or NSA.
- c. (Surface Ships Only) CLASSRONS may modify initial TYCOM target controls to support their mission of providing ships ready for tasking.

33.4.3 Provide Controls to Maintenance Team (April).

- a. The Maintenance Teams will use the Class Maintenance Plan to develop assessment schedules with NSA for inclusion in individual MMBPs.

- b. ISIC shall 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. Any individual ship MMBP that differs by more than 10% from the initial CLASSRON target control should include justification for the deviation. The total control for all ships of each class should not exceed the initial CLASSRON target control.
- d. Maintenance Teams will develop MMBPs based on these initial controls. This iterative process will involve risk assessment and BCA of any differences between the Maintenance Teams identified funding needs and the funding controls established for them.

33.4.4 Execution Strategy Adjustments (May). The TYCOM in coordination with Fleet Commanders will determine if adjustments to the TYCOM Target controls are required. For surface ships, the TYCOM will provide the CLASSRON and the NSA with direction for the adjustment of controls.

33.4.5 (Surface Ships only) Maintenance Team Submit MMBPs for Approval via NSA (June). The NSA approves, consolidates and submits copies of each assigned ship's MMBP to the CLASSRON/TYCOM for review and approval.

33.4.6 TYCOM Approves MMBPs (July).

- a. (Surface Ships only) CLASSRONs will consolidate their MMBPs (by coast and active/reserve) and submit MMBPs to the TYCOM for approval. Any individual ship MMBP that differs by more than 10% from the initial TYCOM target control should include justification for the deviation. The total control for all ships shall not exceed the total TYCOM target for each class.
- b. The TYCOM approves MMBPs and promulgates final approved CNO availability and CM controls.
- c. The TYCOM/Regional Maintenance Center provides final CNO budget controls and CM controls to the Maintenance Teams.

33.4.7 Submit Phasing Plans (August).

- 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 (for surface ships via CLASSRONs).
- b. The TYCOM will submit phasing plans to the Fleet Commander.

33.5 BUSINESS PLAN RESOURCES.

33.5.1 Resources. The following resources and information shall 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 provides. These include NAVSEA, Space and Naval Warfare Systems Command (SPAWAR), Naval Supply Systems Command and Naval Air Systems Command (NAVAIR) planned installations.
 - (2) Fleet SC Authorization letters provided by CLASSRON/TYCOM. These include Fleet Alterations, Alterations Equivalent to Repair, and Machinery Alterations.
 - (3) Information contained in Program Executive Officer/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 (HMER), Combat Systems Command, Control, Communications and Computer Readiness Review (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/Schedule (TYCOM provide).
- n. Other Availability Programs (TYCOM provide).
 - (1) Underwater Hull Cleaning.
 - (2) Calibration.
 - (3) Other miscellaneous.

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VOLUME VI

CHAPTER 35

REGIONAL MAINTENANCE CENTERS

REFERENCES.

- (a) NAVSEAINST 5400.95 - Waterfront Engineering and Technical Authority Policy
- (b) NAVSEA Technical Specification 9090-310 - Ship Alteration Accomplishment by Installation Teams

LISTING OF APPENDICES.

- A Regional Maintenance Center Standard Departments
- B Regional Maintenance Center Departmental Numbering Table

35.1 PURPOSE. This chapter provides background on the formation of Regional Maintenance Centers (RMC), defines reporting relationships, provides guidance on RMC organizational structure and lists responsibilities.

35.2 BACKGROUND. Genesis of the present day RMCs is based on a Waterfront Integration study that determined a significant efficiency increase was possible if all Fleet maintenance and modernization activities in a port were consolidated into a single command. The RMCs encompass the former Repair Supervisors of Shipbuilding, Conversion and Repair, Supervisor of Shipbuilding Detachments, Shore Intermediate Maintenance Activities, Fleet Technical Support Centers, Fleet Technical Support Center Detachments, Consolidated Diving Unit, Regional Support Groups and Port Engineers.

There are six RMCs, three of which are stand alone Activities and three that are incorporated within Naval Shipyards and Naval Ship Repair Facilities. Southwest Regional Maintenance Center (SWRMC) is located in San Diego, CA. Hawaii Regional Maintenance Center (HRMC) is incorporated as a Department within Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY IMF). Northwest Regional Maintenance Center (NWRMC) is incorporated as a Department within Puget Sound Naval Shipyard and IMF (PSNS IMF). NWRMC also includes Everett, WA maintenance operations. Ship Repair Facility and Japan Regional Maintenance Center (SRF-JRMC) is located in Yokosuka, Japan and encompasses its Detachment in Sasebo, Japan. Norfolk Ship Support Activity (NSSA) is located in Norfolk, VA and also encompasses detachments in Naples, Italy and Bahrain. Southeast Regional Maintenance Center (SERMC) is located in Mayport, FL.

35.3 REPORTING RELATIONSHIPS. SRF-JRMC is an echelon III command under the Pacific Fleet Commander and the SRF-JRMC Commander reports Primary Duty to the Pacific Fleet, Fleet Maintenance Officer. The NSSA, SERMC, SWRMC and the two RMCs incorporated within Naval Shipyards report Primary Duty to Commander, Naval Sea Systems Command (NAVSEA) and report in an Additional Duty capacity to the cognizant Fleet Maintenance Officer. Each of the RMC Commanders has an Additional Duty relationship with supported Type Commanders (TYCOM) to ensure the TYCOMs' material condition of his ships is factored into general RMC operations. SWRMC is Additional Duty to Commander Mine Warfare Command, to ensure Commander Mine Warfare Command's desires with regard to material condition of Mine Warfare specific equipment are factored into general RMC operations. The contracting warrant holder at NSSA, SERMC and SWRMC is Primary Duty to NAVSEA 02 and Additional Duty to the RMC Commander.

35.4 ORGANIZATIONAL STRUCTURE. Appendix A provides the standard departmental numbering of RMCs not associated with Naval Shipyards. Appendix B is the common organizational structure that applies to SWRMC and SERMC. Each of these RMCs will generate a local organizational structure based on Appendix B. Blocks may not be added to this structure but any blocks not required in a particular region may be deleted. Additionally, existing blocks may be combined if an RMC Commander determines that the size of a particular work center/branch/division is so small that it makes sense to do so. NSSA and SRF-JRMC's organizational structure will be aligned as closely as possible to Appendices A and B with SRF-JRMC taking into account the unique nature of the foreign national workforce.

35.4.1 Hawaii Regional Maintenance Center and Northwest Regional Maintenance Center. As Departments within Naval Shipyards, HRMC and NWRMC organizational structure is defined by NAVSEA. Responsibilities described in this section will be performed by the appropriate functional area within that structure.

35.5 RESPONSIBILITIES.

35.5.1 Fleet Maintenance Officers.

- a. Provide joint Fleet policy for the conduct of maintenance by all RMCs.
- b. Ensure available funding is apportioned to the RMCs to best meet TYCOMs' ship material readiness requirements.
- c. Ensure that TYCOMs are kept appraised of funding issues that may impact RMCs' ability to meet TYCOM ship material readiness requirements.
- d. Represent RMC funding shortfalls to higher authority for resolution as necessary.
- e. Coordinate with NAVSEA to ensure that NAVSEA policy for operation of RMCs fully supports the Fleets' maintenance and modernization requirements and meets TYCOMs' ship material readiness needs.
- f. Ensure sufficient military billets and civilian Full Time Equivalents are provided to RMCs to meet mission needs.

35.5.2 Commander, Navy Regional Maintenance Center. Commander, Navy Regional Maintenance Center will:

- a. Comply with joint Fleet policy for the operation of all RMCs.
- b. Ensure close coordination with Program Executive Offices and Systems Commands to facilitate highest level of RMC effectiveness.
- c. Adhere to established policy, guidance and regulations regarding expenditure of government funds.
- d. Comply with all applicable environmental, safety and health requirements.
- e. Ensure appropriately trained personnel are available to meet mission requirements.
- f. Submit budget and ensure fiscal execution information is provided as directed by higher authority.
- g. Focus command on improving operations to achieve maintenance responsiveness and effectiveness.
- h. Comply with all NAVSEA Technical Warrant requirements.
- i. Comply with Federal Acquisition Regulations and NAVSEA Contracting Warrant guidance.
- j. Accomplish Navy Supervising Activity responsibilities for RMC administered work.
- k. Maintain quality surveillance system to ensure contractors' quality systems are in compliance with NAVSEA guidance and that internal RMC quality meets all technical requirements.
- l. Accomplish maintenance, repair and modernization of ships in accordance with this instruction and all other applicable guidance.

APPENDIX G₁
SURFACE SHIP PLANNING PROCESS MILESTONES

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO	CNO MSMO	CNO	CNO FFP	CMAV	CMAV MSMO	CMAV FFP/IDIQ	Comments/Remedial Action
				MSMO (entitled)	<\$20M (optional)	>\$20M (optional)		MSMO (entitled)	(optional)		
1	Establish CNO/CM Availability Schedule	TYCOM		A-720	A-720	A-720	A-720				FRP Baselines are developed on a 3 year cycle. ID CNO avails IAW with that cycle.
2	Fund Modernization Procurement & Installation - Decision Point 3	OPNAV/ FLEET		Varies	Varies	Varies	Varies				Depends on development and procurement timeline requirements.
3	Issue Execution Planning Hull Modernization Plan (EHMP)	SPM		Varies	Varies	Varies	Varies				EHMP issued in March each year to support MMBP development.
4	Issue 2-year rolling Advance Planning Hull Modernization Plan (AHMP)	SPM/		Varies	Varies	Varies	Varies				AHMP issued in July each year to support long lead time planning by RMCs.
5	Identification of initial list HCPM for Ship Changes	PARM/ Planning Yard		A-660	A-660	A-660	A-660				HCPM - HQ Centrally Procured Material. This should be for the entire ship class. This should include all known requirements.
6	Provide Incremental Funding for HCPM/LLTM to meet req'd delivery dates	PARM/SPM		A-600	A-600	A-600	A-600				
7	Initiate procurement of HCMP LLTM	PARM/SPM		A-600	A-600	A-600	A-600				
8	PY Submit Funding Request for work assigned	Planning Yard		A-480	A-480	A-480	A-480				
9	Ship Change (SC) Design/Planning Funds provided	NAVSEA/ TYCOM		A-420	A-420	A-420	A-420				SPAWAR generally funds in FY prior to execution year.
10	Interface Control Drawing (ICD) delivered to alteration developer/PY	PARM		A-420	A-420	A-420	A-420				
11	Identify drawing development assignments, including Class Drawings	PARMS/ TYCOM/ NAVSEA		A-390	A-390	A-390	A-390	A-390	A-390	A-390	Send to RMC and Planning Yard.

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APPENDIX G₁

SURFACE SHIP PLANNING PROCESS MILESTONES (Con't)

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO MSMO (entitled)	CNO MSMO <\$20M (optional)	CNO MSMO >\$20M (optional)	CNO FFP	CMAV MSMO (entitled)	CMAV MSMO (optional)	CMAV FFP/IDIQ	Comments/Remedial Action
				A-360	A-360	A-360	A-360	A-360	A-360	A-360	
12	Issue Initial Letter Of Authorization (including AITs)	SPM/TYCOM	A-360	A-360	A-360	A-360	A-360				
13	Establish Availability in NMD	Maintenance Team		A-360	A-360	A-360	A-360	A-360	A-360	A-360	Select the appropriate set of milestones based on the size of the MMBP: CNO MSMO "Entitled", CNO <\$20M, CNO >\$20, or CMAV MSMO (optional). Enter the selected set of milestones as "Revised" Milestones in NMD.
14	Request Availability Funding for planning repair work	NSA		A-345	A-345	A-345	A-345	A-345	A-345	A-345	This provides funds for early executor planning.
15	Task/Fund SID Development	SPM/NSA/AIT/TYCOM/RMC Manager	A-330	A-330	A-330	A-330	A-330	A-330	A-330	A-330	
16	Shipchecks completed	Planning Yard		A-270	A-270	A-270	A-270	A-270	A-270	A-270	No FRP considerations relate to this date.
17	Screen CMP/TYCOM routines	TYCOM PC		A-270	A-270	A-270	A-270	A-270	A-270	A-270	Push CMP work items to CSMP NLT A-270.
18	Provide incremental funds for ordering LLTM for both repair and alt/mod work to meet req'd dates	SYSCOM/TYCOM		A-270	A-270	A-270	A-270	A-270	A-270	A-270	
19	50% of D-level maintenance work package 2K's locked based on \$	Maintenance Team		A-240	A-240	A-240	A-240	NA	NA	NA	Intent is that the planning activity continually develops specs in the most cost effective manner and not batch this work in front of the next pkg development milestone.
20	MSMO contractor complete planning and estimating of work assigned as required by the above A-240 milestone	MSMO Contractor		A-190	A-190	A-190					Intent is to have a continuous flow of planning quality estimates to eliminate churn in the work package.

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VOLUME VI

CHAPTER 38

DEEP SUBMERGENCE SYSTEMS
HULL INTEGRITY PROCEDURESREFERENCES.

- (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) and Advanced SEAL Delivery System (ASDS) 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/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 and/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 and Advanced SEAL Delivery System. Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity provided Periodic Maintenance Requirement (PMR) inventories and schedules are used for scheduling and reporting. The scheduled DSS HIP requirements are added to the Current Ship's Maintenance Project (CSMP) from the local scheduling system and the Automated Work Requests (AWR) produced. 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 quarterly. The SUBMEPP schedules reflect all DSS HIP requirements coming due within the next 9 months. A description of the data elements used in the inventories and schedules is provided with each issue.

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 in accordance with paragraph 38.2.3.2 of this chapter. It is recognized that upkeep schedules for vehicles 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 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 as follows:

38.2.3.1 Last Maintenance Action Date. All DSS HIPs have an initial LMA date established at **installation** to start the operating cycle in accordance with the applicable DSS HIP manual. During the operating cycle, an adjusted LMA, as discussed below, is used for DSS HIP. Calculate the adjusted LMA date as follows:

- a. If the PMR 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 PMR 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 PMR 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. Extensions of periodicity from the next due date identified in the SUBMEPP PMR inventory for these DSS HIPs can be requested by the TYCOM and require NAVSEA approval. However, they are not automatic and such requests shall be submitted by letter, in the format of Appendix C 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 **DSS's** PMR inventories and schedules.

38.2.5 Scheduling, Planning and Reporting Hull Integrity Procedure Accomplishment at **Sustaining Activity**/Fleet Maintenance Activity Level.

38.2.5.1 Scheduling. The TYCOM PMR Scheduling System Inventories and Schedules are distributed by SUBMEPP to the appropriate Immediate Superior In Command (ISIC) every quarter. A copy of each Compact Disk (CD) is to be provided to each applicable vehicle by the ISIC. As a minimum, ISICs will schedule applicable DSS HIPs 60 days prior to **scheduled availabilities**. Those DSS HIP AWRs requiring work packages or other planning are forwarded to the FMA Planning Section. In the case of operational type DSS HIPs the AWRs are sent to Ship's Force Lead Work Center (LWC) 991.

38.2.5.2 Planning. FMA Planners will requisition materials, obtain plans and drawings, prepare Formal Work Procedures and/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 Work Center for accomplishment. For Ship's Force accomplishment of DSS HIP, the ISIC will provide an AWR to the vehicle.

38.2.5.3 Reporting to the Maintenance and Material Management (3-M) System. Each DSS HIP 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 DSS HIPs are correctly accomplished and reported to SUBMEPP, the following actions are to be taken prior to closeout of the AWR by Analysis, Records and Reports Section (ARRS):

- a. **Sustaining Activities** completing DSS HIP AWRs are to fill in the AWR with action taken codes and suffix of A, B or C for material condition assessment, if applicable. **Sustaining Activity** will sign for completion, ISIC will sign for acceptance. Include a narrative statement, if required, and return the original AWR to the ISIC. The ISIC will review the AWR and forward to ARRS to close out the computer AWR and update SUBMEPP inventories and schedules.
- b. FMA LWCs completing DSS HIP AWRs must ensure that all assist Work Centers 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 Work Centers 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. Until there is a fleet scheduling system in use, PMR Schedules and Inventories should be annotated to indicate completion and forwarded to SUBMEPP.

38.2.6 Deep Submergence System Hull Integrity Procedures Accomplishment During Maintenance Availabilities.

- a. The Availability Work Package (AWP) prepared by SUBMEPP will reflect all DSS HIPs authorized for accomplishment during the availability 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 ISIC will verify that all DSS HIPs assigned to the depot were reported and subsequently updated by SUBMEPP.

38.2.7 Deep Submergence System Hull Integrity Procedures Completion Reporting.

- a. Within 30 days after the completion of an availability the activity accomplishing the DSS HIP 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 shall retain a legible copy of the most current inspection report until **disposal** of the DSS.
- b. Prior to Manned Operations, the industrial activity **accomplishing the DSS HIP** is required to provide the DSS **Sustaining Activity** 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.
- 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 in accordance with the applicable DSS HIP and, if applicable, the AWP. This special report shall be provided immediately to NAVSEA (PMS 399)(SEA 07), 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.

38.2.8 Operating Cycle/Interval Extensions. An Audit Plan to assess the material condition of vehicles prior to extending their operating cycle/intervals beyond DSS HIP periodicities due to changing availability dates or operational schedules, is required.

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.

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 change, or TYCOM approved periodicity extensions as allowed for in the individual DSS HIP.
- 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 CD in accordance with the distribution.
- g. Provide, as enclosures to the quarterly inventories and schedules forwarding letter, 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, completed AWRs for DSS HIPs completed, data report forms/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** shall 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.

- 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 in accordance with the SUBMEPP provided PMR inventories and schedules. Accordingly, the ISIC shall assist in the preparation of, and approve each DSS HIP performance schedule. In addition, the ISIC shall:
- (1) Unless previously notified by SUBMEPP of delays, notify the SUBMEPP Representative at TYCOM of the non-receipt of schedules and reports.
 - (2) Upon receipt from SUBMEPP, review each vehicle's quarterly DSS HIP inventory and schedule against the schedule information on the individual DSS HIP to verify DSS HIP scheduling/periodicity is accurate and that any rescheduling data which has been submitted to SUBMEPP has been accurately incorporated. PMRs 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 PMR inventory and schedule to verify that the component/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 PMR 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 AWP.
- f. In the event that deviations from required periodicities or full requirements of the DSS HIPs are required, request approval from the TYCOM by submitting a DFS request in accordance with Volume V, Part I, 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 shall be submitted in accordance with paragraph 38.2.4 of this chapter.
- g. Establish procedures to affect routing of completed AWRs from the FMA ARRS or from the **Sustaining Activity** (LWC 991) through the ISIC for all DSS HIP 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 DSS HIP 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 DSS HIP 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 in accordance with Volume V, Part I, Chapter 8 and Part III, Chapter 8 of this manual. Ensure SUBMEPP inventories and schedules are updated in accordance with 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 399), the TYCOM and SUBMEPP in accordance with 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 and Ship's Force to ensure required documentation is submitted in accordance with paragraph 38.2.7 of this chapter. Ensure data report forms are submitted to report component replacement/repair/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:
 - (1) Ensure that any DSS HIP due for accomplishment by the ship/DSS during its deployment period is identified in the CSMP transfer file and that the ship possesses the AWRs and DSS HIP data report forms (if applicable) for reporting job completion.

NOTE: THIS IN NO WAY RELIEVES THE PARENT ISIC OF THE RESPONSIBILITY TO ENSURE THAT THE REQUIRED DSS HIPs ARE ACCOMPLISHED WITHIN THE SPECIFIED PERIODICITIES.

- (2) Provide a message to the applicable deployed FMA/Squadron identifying any DSS HIP expected to be accomplished by the deployed FMA and the status of required materials for each DSS deploying to cover the period of the deployment.
- 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 in accordance with 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. In the DSS HIP inventories and schedules, in the remarks/completion information area, enter "assigned to (name of **industrial activity**) by AWP (name and number of availability)". 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 the TYCOM 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. ISICs will only upline the closed Job Control Numbers for DSS HIPs completed by Forces Afloat.

38.3.4 Deep Submergence System Commanding Officer.

- 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 shall consist of:
 - (1) Copies of letter of completion for all DSS HIP work accomplishment by other activities.
 - (2) Copies of letters of completion and inspection reports for work accomplished by Ship's Force. The required report forms are located at the end of the individual DSS HIPs. A copy of each completed report shall be submitted to the ISIC for review a minimum of 24 hours prior to **manned operations**.
 - (3) One copy each of the current Quarterly DSS HIP inventories and schedules as printed from the CD 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.
 - (4) Copy of outstanding DSS HIP AWRs to be accomplished by Ship's Force.
 - (5) 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 on AWRs provided by the ISIC in accordance with paragraph 38.2.5.3 of this chapter. Particular care must be exercised to ensure that existing conditions found at the time of inspection and/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 in accordance with 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 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/Shelter and Hull No.)

Ref: (a) Applicable DSS HIP
 (b) COMFLTFORCOMINST 4790.3; Joint Fleet Maintenance Manual, Volume VI, Chapter 38
 (c) COMNAVSPECWARCOM ltr 4790 Ser ___of (previous letter granting extension of periodicity)

1. In accordance with references (a) and (b), request extension of DSS HIP periodicity for Deep Submergence System (Vehicle/Shelter and Hull No.) as follows:

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 above is the actual allowable time accrued to date since DSS HIP was last accomplished/previous extension of periodicity was granted by reference (c).

Copy to:
 COMNAVSEASYS COM (PMS 399)
 Commanding Officer, _____

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VOLUME VI**CHAPTER 40****SUBMARINE MESSAGE REPORTING**REFERENCES.

- (a) SECNAVINST 5510.36 - Department of the Navy Information Security Program Regulation, Chapter 6
- (b) NAVSEAINST 4720.14 - Temporary Alterations to Active Fleet Submarines, Control of
- (c) NAVSEA SL720-AA-MAN-010 - Fleet Modernization Program Management and Operations Manual

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 shall not 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 supercedes all other policy, procedures or guidance previously promulgated 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/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) shall appear as the first word in the subject line before the subject description.
- b. (SUBS) messages shall identify its status by using the words INITIAL, UPDATE or FINAL at the end of the subject line.
- c. The (SUBS) message shall 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 shall 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 shall 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 in accordance with reference (a).
- j. (SUBS) messages shall 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.
- k. A FINAL close out (SUBS) message shall be sent upon correction of the reported material problem or if in the Commanding Officer's judgement a technical resolution has been reached and all required repairs have been firmly scheduled.
- l. NAVSEA shall 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 shall be tracked by NAVSEA.
- n. (SUBS) messages being initiated for the purpose of gathering technical information from submarines shall be provided to the TYCOM for action.
- o. Technical Authorities shall provide all (SUBS) message responses to NAVSEA, TYCOM and ISIC for review and action.
- p. (SUBS) messages shall 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.

APPENDIX A

SAMPLE (SUBS) INITIAL MESSAGE

OATUZYUW RUCORGP0054 2282105-UUUU--RUCBKMC.
 ZNR UUUUU ZUI RUCOMCB4998 2290310
 O 1730XXZ AUG XX
 FM USS XXXXXXXXXXXX
 TO COMSUBRON XXXXX//N4//
 INFO COMSUBLANT NORFOLK VA//N3/N4/N43/N44//
 COMNAVSEASYS COM WASHINGTON DC//PMS392/07T/08//
 COMSUBGRU XXX//N4//
 NAVSHIPYD NORFOLK VA//246/271/266/200//
 XXXXX RMC XXXXX XX
 SUBMEPP PORTSMOUTH NH
 BT
 UNCLAS
 MSGID/GENADMIN/XXXXXXXXXX/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.//
 POC/XXXXX./ENGINEER/USS XXXXXXXXXXXX/LOC:AT SEA
 /EMAIL:ENG(AT) XXXXXXXXXXXX.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 TO 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

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NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 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 XXXXXXXXXXXX
 TO COMSUBRON XXXXX//N4//
 INFO COMSUBLANT NORFOLK VA//N3/N4/N43/N44//
 COMNAVSEASYS COM WASHINGTON DC//PMS392/07T/08//
 COMSUBGRU XXX//N4//
 NAVSHIPYD NORFOLK VA//246/271/266/200//
 XXXXX RMC XXXXX XX
 SUBMEPP PORTSMOUTH NH
 BT
 UNCLAS
 MSGID/GENADMIN/XXXXXXXXXX/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 XXXXXXXXXXXX/LOC:AT SEA
 /EMAIL:ENG(AT) XXXXXXXXXXXX.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 TO 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.//

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NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 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 XXXXXXXXXXXX
 TO COMSUBRON XXXXX//N4//
 INFO COMSUBLANT NORFOLK VA//N3/N4/N43/N44//
 COMNAVSEASYSOM WASHINGTON DC//PMS392/07T/08//
 COMSUBGRU XXX//N4//
 NAVSHIPYD NORFOLK VA//246/271/266/200//
 XXXXX RMC XXXXX XX
 SUBMEPP PORTSMOUTH NH
 BT
 UNCLAS
 MSGID/GENADMIN/XXXXXXXXXX/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.//
 POC/XXXXX./ENGINEER/USS XXXXXXXXXXXX/LOC:AT SEA
 /EMAIL:ENG(AT) XXXXXXXXXXXX.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 TO 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 IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT
 PLAD IS UTILIZED.**

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VOLUME VI**CHAPTER 41****MAINTENANCE TEAM**LISTING OF APPENDICES.

A Agenda

41.1 PURPOSE. The purpose of this chapter is to define and establish the Maintenance Team, its membership and responsibilities. Also, included are detailed requirements for regular meetings.

41.2 MAINTENANCE TEAM. Each ship shall have a formally structured Maintenance Team. The team is led by the Ashore Ship's Maintenance Manager and consists of representatives from the ship and the supporting shore maintenance infrastructure. The primary responsibility of the Maintenance Team is to manage the maintenance and modernization process in accordance with the maintenance policies, directives and business rules of the Fleet Commander, Type Commander (TYCOM) and the Regional Maintenance Center (RMC).

41.2.1 Core Maintenance Team. While there are many who contribute to the execution of ship maintenance and modernization, some key personnel have a continuing involvement in and responsibility for management of the overall planning and execution of the ship's maintenance and modernization. The core Maintenance Team shall consist of the following members:

- a. Ship's Commanding Officer. Primary representative for the ship. (For Aircraft Carriers the Commanding Officer may delegate to a representative.)
- b. Ashore Ship Maintenance Manager. Maintenance Leader who manages all maintenance and modernization, including assessments, requiring off ship assistance. Assignments are:
 - (1) Surface Force Port Engineer
 - (2) Naval Air Force TYCOM Maintenance Program Manager
 - (3) Submarine Force Maintenance Coordinator
- c. 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

* The Reactor Maintenance Officer fills this role for Nuclear Propulsion issues.
- d. Project Superintendent. Manages government production work for Continuous Maintenance (CM), Continuous Maintenance Availability (CMAV) and Chief of Naval Operations (CNO) availabilities. For CNO availabilities, the Project Superintendent is the Senior Naval Supervisory Authority (NSA) Representative and has the overall responsibility to plan and execute availabilities. Assignments are:
 - (1) Surface Force RMC Ship Superintendent

- (2) Naval Air Force Naval Shipyard (NSY) Project Superintendent
- (3) Submarine Force RMC Ship Superintendent
- e. Project/Program Manager. Manages planning, integration and execution of contracted work in CNO/CMAV availabilities and CM executed during maintenance Windows of Opportunity. Coordinates Maintenance Team activities with the RMC contracting functions for contracted work. Assignments are:
 - (1) Surface Force RMC Program Manager
 - (2) Naval Air Force Supervisor of Shipbuilding (SUPSHIP) Program Manager
 - (3) Submarine Force Regional Maintenance Officer or Naval Sea Systems Command (NAVSEA) Material Officer
- f. Contractor Program Manager (when required). Manages authorized contractor/company work. Assignments are:
 - (1) Surface Force Multi Ship/Multi Option (MS/MO) Contractor Program Manager
 - (2) Naval Air Force Prime Contractor for SUPSHIP contracted work
 - (3) Submarine Force Prime Contractor for RMC contracted (non NSY) work
- g. Maintenance Support Team.

41.2.2 Augmentation of the Maintenance Team. While core team members are permanent, augmentation may be required during the ship's training and maintenance cycle. Core team members may be assigned responsibilities for more than one ship. Additional members may be fully assigned, as needed. Some examples include SUPSHIP representative, RMC Technical and Logistics representatives, Carrier Planning Activity representatives, Submarine Maintenance Engineering, Planning and Procurement representatives, RMC Class Team Leader and other key members of the Integrated Project Team for Carrier Maintenance. Additional ship's members may be assigned including Reactor Officer, Engineer Officer, Combat Systems Officer and CNO Availability Manager. It is expected that the same personnel will return to the same hull when required for Maintenance Team augmentation.

41.2.3 Crew Swap. When a crew swap occurs that rotates a different crew to a hull, the non-crew members of the Maintenance Team shall remain with the hull and provide continuity in planning and execution.

41.3 RESPONSIBILITIES OF THE MAINTENANCE TEAM. The primary responsibility of the Maintenance Team is to manage the maintenance and modernization process in accordance with the maintenance policies, directives and business rules of the Fleet Commander, TYCOM and the NSA. The Maintenance Team has four principal roles:

41.3.1 Management of Ship Maintenance. The Maintenance Team ensures the ship's Current Ship's Maintenance Project (CSMP) (and Availability Work Package (AWP) for CVNs) 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 shall 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 shall be updated within the CSMP (and AWP for CVNs), as they are refined in order to provide the Maintenance Team with adequate data to plan maintenance actions. For CVNs, these estimates will be entered in the Proposed AWP and finalized in the Authorized AWP. The Maintenance Team coordinates inspections,

- c. Ensures functions, assignments and responsibilities of the NSA are achieved.
- d. Manages work planning, schedule integration work execution and resolves conflicts among all Executing Activities.
- e. Maintains current status of production work.

41.3.4.8 NSA Project Superintendent.

- a. Coordinates work planned and performed by NSA Production Department.
- b. Assists with availability final cost validation.
- c. Assists with target controls verification to fund all repairs for an availability.
- d. Attends availability Plan of the Day.
- e. Ensures Completed Action (OPNAV 4790/2K) is initiated by maintenance activity for completed authorized work.

41.4 PLANNING BOARD FOR MAINTENANCE. A regularly scheduled meeting between the ship's Maintenance Team members and stakeholders (e.g., TYCOM, Immediate Superior In Command (ISIC), planning activity, SPM, 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 month 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.

41.5 BUSINESS RULES. Each maintenance team will incorporate the following business rules.

- a. Government employees 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 month is expected.
- c. The meeting will be chaired by the Commanding Officer.
- d. The core Maintenance Team shall 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, Appendix A, 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.

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APPENDIX A**AGENDA****1. Ship's Schedule.**

- a. Deployments and Underway periods.
- b. Scheduled Availabilities and Upkeep periods.
- c. Inspections, Assists, Alteration Installation Teams, surveys and Assessments.
- d. Ship special evolutions.

2. Management of Ship Maintenance.

- a. CASREP.
 - (1) Status.
 - (2) New (anticipated).
- b. Work candidates returned to ship for questions or issues.
- c. Work candidates older than 180 days.
- d. Work candidates to be passed to history.
- e. CSMP/AWP review.
 - (1) "As Screened" Report (shows where all off ship jobs are screened).
 - (2) TA-4 work candidates.
 - (a) New work candidates requiring integration/de-confliction with other known work.
 - (1) Compare new work candidate's location with other known work.
 - (2) Compare new work candidate's equipment/system with other known work.
 - (3) Compare new work candidate's priority with other known work.
 - (b) Completed TA-4 work candidates.
 - (3) Availabilities.
 - (a) Screened to Ship's Force availability (Ashore Ship's Maintenance Manager assists the ship with assigning work candidates to Ship's Force availabilities).
 - (b) Concurrent CNO Availabilities.
 - (c) CM Availabilities - planned accomplishment.
 - (d) Emergent Availabilities - unplanned accomplishment.

- f. **Ship's Baseline AWP.**
 - (1) **Items completed.**
 - (2) **Items scheduled for coming availabilities.**
 - (3) **Resolution of unaccomplished and unscheduled items.**

3. Budgeting for Ship Maintenance.

- a. Long term (5 year) maintenance plans.
- b. Review and update the Ship's MMBP.

4. Logistics and Technical Expertise.

- a. Discuss current issues/problem areas.
- b. Departures From Specification.
- c. Outstanding Technical Assists and Assessments.
- d. Ship Configuration Control Issues.

5. Availability Coordination.

- a. CNO availabilities.
 - (1) Class Maintenance Plan Assessments.
 - (2) Certifications.
 - (3) Modernization.
 - (4) Homeport.
 - (5) Preservation.
 - (6) Integrated System refurbishment.
 - (7) Discuss issues and update.
- b. Availability milestones, CNO/CMAV. Refer to standard Planning Milestones.
- c. Production Status.
- d. Dock trial/Fast Cruise/Sea Trial Dates.

6. New Issues.

7. Current Metrics.

8. Ship Commanding Officer Issues.

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
V	Created by NEMAIS Broker (National)
W	Class Maintenance Plans (AIR, SUB)
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, in accordance with 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.

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