

JOINT FLEET MAINTENANCE MANUAL
VOLUME VI
MAINTENANCE PROGRAMS
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JOINT FLEET MAINTENANCE MANUAL
VOLUME VI
MAINTENANCE PROGRAMS
RECORD OF CHANGES

CHANGE NO.	DATE	TITLE OR BRIEF DESCRIPTION	ENTERED BY (INITIALS)

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JOINT FLEET MAINTENANCE MANUAL CHANGE REQUEST FORM
<p>FROM: ACTIVITY/SHIP _____ E-MAIL ADDRESS _____ CODE/DEPT/SHOP _____ DATE _____ ORIGINATOR _____ TEL EXT () _____</p>
<p>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:</p>
<p>RECOMMENDED CHANGE: (Include any proposed text addition/deletion)</p>
<p>RATIONALE:</p>

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.)

FOLD

Commanding Officer

OFFICIAL BUSINESS

Commanding Officer
Submarine Maintenance Engineering,
Planning and Procurement (SUBMEPP) Activity
Attn: Code 1832JM
P.O. Box 2500
Portsmouth Naval Shipyard
Portsmouth, NH 03804-2500

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VOLUME VI
MAINTENANCE PROGRAMS
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SURFACE FORCE SHIPS

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LIST OF ACRONYMS

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
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
BAWP	Baseline Availability Work Package
BCA	Business Case Analysis
BCE	Battery Charging Electrician
BCEF	Battery Charging Electrician Forward
BCR	Billet Change Request
BER	Beyond Economical Repair
BRB	Battery Record Book
BSC	Balanced Score Card
C4I	Command, Control, Communications, Computers and Intelligence
C5IMP	C5ISR Modernization Process
C5ISR	Command, Control, Communications, Computer, Combat Systems, Intelligence, Surveillance and Reconnaissance
C5RA	Command, Control, Communications, Computers and Combat Systems
CAL STD	Readiness Assessment Calibration Standard

CAQAP	Contract Administration Quality Assurance Program
CAR	Corrective Action Request
CAS	Contract Administration Services
CASCAN	CASREP Cancellation or Cancellation of Casualty Report
CASCOR	CASREP Correction or Correction of the Casualty in the Casualty Report
CASREP	Casualty Report
CBA	Cost Benefit Analysis
CCA	Commercial Calibration Activity
CCT	Customer Contract Team
CD-ROM	Compact Disk - Read Only Memory
CEIPRP	Continuous Estimating Incremental Planning Review Process
CFOSS	Cargo Fuel Operational Sequencing System
CFT	Cross Functional Team
CHENG	Chief Engineer
CM	Continuous Maintenance
CMAV	Continuous Maintenance Availability
CMF	Confidence Management Factor
CMO	Contract Management Office
CMP	Class Maintenance Plan
CNO	Chief of Naval Operations
CNRMC	Commander, Navy Regional Maintenance Center
COMUSFLTFORCOM	Commander, United States Fleet Forces Command
COMLANTFLT	Commander, Atlantic Fleet
COMLOGWESTPAC	Commander Logistics Western Pacific
COMNAVAIRFOR	Commander Naval Air Forces
COMNAVAIRLANT	Commander Naval Air Force Atlantic
COMNAVAIRPAC	Commander Naval Air Force Pacific
COMNAVAIRSYSCOM	Commander, Naval Air Systems Command
COMNAVRESFOR	Commander Naval Reserve Force
COMNAVSEASYSYSCOM	Commander, Naval Sea Systems Command
COMNAVSURFGRUMIDPAC	Commander Naval Surface Group Middle Pacific
COMNAVSURFGRUPACNORWEST	Commander Naval Surface Group Pacific North West
COMNAVSURFLANT	Commander Naval Surface Force Atlantic
COMNAVSURFOR	Commander Naval Surface Forces
COMNAVSURFPAC	Commander Naval Surface Force Pacific
COMPACFLT	Commander, Pacific Fleet
COMPATRECONFORLANT	Commander Patrol Reconnaissance Forces Atlantic
COMPATRECONFORPAC	Commander Patrol Reconnaissance Forces Pacific
COMSPAWARSYSCOM	Commander, Space and Naval Warfare Systems Command
COMSUBGRU	Commander Submarine Group
COMSUBLANT	Commander Submarine Force Atlantic
COMSUBPAC	Commander Submarine Force Pacific
COMSUBRON	Commander Submarine Squadron
COMUSFLTFORCOM	Commander United States Fleet Forces Command
COSAL	Coordinated Shipboard Allowance List
CPARS	Contractors Performance Appraisal Reporting System
CPO	Chief Petty Officer
CPR	Calibration Problem Report
CQA	Contract Quality Assurance
CREI	Cost Reduction and Effectiveness Improvement
CRES	Corrosion Resistant Steel
CRL	Calibration Requirements List
CS	Combat Systems
CS/CCS	Command and Control Systems
CSMP	Current Ship's Maintenance Project
CSP	Commercial Service Provider

CSPE	Combat Systems Project Engineer
CTL	Class Team Leader
CTRA	Consolidated TMDE Readiness Assessment
CVF	CSMP Validity Factor
CVN	Nuclear Powered Aircraft Carrier
CWP	Controlled Work Package
CYBERFOR	Cyber Force
DCMA	Defense Contract Management Agency
DS	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
EPCP	Expanded Process Control Procedures
EPY	Expanded Planning Yard
EQOL	Enhanced Quality Of Life
ERR	Engineering Readiness Review
ESC	Executive Steering Committee
ESD	Electrostatic Discharge
ESL	Equipment Status Log
ETR	Estimated Time to Repair
FC	Field Change
FCA	Field Calibration Activity
FCFBR	Fleet COSAL Feedback Report
FDRMC	Forward Deployed Regional Maintenance Center
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
F RTP	Fleet Response Training Plan
FS&L	Food Service and Laundry
FTA	Fleet Technical Assistance
FY	Fiscal Year
GDSC	Global Distance Support Center

GFM	Government Furnished Material
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
IPTD	Integrated Project Team Development
ISEA	In-Service Engineering Activity
ISIC	Immediate Superior In Command
IT	Information Technology
ITP	Integrated Test Plan
IUID	Item Unique Identification
JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
JQR	Job Qualification Requirement
JRMC	Japan Regional Maintenance Center
JSN	Job Sequence Number
LAR	Liaison Action Request
LCAC	Landing Craft Air Cushion
LCM	Life Cycle Manager
LCS	Littoral Combat Ships
LCSTRON	Littoral Combat Ships Squadron
LDS	Logistics Data System
LLC	Lessons Learned Conference
LLTM	Long Lead Time Material
LMA	Last Maintenance Action
LMA	Lead Maintenance Activity
LOA	Light Off Assessment
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
MAT	Maintenance Assist Team

MCF	MDS Confidence Factor
MCMS	METBENCH Calibration Management System
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
MMPR	Maintenance and Modernization Performance Review
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
MSMO	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
NAMTS	Navy Afloat Maintenance Training Strategy
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
NFE	No Fault Evident
NGDSC	Navy Global Distance Support Center
NIIN	National Item Identification Number
NMD	Navy Maintenance Database
NMP	Navy Modernization Process
NP	Potential Noise Deficiency

NPBI	NAVSEA Paint Basic Inspector
NPV	Net Present Value
NRMD	Nuclear Regional Maintenance Department
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
NTIRA	Navy Tool for Interoperability Risk Assessment
NUCALT	Nuclear Alteration
NWRMC	Northwest Regional Maintenance Center
OARS	Open Architecture Retrieval System
OEM	Original Equipment Manufacturer
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
OQE	Objective Quality Evidence
ORATA	Other Restricted Availability/Technical Availability
ORDALT	Ordnance Alteration
PARM	Participating Acquisition Resource Managers
PCD	Production Completion Date
PCMS	Passive Countermeasure System
PCP	Process Control Procedures
PDS	Product Data Sheet
PE	Procedure Evaluation
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
PMSCA	Preventive Maintenance System Coordinating Activity
PMT	Performance Monitoring Team
POC	Point of Contact
POM	Pre-Overseas Movement
P-OMMS	Propulsion - Organizational Maintenance Management System
PPE	Personal Protective Equipment
PPR	PMS Performance Rate
PQS	Personnel Qualification Standard

PR	Procedure Review
PRWL	Planned Refit Work List
PSNS	Puget Sound Naval Shipyard
PSNS-IMF	Puget Sound Naval Shipyard and Intermediate Maintenance Facility
PT	Project Team
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
SCN	Ship Conversion Navy
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
SMART	Submarine Modernization and Alteration Requirements Tool
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
ST1	Surface Team One
STAARS	Submarine Technical Assistance Assessment and Reporting System
STAN	Shipboard Electromagnetic Compatibility Improvement Program Technical Assistance Network
STSC	Submarine Technical Support Center
SUBMEPP	Submarine Maintenance Engineering, Planning and Procurement Activity
SUBSAFE	Submarine Safety
SUPSHIP	Supervisor of Shipbuilding
SUPSHIP NN	Supervisor of Shipbuilding Newport News
SURFMEPP	Surface Maintenance Engineering Planning Program
SURFOR	Surface Force
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
TAAS-INFO	Tech Assist, Assessments and Scheduling Information
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
TDC	TYCOM Discretionary Change
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
TRID	TRIDENT Alteration
TRIPER	TRIDENT Planned Equipment Replacement
TRIREFFAC	TRIDENT Refit Facility
TRS	Technical Repair Standard
TSRA	Total Ship's Readiness Assessment
TVG	Temperature Voltage Gassing
TWH	Technical Warrant Holder
TYCOM	Type Commander
TYKIT	TYCOM Alteration Kit
TZ	Type Zero
UIC	Unit Identification Code
UPCP	Universal Process Control Procedure
URO	Unrestricted Operation
VIDS/MAF	Visual Information Display/Maintenance Action Form
WC	Work Center
WCS	Work Center Supervisor
WCWL	Work Center Work List
WFD	Work Force Development
WFT	Wet Film Thickness
WP	Work Package
WPER	Work Package Execution Review
WPIC	Work Package Integration Conference
WPS	Work Package Supplement
WSS	Weapons System Support

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under the NSA's cognizance or are part of an availability work package. When the cognizant Area RMC is the NSA, the RMC will provide technical support. If not the NSA, the cognizant Area RMC may also do so, as necessary/coordinated with the NSA.

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

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

2.5 COMPLETION.

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

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

- a. The fault is resolved.
- b. Parts identified to resolve the fault.
- c. Original fault troubleshooting is complete and the deficiency is identified (i.e., Ship understands what needs to be repaired).

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

2.6 RESPONSIBILITIES.

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

- a. Ensure all FTA requests are accurate, complete and timely.
- b. Ensure all FTA requests reference a JCN and contain a detailed problem description in accordance with paragraph 2.4.2 of this chapter to enable technical assistance personnel to adequately research the problem and provide timely and accurate technical assistance. Ensure the 2-kilo is up-lined.
- c. For FTA requests associated with systems that are not required to meet current/projected mission tasking, ensure associated CASREP and/or 2-Kilo address whether or not on-site assistance will be required if Distance Support is unable to resolve the issue.
- d. Ensure that TYCOM, Immediate Superior In Command (ISIC) and Operational Commander are kept informed of technical issues and technical assistance requests in accordance with existing guidance.
- e. While a ship is underway or in another port without a RMC, ensure Distance Support alternatives are exhausted before on-site technical assistance is requested. This policy is in place to ensure satisfactory crew and technical assistance personnel Distance Support procedure training and proficiency so they are able to efficiently use Distance Support when the ship is deployed.
- f. Ensure Ship's Force technicians who are qualified on the systems/equipment in question are available to support technical assistance personnel.
- g. Immediately upon completion of an on-site visit, the Fleet unit will release the FTA personnel. When redirection of the same personnel to other problems is desired, the Fleet unit will coordinate with the cognizant Area RMC.

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

2.6.2 Regional Maintenance Center Commanders. RMC Commanders will ensure:

- a. Sufficient capability exists to provide timely response to all requests for technical assistance, either with RMC personnel or other sources of support. The RMC is responsible for coordinating the response from other sources of support as detailed in paragraph 2.6.3 of this chapter.
- b. RMC mission funds are used to fund all FTA efforts in accordance with paragraph 2.7.4 of this chapter.
- c. Technical support is provided to Fleet units in accordance with this directive. In the event there is a work priority conflict, the Area RMC will coordinate resolution with the appropriate TYCOM, Operational Commander or Fleet Maintenance Officer Staff, as necessary.
- d. The initial response to FTA requests is via Distance Support whether in port or at-sea. The use of Distance Support while the ship is in a port with a RMC is encouraged, although not required. It is a tool that can be utilized by the RMC in order to prioritize work assignments and service a wider customer base. On-site support while a ship is in a port with a RMC can allow for quicker identification of the problem and training of Ship's Force technicians. If Distance Support is unsuccessful, the cognizant Area RMC will determine if on-site assistance is appropriate, based on guidance in paragraph 2.7.4.1 of this chapter. If appropriate, the Area RMC will provide on-site FTA from RMC resources or coordinate provision of on-site support from other government/contractor organizations as discussed in paragraph 2.6.3 of this chapter.
- e. Personnel responding to a request for technical assistance are thorough in their review of the specific technical problem, including system trouble shooting, fault isolation, root cause analysis, failed parts identification, logistic support and system restoration assistance while imparting the maximum amount of onboard maintenance training to Ship's Force personnel. Troubleshooting shall be conducted in accordance with Volume V, Part I, Chapter 2, paragraph 2.4 of this manual.
- f. Acknowledgment and response to all FTA requests within 24 hours, via phone conversation, e-mail or Naval Message.
- g. Personnel providing on-site technical assistance keep the cognizant ship's department head or designated representative informed of the scope of the problem and the recommended corrective action.
- h. A message Technical Assistance Visit Report (TAVR) (Naval), in the format provided in Appendix B, is required at the completion of an on-site FTA anytime one or more of the following criteria are met:
 - (1) Personnel or Equipment safety issue.
 - (2) Submarine FTA.
- i. An E-mail TAVR (E-TAVR), in the format provided in Appendix C, is required at the completion of an on-site FTA on Surface Force Ships/Carriers anytime one or more of the following criteria are met:
 - (1) C3/C4 CASREP.
 - (2) Repetitive system/equipment failure and/or long term improvement recommendations.
 - (3) FTA responsibility passed to another RMC or other Source of Support.
 - (4) Loss of mission capabilities. (e.g., AAW, MOB, ASW).
 - (5) Significant follow-on repair recommendations.
 - (6) High visibility.

- j. Task other Source of Support provider who responds to an on-site FTA, coordinated by his/her RMC, to submit a TAVR as required by paragraph 2.6.3.e of this chapter or task them to provide the technical information necessary for the cognizant RMC to generate a TAVR.
- k. Submission of a message report if an on-site assist visit is terminated. Technicians who are not adequately supported by Ship's Force personnel shall immediately notify the ISIC/TYCOM. If the lack of support by Ship's Force personnel cannot be resolved, then the technicians are authorized to depart the ship and terminate the visit. Termination of the ship visit under these circumstances will be detailed in a follow-up message to the appropriate TYCOM/ISIC with information to the appropriate Fleet Commander (N43).
- l. **Except for Ship Repair Facility (SRF) - Japan Regional Maintenance Center (JRMCC), track all requests for FTA using approved FTA software. Currently, this is the Tech Assist, Assessments and Scheduling Information (TAAS-INFO) for surface ships, and Submarine Technical Assistance Assessment and Reporting System (STAARS) for submarines.**

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

- a. Acknowledge receipt of FTA assignment to the tasking Area RMC and the requesting unit.
- b. First, use Distance Support to resolve the problem. Provide the tasking Area RMC with timely Distance Support status and results.
- c. Coordinate with the tasking Area RMC and execute an on-site technical assist if Distance Support is unable to resolve the problem. Ensure personnel providing on-site technical assistance are thorough in their review of the specific technical problem, including system trouble shooting, fault isolation, root cause analysis, failed parts identification, logistic support and system restoration assistance, while imparting the maximum amount of onboard maintenance training to Ship's Force personnel.
- d. Ensure that personnel providing on-site technical assistance keep the cognizant ship's department head or designated representative informed of the scope of the problem and the recommended corrective action.
- e. At the completion of on-site technical assistance, comply with administrative requirements addressed in paragraph 2.8 of this chapter within 5 working days of the visit completion.

2.6.4 Navy Global Distance Support Center Fleet Technical Assistance Request Processing Procedure. Initial FTA requests received by the NGDSC will be recorded by a Customer Service Representative. The Customer Service Representative must ensure the request is sent to the cognizant Area RMC (if different from the homeport RMC) and notify the cognizant area RMC. This will enable the cognizant Area RMC to commence immediate action on the FTA request.

2.7 REGIONAL MAINTENANCE CENTERS.

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

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

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

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

Table 2-1 RMC Area of Responsibility Assignments

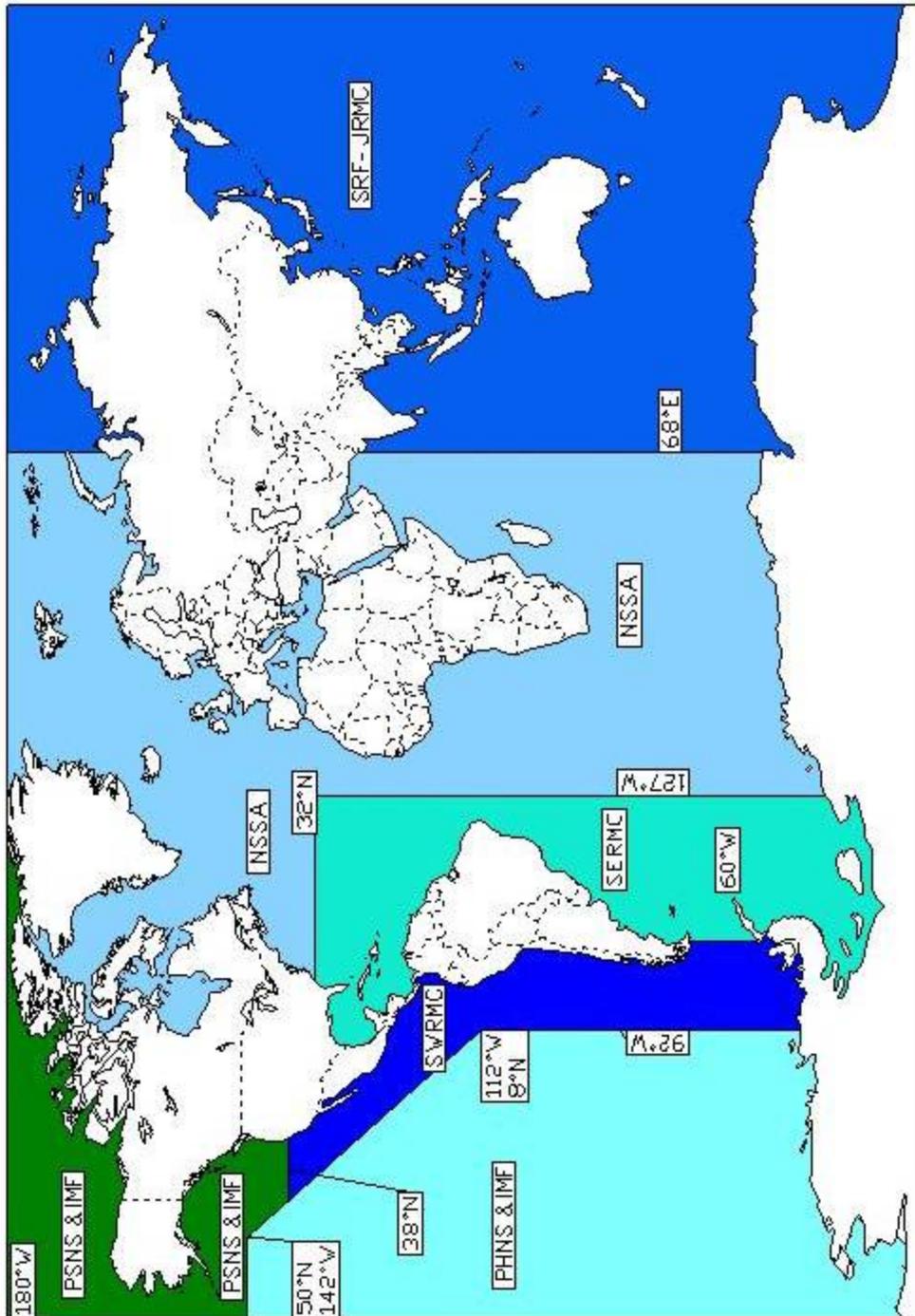


Figure 2-1 RMC Area of Responsibility

2.7.3 Considerations for Providing Assistance.

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

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

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

2.7.3.4 Transferring Regional Maintenance Center. The RMC transferring the FTA will transmit a TAVR via appropriately classified email or Naval message, using the samples provided as Appendix B or C of this chapter, synopsising actions taken to date on the FTA after reaching agreement with another source of support to accept responsibility for the FTA. The accepting source of support and new Point of Contact information will be identified in the TAVR. For Surface Ships and Carriers, the transferring RMC will document all time and actions taken and will pass the task to the accepting source of support in approved FTA software. For submarines, the ship's homeport will broker the 2-kilo to the accepting source of support.

2.7.3.5 Accepting Source of Support. The accepting source of support for the FTA assumes responsibility to provide the necessary support to resolve the FTA. If the source of support cannot resolve the FTA, they shall request the cognizant Area RMC obtain the necessary support to resolve the FTA. The accepting source of support will also document all time and actions taken related to the FTA, and inform the cognizant Area RMC on the status of the FTA.

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

2.7.4 Funding.

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

- (1) cognizant Area RMC personnel.
- (2) other Area RMC personnel.
- (3) other government resources.
- (4) private sector.

APPENDIX A

**AREA REGIONAL MAINTENANCE CENTER FLEET TECHNICAL ASSISTANCE
CONTACT INFORMATION**

AREA RMC	COVERAGE HOURS	PHONE	E-mail/Message PLADs
Norfolk Ship Support Activity (NSSA) Norfolk, VA	24/7/365	Comm: 757-443-3872 Secure: 757-443-3872, ext 2451 CDO: 757-443-3663	NIPRNET: marmc_tsd@navy.mil SIPRNET: nssa_sipr_tsd@navy.smil.mil MSG PLAD: SHIPSUPPACT NORFOLK VA
Norfolk Ship Support Activity Detachment Naples, Italy (NSSA DET NAPLES)	0600-1800 WEEKDAYS 0800-1200 WEEKENDS & HOLIDAYS CDO after hours	Comm: 011-39-081-568-7849 DSN: 314-626-7849 Fax: 011-39-081-568-7866 CDO: 39-335-725-1657	NIPRNET: NSSADET NAPLESCDO@EU.NAVY.MIL SIPRNET: NSSADET NAPLESCDO@EU.NAVY.SMIL.MIL MSG PLAD: SHIPSUPPACT NORFOLK DET NAPLES IT//00NA//
Regional Support Group Groton/Submarine Technical Support Center (STSC) Groton, CT	0700-1630 WEEKDAYS CDO after hours	Comm: 860-694-7872 Admin: 860-694-4714 DSN: 694-7872/4714 STSC groton CDO after hours: 860-625-3230	MSG PLAD: COMREGSUPPGRU STSC GROTON CT NIPRNET: nwl_n_stsc_prod@navy.mil
NSSA Detachment Bahrain	Hours: 0730-1600 Sunday-Thursday (TD available after normal hours)	Comm: 011-973-17-853-777 DSN: 318-439-3777 TD: 011-973-3-945-9128 Fax: 011-973-17-854-447	NIPRNET: SIPRNET: SRUOIC@nsabahrain.navy.smil.mil MSG PLAD: SHIPSUPPACT NORFOLK DET BAHRAIN

AREA RMC	COVERAGE HOURS	PHONE	E-mail/Message PLADs
<p>Puget Sound Naval Shipyard & IMF (North West Regional Maintenance Center)</p> <p>(NWRMC) Bremerton, WA</p>	<p>0630-1500 WEEKDAYS CDO - 24/7</p>	<p>425-304-5449 DSN: 727-5449 CDO: 425-870-0042 Everett 360-340-0106 Bremerton</p>	<p>NIPRNET: techassistnw@navy.mil MSG PLAD: NAVSHIPYD AND IMF PUGET SOUND WA//210/290//</p>
<p>Pearl Harbor Naval Shipyard and IMF Hawaii Regional Maintenance Center</p> <p>(HRMC) Pearl Harbor, HI</p>	<p>24/7/365</p>	<p>Comm: 808-630-7762 DSN: 315-473-0129 Code 210 DO: 808-630-7762</p>	<p>NIPRNET: hrmc.techassist@navy.mil SIPRNET: hrmc.techassist@navy.smil.mil MSG PLAD: NAVSHIPYD AND IMF PEARL HARBOR HI//101/200/210//</p>
<p>Ship Repair Facility (SRF) and Japan Regional Maintenance Center</p> <p>(JRMC) Yokosuka, Japan</p>	<p>0730-1630 Mon-Fri CDO after hours</p>	<p>DSN: 315-243-5362 CDO DSN: 315-243-5488 CDO Cell: 81-90-1851-8817</p>	<p>NIPRNET: TECHASSIST_JRMC@srf.navy.mil SIPRNET: TECHASSIST_JRMC@fe.navy.smil.mil MSG PLAD: NAVSHIPREPFAC AND JAPAN RMC YOKOSUKA JA</p>
<p>Southeast Regional Maintenance Center</p> <p>(SERMC) Mayport, FL</p>	<p>Call CDO. If no CDO contact, call Quarterdeck.</p>	<p>CDO: 904-591-8008 Quarterdeck: 904-270-5126 DSN: 960-XXX-XXXX</p>	<p>NIPRNET: sermc-cdo.fct@navy.mil MSG PLAD: SOUTHEAST RMC MAYPORT FL</p>

APPENDIX C**SAMPLE E-MAIL TECHNICAL ASSISTANCE VISIT REPORT (E-TAVR)**

E-mail TAVR distribution will include the following:

TO: SHIP REQUESTING ASSISTANCE (C.O., X.O., DEPT HEADS)

ADDITIONAL ACTION ADDRESSEES (AS APPROPRIATE, TO INCLUDE ACCEPTING RMC FOR FTA TRANSFERS)

CC:

U.S. FLEET FORCES COMMAND N43

COMMANDER U.S. PACIFIC FLEET N43

FLEET COMMANDERS: (as appropriate)

TYPE COMMANDERS: (as appropriate)

NAVSEA/SPAWAR PROGRAM MANAGERS: (as appropriate)

NSWC/SSC IN-SERVICE ENGINEERING AGENTS: (as appropriate)

RMCS: (as appropriate)

TRAINING COMMANDS: (TRAINING ISSUES ONLY, as appropriate)

NAVAL SURFACE WARFARE CENTER CORONA (QA33)

Email TAVR format will be as follows:

SUBJ/USS XXX (HULL) EQUIPMENT NAME TECH ASSIST VISIT REPORT// (Insert brief equipment description; for ex. T 1348 Transmitter)

REF/A/CASREP/DTG// (Reference Designation, change as necessary/Change as necessary/Date Time Group of reference)

REF/B/DOC/2-KILO//

REF/C/TEL/TELCON INFO//

NARR/REF A IS XXXXXXXX. REF B IS XXXXXXXX. REF C IS XXXXXXXX.// (Summary of Tech Assist request.

For ex., REF A is CASREP Initial 04003 request for tech assist)

POC/NAME/GRADE-RATE/TEL:DSN /TEL: // (Identify RMC Technician/RMC Technician Grade/Rank. For ex., GS-12 or E7 / RMC Technician DSN/extension/RMC Technician Comm/extension)

1. BACKGROUND: REF A REPORTED (Problem). AS REQUESTED REF A, RMCXXXC REP, (Name)

PROVIDED TECH ASSIST (Date) AT (Location) TO ASSIST WITH CORRECTION OF THE PROBLEM. REF B IS THE APPLICABLE TECH MANUAL.

2. FINDINGS/CORRECTIVE ACTION:

A. BRIEF PROBLEM STATEMENT.

B. SUMMARIZE FINDINGS AND CORRECTIVE ACTIONS. (State why distance support was unable to resolve problem. If this TAVR is to document an FTA transfer, so state and include FTA accepting RMC command title and specific poc info.).

3. CONCLUSION:

A. STATEMENT ON CAUSE OF PROBLEM/ROOT CAUSE.

B. SOMETIMES CONVENIENT TO COMBINE WITH FINDINGS.

4. LEVEL OF SF SUPPORT:

A. ABOVE AVERAGE/AVERAGE/BELOW AVERAGE

B. NUMBER OF SHIPS FORCE PERSONNEL TRAINED DURING VISIT

5. RECOMMENDATIONS:

A. FOR USS XXXX:

(1) IDENTIFY FOLLOW-ON ACTION

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

B. FOR TYCOM/RMC:

(1) IDENTIFY FOLLOW-ON ACTION

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

C. FOR NAVSEA/ISEA:

(1) IDENTIFY FOLLOW-ON ACTION

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

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

- 7. A. MANHOURS EXPENDED FOR TECH ASSIST.
- B. MANHOURS EXPENDED FOR TRAINING.

8. EVALUATION OF NECESSITY FOR TECHNICAL ASSISTANCE:

- A. WAS ADEQUATE TECHNICAL DOCUMENTATION AVAILABLE TO SHIP'S FORCE TO CORRECT THE PROBLEM?
- B. WERE ADEQUATE TOOLS AVAILABLE TO SHIP'S FORCE TO CORRECT THE PROBLEM?
- C. WERE ADEQUATE MATERIAL/SPARE PARTS AVAILABLE TO SHIP'S FORCE TO CORRECT THE PROBLEM?
- D. WAS SHIP'S FORCE LEVEL OF KNOWLEDGE ADEQUATE TO CORRECT THE PROBLEM?

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

VOLUME VI
CHAPTER 3
SUBMARINE MODERNIZATION

REFERENCES.

- (a) [NAVSEA SL720-AA-MAN-030](#) - Navy Modernization Process Management and Operations Manual (NMP MOM)
- (b) [NAVSEAINST 9210.4](#) - Changes, Repairs and Maintenance to Nuclear Powered Ships
- (c) [NAVSEAINST 4790.8/OPNAVINST 4790.4](#) - Ships' Maintenance and Material Management (3-M) Manual
- (d) [NAVSEA 0989-LP-037-2000](#) - Commissioned Submarine General Reactor Plant Overhaul and Repair Specification
- (e) [NAVSEA S9213-45-MAN-000](#) - Navy Nuclear Material Management Manual
- (f) [NAVSEAINST 4720.14](#) - Temporary Alterations to Active Fleet Submarines; Control of
- (g) [NAVSEA Technical Specification 9090-310](#) - Ship Alteration Accomplishment by Installation Teams
- (h) [NAVSEA T9044-AD-MAN-010](#) - Requirements Manual for Submarine Fly-By-Wire Ship Control Systems
- (i) [COMUSFLTFORCOMINST/COMPACFLTINST 4720.3](#) - Commander United States Fleet Forces Command (COMUSFLTFORCOM)/Commander Pacific Fleet (COMPACFLT) C5ISR Modernization Policy
- (j) [COMSUBFORINST 4720.15](#) - Submarine C5ISR Modernization Policy
- (k) [NAVSEA Technical Specification 9090-100A](#) - Liaison Action Record
- (l) [NAVSEA 0989-LP-058-1000](#) - Destroyer Tender and Submarine Tender Nuclear Support Facilities Overhaul and Repair Specification

LISTING OF APPENDICES.

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

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

3.1.1 **Scope.** The scope of this chapter is limited to Ship Alterations (SHIPALT), Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) Alterations (NUCALT), Alteration and Improvement (A&I) Items, Type Zero (TZ) Improvements, Engineering Changes, Field Changes (FC), Ordnance Alterations (ORDALT), Temporary Alterations (TEMPALT), Operational Alterations (OPALT), TRIDENT Command and Control System Modifications, Temporary Engineering Changes and Type Commander (TYCOM) Discretionary Changes (TDC). Appendix A of this chapter provides an executive summary of these major alteration types.

3.1.2 **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 technical approval and TYCOM authorization.

3.2 RESPONSIBILITIES.

3.2.1 Immediate Superior In Command (Squadron/Naval Submarine Support Command). The Immediate Superior In Command (ISIC) will assign an Alteration Coordinator who 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 accomplishment. TYCOM concurrence is required for exceptions.
- e. Maintaining a file of active alteration briefs and other related documentation.
- f. Assisting units in the preparation of alteration requests (Appendix B) and reviewing them for technical adequacy, applicability and recommended level of accomplishment. Alteration requests should be limited to alterations affecting safety or providing a substantial maintenance or operational benefit.
- g. Identifying design deficiencies, changes to hull applicability, or non-availability of material/design for alterations.
- h. Ensuring that only TYCOM authorized (including partially completed alterations) appear on the individual ship's Current Ship's Maintenance Project (CSMP). Review the Type Availability Code to ensure alterations have been properly screened for either FMA or Ship's Force accomplishment (Type Availability Two for FMA or Type Availability Four for Ship's Force). Reference (c) provides detailed Maintenance and Material Management (3-M) Program requirements.
- i. Ensuring that the Master Job Catalog (MJC) contains all alterations authorized for accomplishment. The Maintenance Document Control Office (MDCO) or comparable local organization is responsible for the retrieval of authorized alteration information from the MJC and its addition to the Regional Maintenance Automated Information System (RMAIS)/Logistics Data System (LDS) master CSMP or appropriate maintenance database. If an authorized alteration is not contained in the MJC, contact the TYCOM/SUBMEPP or take appropriate steps to locally add it. Reference (c) provides detailed 3-M Program requirements.
- j. Ensuring that all OPNAV 4790/CKs are collected three days prior to the end of the availability. Within two days of receipt, the MDCO (or equivalent maintenance document processing office) will input the original OPNAV 4790/CK into the on-site RMAIS/LDS computer or appropriate maintenance database.
- k. Ensuring that a Reactor Plant Configuration Change Report (RPCCR) Completion Report summarizing reactor plant configuration changes accomplished by a shipyard organization, Nuclear Regional Maintenance Department (NRMD) or FMA are forwarded to the ship's Commanding Officer either electronically or by hard copy at the end of each availability. Ensure the ship's engineer acknowledges the report back to the installing activity and that a copy of the RPCCR Completion Report is provided to the ISIC alteration manager and Squadron Engineer so the NUCALTs can be closed out in RMAIS/LDS or appropriate maintenance database. Additional details are available in references (d) and (e).
- l. Ensuring situational alterations are accomplished when conditions warrant.
- m. Informing ships of alterations planned during an availability in the pre-arrival message. Include alterations being accomplished by outside activities (industrial activity, vendor, Alteration Installation Team (AIT), etc.).
- n. Verifying reports of alteration completions provided by the industrial activity during Chief of Naval Operations (CNO) Maintenance Availabilities.
- o. Ensuring that alterations authorized for Forces Afloat accomplishment are completed to the maximum extent possible prior to ship entry into a CNO Maintenance Availability.

- p. Ensure a Memorandum of Agreement (MOA) is in place for any alteration or TEMPALT/OPALT scheduled for accomplishment before installation begins. Ensure the MOA provides the duration of installation and scheduled removal date for TEMPALTs/OPALTs. Reference (f) provides detailed TEMPALT Program requirements.
- q. Ensuring installation of TEMPALTs/OPALTs are in accordance with reference (f) and installation/removal is reported in the format provided in Appendix C of this chapter.
- r. Ensuring installation of alterations by the AIT is in accordance with reference (g).
- s. Ensuring that the FMA requisitions Ready for Issue (RFI) TYCOM Alteration Kits (TYKIT) using a TYKIT Requisition Form provided in Appendix D.
- t. Ensuring that Category "A" A&Is are completed within 12 months of the date of authorization. Category "A" items affect the structural or operational capability of the ship such that non-accomplishment would result in unsafe ship conditions. Failure to complete a Category "A" A&I within 12 months will require the ISIC to submit a major Departure From Specification (DFS) in accordance with Volume V, Part I, Chapter 8 of this manual. Category "A" A&I items will be assigned to the parent FMA for management. In addition to submitting a DFS, provide a Quarterly Plan of Action and Milestones for the accomplishment of overdue Category "A" A&Is to the TYCOM Modernization Program Manager.
- u. Ensuring that Category "B" A&Is are completed within 24 months of the date of authorization. Category "B" A&Is affect personnel and equipment safety and failure to complete a Category "B" A&I within 24 months could result in personnel injury or equipment damage. Provide a Quarterly Plan of Action and Milestones for the accomplishment of overdue Category "B" A&Is to the TYCOM Modernization Program Manager.
- v. Ensuring all Fly-By-Wire Ship Control System alterations are planned and installed in accordance with the requirements of reference (h) and Chapter 34 of this volume.

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

- a. Using the priorities set by the TYCOM/ISIC, commence alteration planning and material procurement in time to permit on time accomplishment.
- b. Ensuring required ship checks are conducted in a timely manner.
- c. Ensuring no action is taken to accomplish alterations which are not authorized for accomplishment. TYCOM concurrence is required for exceptions.
- d. Notifying the ISIC that an alteration is ready to work when all procedures have been prepared and all material is on hand.
- e. Upon completion of each non-reactor plant alteration, ensure that the OPNAV 4790/CK is completely filled in by the Lead Work Center in accordance with reference (c) and returned with the signed off Automated Work Request to the Analysis, Records and Reports Section. The OPNAV 4790/CK will be forwarded by the Analysis, Records and Reports Section to MDCO (or equivalent maintenance document processing office) for entry into RMAIS/LDS or appropriate maintenance database and then forwarded to the ship for follow-up. Reference (c) provides detailed 3-M Program requirements.
- f. Ensuring that an RPCCR Completion Report summarizing reactor plant configuration changes accomplished by the NRMD or FMA are forwarded to the ship's Commanding Officer either electronically or by hard copy at the end of each availability. Ensure the ship's engineer acknowledges the report back to the installing activity and that a copy of the RPCCR Completion Report is provided to the ISIC alteration manager and Squadron Engineer so the NUCALTs can be closed out in RMAIS/LDS or appropriate maintenance database. Once the ship's engineer acknowledges the report, distribute the RPCCR(s) electronically via the Enterprise Business System RPCCR application. Additional details are available in references (d) and (e).

- g. Maintaining a current scheduling and completion status of alterations on assigned units.
- h. Maintaining the status of alteration planning for all alterations authorized for Forces Afloat accomplishment.
- i. Requisitioning RFI TYKITS using Appendix D.
- j. Ensuring material necessary for the installation of alterations is procured in sufficient time to ensure availability during scheduled upkeeps. This includes obtaining all hardware and software required for Ship's Force responsible alterations.
- k. Providing for proper stowage of TYKITS and other alteration material pending installation.
- l. Ensuring all Fly-By-Wire Ship Control System alterations are planned and installed in accordance with reference (h).
- m. Upon completion of each installation, ensure that red lined drawings (if required) are provided to the ship and planning yard in accordance with reference (a).
- n. Ensure delivery of all required Integrated Logistics Support (ILS) documentation to the ship in accordance with reference (a) and the approved ILS Certification Form. Inform ISIC/TYCOM if all ILS is not available prior to the start of the installation so a TYCOM Risk Assessment can be conducted.

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

- a. Acting as the central point of contact for all matters relating to alterations.
- b. Responding to specific requests for ship checks made by the TYCOM/ISIC or FMA.
- c. Ensuring no alteration is attempted by Ship's Force until the alteration appears in the unit's CSMP as planned for accomplishment by the appropriate work center.
- d. Ensuring that all OPNAV 4790/CK forms provided by the installing activity are expeditiously completed and submitted to MDCO or equivalent maintenance document processing office in accordance with reference (c) three days prior to end of upkeep.
- e. For reactor plant alterations completed by the Shipyard/NRMD, an RPCCR Completion Report will be provided by the shipyard/NRMD and within four weeks of receipt, the ship's engineer must acknowledge receipt and return the report to the Naval Supply Systems Command (NAVSUP) Code N87 Waterfront Representative. The shipyard/NRMD will be responsible for electronically processing these RPCCRs via the Enterprise Business System RPCCR application.
- f. For reactor plant alterations completed by Ship's Force, RPCCRs will be processed as follows:
 - (1) RPCCRs for Ships with Propulsion - Organizational Maintenance Management System (P-OMMS). Ship's Force updates and reports configuration changes in P-OMMS. The P-OMMS coordinator shall record all updated configuration information and transmit the e-RPCCR data in accordance with references (d) and (e). In addition, provide a list of NUCALTs completed by Ship's Force to the ISIC Alteration Manager and Squadron Engineer so they can be closed out in RMAIS/LDS or appropriate maintenance database.
 - (2) RPCCRs for Ships without P-OMMS. Paper RPCCRs provided with the alteration shall be completed by Ship's Force and scanned to a .pdf format and submitted as uploads via the Naval Reactors Information Portal in accordance with references (d) and (e). In addition, provide a list of NUCALTs completed by Ship's Force to the ISIC Alteration Manager and Squadron Engineer so they can be closed out in RMAIS/LDS or appropriate maintenance database.
- g. Monitoring the accomplishment of alterations during Depot Maintenance Availabilities by both the industrial activity and Ship's Force and reviewing alteration completion reports provided by the industrial activity. Report any discrepancies to the ISIC/TYCOM.

- h. Ensuring proper 3-M reporting by monitoring the submission of OPNAV 4790/CK forms regardless of the installing activity or availability. If an OPNAV 4790/CK form has not been submitted for a completed alteration, obtain one. The certification letter of alterations accomplished by a shipyard or AIT will be processed as OPNAV 4790/CKs as required by reference (c).
- i. Ensuring an MOA is in place before installation of an alteration or TEMPALT/OPALT by any industrial activity. Ensure the MOA provides the duration of installation and scheduled removal date for TEMPALTs/OPALTs.
- j. Ensuring installation of TEMPALTs/OPALTs is in accordance with reference (f) and installation/removal is reported in the format provided in Appendix C.
- k. Ensuring TEMPALTs are removed and the ship is returned to its original configuration by the scheduled removal date.
- l. Ensuring all TEMPALTs are removed and the ship is returned to its original configuration prior to a CNO Maintenance Availability.
- m. Ensuring installation of alterations by an AIT is in accordance with reference (g).
- n. Verifying the accuracy of the TYCOM Alteration Management System (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. Ensuring onboard repair parts are ordered in sufficient time to ensure availability prior to a reactor plant SHIPALT installation.
- p. Ensuring all Fly-By-Wire Ship Control System alterations are planned and installed in accordance with the requirements of reference (h).

3.3 ALTERATION PROGRAMS.

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

Naval Supply Systems Command Weapons System Support (NAVSUP WSS)
Code 009
P.O. Box 2020
Mechanicsburg, PA 17055-1788

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

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. In addition, TYKIT inventories are available on the SUBLANT/SUBPAC SIPRNET/NIPRNET Websites. The installing activity should request shipment of RFI TYKITs from the TYCOM using Appendix D.

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

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

3.3.4.2 Alteration and Improvement Category Codes.

Category A: Mandatory/Safety of Ship - Accomplish within one year of authorization or submit a Major DFS.

Category B: Mandatory/Safety (Personnel, Equipment, etc.) - Accomplish within two years of authorization.

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

Category D: Optional/Habitability.

Category E: Optional/Minor Improvement.

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

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

3.4 MONITORING OF ALTERATION STATUS.

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

3.4.2 Navy Data Environment - Navy Modernization. The official automated system supporting the information and decision support requirements of NMP managers Navy wide. Navy Data Environment - Navy Modernization (NDE-NM) contains data related to ships and their availability schedules, alteration applicability, alteration material requirements and procurement status and installation and outfitting costs for non-nuclear alterations. Submarine TYCOM alterations and SSBN/SSGN alterations are not scheduled in NDE-NM at this time.

3.4.3 Navy Tool for Interoperability Risk Assessment, Submarine Modernization and Alteration Requirements Tool. NTIRA/SMART is the authoritative tool for the Submarine Force C5IMP. All C5I modernization planning, scheduling and authorization is conducted utilizing NTIRA/SMART. SMART is available on NIPRNET for SSNs and SSGNs and on SIPRNET for SSBNs. In addition, the TYCOM uses NTIRA/SMART to schedule and authorize all Hull, Mechanical and Electrical non-nuclear alterations being accomplished by AIT.

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

3.5 LIAISON ACTION REQUEST. A Liaison Action Request (LAR) is to be submitted to the appropriate Planning Yard or Reactor Plant Planning Yard, with copy to the TYCOM Modernization Program Manager, when a technical problem is encountered during the planning for or installation of an alteration. Appendix F provides a generic LAR which contains the minimum information required. Locally modified LARs can be used as long as they provide the minimum information outlined in Appendix F. Reference (k) provides more detail on LARs. Non-technical issues should be addressed to the TYCOM via Alteration Feedback in accordance with paragraph 3.6 below.

3.6 ALTERATION FEEDBACK. An Alteration Feedback message or email (Appendix G) is to be submitted to the TYCOM Modernization Program Manager when a non-technical or administrative problem is encountered during the planning for or installation of an alteration. Technical issues should be addressed to the appropriate planning yard via LAR in accordance with paragraph 3.5 above.

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

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

3.9 PERMANENT MODIFICATIONS TO TENDERS WITH NUCLEAR SUPPORT FACILITIES. Rearrangement or modification to spaces within or adjacent to the Nuclear Support Facility shall be accomplished in accordance with reference (I).

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APPENDIX A**MAJOR SHIP ALTERATION TYPES EXECUTIVE SUMMARY**

TYPE ALTERATION	BRIEF	WHO FUNDS FMP INSTALLATION
Title K SHIPALT	Most complex military characteristic change; requires Industrial Activity (including AIT) expertise.	Program Office
Title K-P SHIPALT	Approved package alteration for AIT or forces afloat accomplishment.	Program Office
Title D SHIPALT	Less complex fleet responsible Alteration Equivalent to a Repair. May require Industrial Activity or FMA expertise. Reactor Plant Title "D" SHIPALTs are situational - to be accomplished only when the situation outlined in the SHIPALT occurs.	Fleet Commander/TYCOM
Title F SHIPALT	Less complex fleet responsible Alteration Equivalent to a Repair. May require FMA or Ship's Force expertise. Only used for Reactor Plant alterations.	Fleet Commander/TYCOM
ORDALT	Modification of ordnance equipment/systems after establishment of the product baseline which involves a change in design, material, quantity, installed location, ILS, or the relationship of the component parts of an assembly within the ship. ORDALTs are normally accomplished by an AIT.	Program Office
MACHALT NOTE: Submarines no longer issue MACHALTs but will retain this definition to support legacy MACHALTs.	Hull, Mechanical and Electrical changes within strict equipment/system boundaries and with limited system ramifications managed by the In-Service Engineering Activity.	Program Office or TYCOM
Engineering Changes, Field Changes (FC)	A mechanical, electronic or electrical change, made to electronic equipment after establishment of the product baseline and delivery to the government, including software changes, which do not impact interfaces to other equipment within the ship, change the footprint, form or fit, change power, weight or air conditioning requirements. Engineering Changes and FCs are normally installed by AIT or Ship's Force.	Program Office
Alteration & Improvement (A&I) Item	Tests, inspections and minor alterations to submarines and submarine tenders; no significant ILS impact.	Fleet Commander/TYCOM
Type Zero (TZ) Improvements	Minor alterations to SSBN/SSGN 726 Class submarines; no significant ILS impact.	Fleet Commander/TYCOM
TYCOM Discretionary Changes (TDC) NOTE: Submarines no longer issue TDCs but will retain this definition to support legacy TDCs.	Minor alteration to SSBN/SSGN 726 Class submarines at the discretion of the TYCOM/ISIC; no significant ILS impact.	Fleet Commander/TYCOM
TRIDENT Command and Control System Modification	Alterations on the TRIDENT Command and Control System.	Program Office

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

APPENDIX B
SUBMARINE ALTERATION REQUEST FORMAT

4720
Ser
Date

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

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

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

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

1. Existing Deficiency/Condition. Statement of circumstances which warrant initiation of alteration request.
2. Alteration Request. In accordance with Volume VI, Chapter 3 of reference (a), request that the following alteration be approved for (Ship Type/Class) ships and be authorized for accomplishment on USS (Ships Name and Hull No.).
 - a. Brief: Description of alteration desired.
 - b. Justification: Statements that the alteration meets one or more of the following criteria:
 - (1) Significant improvement in ship/equipment safety.
 - (2) Significant improvement in equipment/system reliability and/or reduction in maintenance requirements.
 - (3) Significant benefits to health/safety of personnel.
 - (4) Significant improvement in mission capability.
 - c. Applicable Plans/Publications: List applicable technical manuals, drawings, correspondence, maintenance documentation, etc.
 - d. Priority: Defined by TYCOM instructions.
 - e. Relationship to other issued alterations:
 - f. Manual Changes: Recommended manual changes (attached as enclosure (2)).
 - g. Effect on Habitability.
 - h. Materials.
 - i. Work to be accomplished by:

**ISIC ENDORSEMENT OF SUBMARINE
ALTERATION REQUEST FORMAT**

**4720
Ser
Date**

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

From: ISIC (as appropriate)

To: Commander, Naval Sea Systems Command

Via: TYCOM (as appropriate)

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

1. Forwarded, concurring with the basic correspondence (with the following comments).
2. The alteration should be applicable to (Type/Class/Hulls).
3. This alteration should be issued as an (A&I/Title D/F/K/P SHIPALT).
4. This alteration should be accomplished by (Forces Afloat/industrial activity).

Copy to:

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

APPENDIX C

SAMPLE TEMPALT/OPALT REPORTING MESSAGE

FM (INSTALLING ACTIVITY)//
TO COMNAVSEASYS COM WASHINGTON DC//PMS392 (SSN/SSBN/SSGN)//
TYCOM//N42T// (AS APPROPRIATE)
INFO COMSUBRON (SQUADRON NO.)//
USS (SHIP'S NAME AND HULL NO.)//
BT
UNCLAS //N04720//
MSGID/GENADMIN/(INSTALLING ACTIVITY)//
SUBJ/(SUBS) INSTALLATION/REMOVAL OF TEMPALT (TEMPALT NO.) (ON/FROM) USS (SHIP'S NAME
AND HULL NO.)//
REF/A/LTR/(ORIGINATOR, SERIAL NO.)/(DATE)//
REF/B/LTR/(ORIGINATOR, SERIAL NO.)/(DATE)//
NARR/REF A APPROVED DESIGN OF TEMPALT (TEMPALT NO.). REF B APPROVED INSTLN OF
TEMPALT (TEMPALT NO.)//
POC/(NAME)/(RANK/RATE/TITLE)/(LOCATION)/(DSN/COMM TELEPHONE)//
RMKS/1. TEMPALT (TEMPALT NO. AND NARRATIVE DESCRIPTION), DESIGN APPROVED BY REF A,
INSTALLATION APPROVED BY REF B, WAS (INSTALLED/REMOVED)(ON/FROM) USS (SHIP'S NAME
AND HULL NO.) ON (DATE). INSTALLATION WAS IAW NAVSEA APPROVED TECHNICAL DATA
PACKAGE (TDP). DEVIATIONS WERE APPROVED BY _____. THIS TEMPALT IS SCHEDULED FOR
REMOVAL ON (DATE)//
BT

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

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APPENDIX D
TYKIT REQUISITION FORM

DATE:

FROM:

TO: TYCOM (as appropriate)

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

TYKIT#

HULL#

2. COMPLETE SHIPPING ADDRESS:

3. POINT OF CONTACT:

4. TELEPHONE (VOICE/FAX):

5. DATE REQUIRED:

6. SPECIAL INSTRUCTIONS:

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CAP: Capability Code/Recommended Level of Accomplishment

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

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

- A = Mandatory/Safety of Ship - Accomplish within one year of authorization or submit major DFS in accordance with Volume V, Part I, Chapter 8 of this manual. Invoke SUBSAFE/Submarine Flight Critical Component Boundary work requirements and document SUBSAFE/REC or Submarine Flight Critical
- B = Mandatory/Safety (Personnel, Equipment, etc.) - Accomplish within two years of authorization.
- C = Mandatory/Maintenance Improvement - Accomplish within three years of authorization.
- D = Optional (Habitability).
- E = Optional (Minor Improvement).
- F = Situational - Accomplish when specific situation occurs.

ALT NARR: Narrative description of the alteration.

TYST: TYCOM Status

- A = Applicable but not yet authorized. No action should be taken to accomplish this alteration without TYCOM concurrence.
- B = Applicable and Authorized.
- C = Alteration has been fully completed in accordance with the alteration document. For non-reactor plant alterations, "C" is assigned only after the completion report has been upline reported in the 3-M System. For reactor plant alteration, "C" is assigned only after the RPCCR has been distributed in accordance with reference (c) and all applicable FCs/RPSMs have been completed.
- D = Deferred. No action should be taken to accomplish without TYCOM concurrence.
- E = Intent of the alteration has been equivalently accomplished via a method other than the alteration document.
- H = May or may not have been accomplished during new construction/Post Shakedown Availability via Headquarters or Field Modification Request. A shipcheck is required to determine status.
- I = Incomplete Reactor Plant Alteration (all applicable FCs/RPSMs have not been completed).
- J = Title P SHIPALT package scheduled for installation by the FMA.
- K = Title P SHIPALT package scheduled for installation by an industrial activity during Depot Maintenance Availabilities.
- L = Title P SHIPALT package scheduled for AIT installation.
- N = Not Applicable.
- P = Partially complete.
- Q = A reactor plant alteration reported complete via paper RPCCR.
- T = Technically applicable, however, requirement to accomplish has been negated by another alteration.
- V = Not required within five years of inactivation.
- X = Cancelled.
- Z = Interim completion. For non-reactor plant alterations, awaiting feedback from the 3-M system that the completion has been upline reported. For reactor plant alterations, awaiting RPCCR.

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

PRRMK: Programming Remarks - Assigned Accomplished Level

AIT	=	Alteration Installation Team
ARP	=	Advance Equipment Repair Program
CMA	=	Continuous Maintenance Availability
CNX	=	Cancelled
CON	=	New Construction
DCA	=	Depot Conversion Availability
DEF	=	Deferred
DMA	=	Docking Maintenance Availability
DMP	=	Depot Modernization Program
DPM	=	Docking Phased Maintenance Availability
DRA	=	Depot Restricted Availability
EOH	=	Engineered Overhaul (Not Refueling)
ERO	=	Engineered Refueling Overhaul
ERP	=	Extended Refit Period
FA	=	Forces Afloat
FMA	=	Fleet Maintenance Activity
IDD	=	Interim Dry-docking
MAC	=	MACHALT
MMP	=	Major Maintenance Period
MTS	=	Moored Training Ship
NKT	=	Nuclear Alteration Kit for Forces Afloat Installation
NSY	=	Nuclear Alteration Kit for Depot Installation
PIA	=	Pre-Inactivation Selected Availability
PKG	=	Title P Package SHIPALT
PMA	=	Phased Maintenance Availability
POU	=	Post Overhaul Upkeep Period
PSA	=	Post Shakedown Availability
PSC	=	Status Confirmed by Shipcheck
RAV	=	Restricted Availability
ROH	=	Regular Overhaul
SAV	=	Special Availability
SCA	=	Surface Craft Availability
S/F	=	Ship's Force
SIT	=	Submarine Installation Team
SMP	=	Submarine Extended Operating Cycle Modernization Program
SRA	=	Selected Restricted Availability
SY	=	Shipyard
TAT	=	TYKIT for AIT Installation
TAV	=	Technical Availability
TKT	=	TYCOM Alteration Kit
TOA	=	TYCOM Opportunity Availability
TRF	=	Trident Refit Facility
TSY	=	TYKIT for Depot Level Installation
TYC	=	No Installing Activity Assigned
VFS	=	Vendor Field Service
XXX	=	Cancelled

SHIPCK: Shipcheck Indicator

REQD	=	Shipcheck is required
COMP	=	Status has been confirmed by Shipcheck

AUTH/COMP: If alteration is outstanding, this date is the authorization date. If the alteration is complete, this date is the completion date.

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

**LAST
UPDATE:** Date the record was the last updated by TYCOM.

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

APPENDIX F

LIAISON ACTION REQUEST (LAR) FORM

LIAISON ACTION REQUEST		ACTION NO. _____
		DATE _____
From:		
To:		
Subj:		
Ref:		
ORIGINATOR		CODE
	APPROVED	
Question or Action Required		Reply is required by _____
COMPLETED BY		APPROVED BY (BRANCH HEAD)
	DATE	
TELE. NO.		SIGNATURE
Answer or Action Taken		

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APPENDIX G

SAMPLE ALTERATION FEEDBACK MESSAGE/EMAIL FORMAT

FM ORIGINATING ACTIVITY//
TO TYCOM//
INFO ISIC//
BT
UNCLAS//N04720//
MSGID/GENADMIN/(SHIP'S NAME AND HULL NO.)//
SUBJ/ALTERATION FEEDBACK//
REF/A/(ALTERATION NUMBER)//
AMPN/REF A IS (DESCRIPTION OF ALTERATION)//
RMKS/1. DURING (PLANNING/ACCOMPLISHMENT) OF REF A THE FOLLOWING NON-TECHNICAL
PROBLEMS WERE ENCOUNTERED:
 A. INSTALLATION DOES NOT ACCOMPLISH THE INTENT OF ALTERATION
 B. MATERIAL IS NOT ADEQUATELY IDENTIFIED OR AVAILABLE TO SUPPORT THE
 INSTALLATION
 C. ALTERATION IS/IS NOT APPLICABLE
 D. ALTERATION IS/IS NOT WITHIN FMA OR SHIP'S FORCE CAPABILITY
2. DETAILS OF PROBLEM AREAS NOTED IN PARAGRAPH 1 OR OTHER PROBLEMS ENCOUNTERED
3. RECOMMEND CORRECTIVE ACTIONS/IMPROVEMENTS/COMMENTS
4. RECOMMEND SCHEDULING/PROGRAMMING CHANGES//
BT

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

**NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH CURRENT MESSAGE FORMAT AND
CURRENT PLAD IS UTILIZED.**

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VOLUME VI

CHAPTER 4

SHIPBOARD ELECTROMAGNETIC COMPATIBILITY

REFERENCES.

- (a) NAVSEA STD DWG 407-5291780 - Standard Electromagnetic Interference (EMI) Survey Procedures
- (b) SUBMEPP Test Procedure 441-5-7001 - SSN 688 Class Submarine, Systems EMI Measurements, Dockside
- (c) Maintenance Plan 4100-02-01 - Command and Control System (CCS) Electromagnetic Interference (EMI) Testing
- (d) NAVSEA STD DWG 407-5287556 - Electronics Material Officer's Guide to Shipboard Electromagnetic Interference Control
- (e) NWP 1-03.1 - Naval Warfare Publication Operational Report
- (f) NAVSEA S9040-AA-GTP-010 - Shipboard Systems Certification Requirements for Surface Ship Industrial Periods (Non-Nuclear)
- (g) COMNAVSEASYSKOM WASHINGTON DC 031440Z MAR 03 - Submarine Industrial EMC and EMI Control Interim Guidance
- (h) N6-NTSP-S-70-8003 - Navy Training System Plan (NTSP) for Electromagnetic Interference (EMI) Control
- (i) NAVSEA STD DWG 407-5287561 - Industrial Electromagnetic Compatibility (IEMC) Work Process Instructions

4.1 PURPOSE. To provide guidance in the execution of a shipboard Electromagnetic Compatibility (EMC) or the Shipboard Electromagnetic Compatibility Improvement Program (SEMCIP) program in the U.S. surface force, aircraft carrier and submarine fleets.

4.1.1 Background. The SEMCIP was established by Naval Sea Systems Command (NAVSEA) under the sponsorship of the Chief of Naval Operations (CNO). The goals of SEMCIP are to rectify mission degrading Electromagnetic Interference (EMI) problems, support fleet EMC training, and maintain shipboard EMC. SEMCIP is divided into five major elements; Up-front Systems Engineering, Fleet Response and EMI Problem Quantification, Spectrum Management/EMC in the D30 Process, Engineer EMI Fixes and Fleet EMC Support Tools. One of the Fleet tools is the SEMCIP Technical Assistance Network (STAN), a database containing current and historical information on all known shipboard submarine and Strike Force EMI problems. Since some SEMCIP elements are normally associated with the development of new systems, all elements will not be discussed here.

4.2 ELECTROMAGNETIC COMPATIBILITY ASSESSMENTS OR SURVEYS. EMC assessments are an important line of defense against shipboard EMI problems and are performed by NAVSEA or NAVSEA qualified activities for the purpose of testing various ship's systems for EMI degradation. During an EMC assessment or Survey, EMI problems are investigated and evaluated, applicable EMI fixes are installed and effects of EMI on each system tested is ascertained.

4.2.1 Shipboard Electromagnetic Compatibility Assessments. Deploying surface force ships and aircraft carriers will receive an EMC assessment from Regional Maintenance Center (RMC) as part of a Command, Control, Communications, **Computers** and **Combat Systems** Readiness Assessment (C5RA) approximately 4 to 6 months prior to deployment. Non-deploying ships may submit requests for an EMC assessment to the RMC or by submitting an OPNAV 4790/2K to their Regional Support Group (RSG)/RMC. Submarines will receive an EMI survey or EMI groom within two months prior to deployment during Pre-Overseas Movement 2 portion of the submarine deployment cycle. The surface force ship and aircraft carrier EMC assessment and the submarine EMI survey address different types of ship's systems and therefore will be discussed separately.

4.2.1.1 Surface Force Ships and Aircraft Carriers. EMC assessments should not be scheduled coincidental with evolutions that restrict either antenna radiation or personnel movement about the ship. EMC assessments must be performed per the requirements of reference (a), and include, but are not limited to:

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

- b. Performing topside visual surveys to ensure the ship conforms to the applicable topside electromagnetic control drawing as specified in STAN for that ship.
- c. Performing Intermodulation Interference (IMI) test.
- d. Performing instrumented IMI source location when IMI level exceeds the 19th order.
- e. Performing broadband noise test.
- f. Identifying source location when broadband noise is detected.
- g. Performing Time-Domain or Frequency-Domain Reflectometer measurements on all high frequency, very high frequency, and ultra high frequency transmission lines.
- h. Conducting Voltage Standing-Wave Ratio tests on all high frequency, very high frequency, and ultra high frequency transmit antennas. Where transmission lines and antennas are coupled and cannot be easily separated, reconnected and weather-proofed, testing of transmission line/antenna combinations may be performed via Time-Domain Reflectometer/Frequency-Domain Reflectometer, satisfying the testing requirements of this paragraph and paragraph 4.2.1.1g.
- i. Performing insulation resistance tests on high frequency antennas, where required by the Planned Maintenance System (PMS).
- j. Documenting all discrepancies noted on OPNAV 4790/2Ks.
- k. Assisting Ship's Force with hands-on training and technical guidance in correcting discrepancies as appropriate.

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

- a. Using STAN to verify all available EMI fixes have been installed.
- b. Briefing Ship's Force on the details of the EMI survey and discussing testing time-lines and potential impacts to the EMI survey.
- c. Coordinating antenna shield installation and removal with the ship, RSG/RMC and port services.
- d. Performing a visual survey in the submarine to verify EMI corrective action installations in sonar and communications equipment and to look for potential EMI coupling areas associated with these systems.
- e. Energizing forward electronics in accordance with the equipment energized list, provided in reference (b) for SSN Class submarines or reference (c) for TRIDENT Class submarines.
- f. Conducting EMI surveys on sonar and communications equipment.
- g. Installing and/or repairing any EMI corrective action needed to produce EMI reduction in order to improve the total shipboard EMC of all shipboard electronic equipment and systems. This will include a retest to determine the actual reduction achieved.
- h. Analyzing test data, noting all discrepancies, and generating a Naval Departure Message documenting the results of the EMI survey.
- i. Providing EMC posture debrief to the designated submarine's officers and leading petty officers. The Naval Departure Message will also be provided to the ship at the debrief for transmission from the ship.

- (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.
 - c. 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.
 - d. Do not CASREP hardware or software that have not completed system operational testing or have not been turned over to the activity for operational use (e.g., System Operation Verification Testing, Acceptance Trials, post availability testing).
 - e. Ship's Force or others may not submit a CASREP for installation of an alteration that will provide for either modernization of existing systems or equipment, or add new capability. CASREPs are used to document material readiness issues with installed systems or equipment. See Volume II, Part I, Chapter 2, Section 2.6 of this manual for questions concerning alterations.
 - f. Any system or equipment casualty that would threaten to cause or cause a discharge of oil or oily waste to sea shall be reported with a CASREP.
 - g. 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.
 - h. Estimated Time to Repair (ETR). The ETR must be realistic and an accurate ETR is required for all repairs. Simply extending the ETR by three days (or 30 days for C2) every update period does not support the intent of providing an ETR. If the problem will not be corrected within 24 hours of the ETR, send an update to change the ETR.
 - i. A 4790/2K is required to receive off-ship assistance (technical, repair, parts) or to document Ship's Force work. Every active CASREP 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.
 - j. An assist line is mandatory for an initial CASREP and optional on subsequent updates. In the ASSIST AMPN line clearly specify type of off-ship assistance and the time frame desired by the activity. Clearly identify Distance Support efforts. The following options are acceptable:
 - (1) Assist/Technical/Distance.

- (2) Assist/other/Distance.
- (3) Assist/none.
- k. CASREP description and remarks should be concise and consistent with the 4790/2K without sacrificing clarity. The system or equipment listed in the casualty line 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 equipment (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.
- l. 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 Addressees (PLAD), a well trained Radio Central and a controlled chop process are key to success. At a minimum, COMUSFLTFORCOM Norfolk VA (AIG 6842 or 6843) 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.

VOLUME VI

CHAPTER 8

MINIATURE/MICROMINIATURE ELECTRONIC REPAIR PROGRAM

REFERENCES.

- (a) NAVSUP Publication 485 - Afloat Supply Procedures
- (b) NAVSEAINST 4790.17 - Fleet Test and Repair of Shipboard Electronic Equipment
- (c) NAVSEA SE004-AK-TRS-010/2M Marine Corps TM 5895-45/1B - Standard Maintenance Practices 2M Electronic Assembly Repair
- (d) NAVSEAINST 4790.8/OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
- (e) COMNAVAIRLANTINST 4790.42/COMNAVAIRPACINST 4790.54 - CV/CVN Intermediate Maintenance Activity (IMA) Module Test and Repair Facility (MTRF)
- (f) NAVSEA TE000-AA-MAN-010/2M - Certification Manual for Miniature/Microminiature (2M)/Module Test and Repair (MTR) Program
- (g) MIL-HDBK-263 - Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment
- (h) COMNAVAIRLANTINST 4790.34 - Electrostatic Discharge (ESD) Control Program
- (i) NAVSUP 484 - Supply Afloat Fleet and Field Packaging Procedures
- (j) OPNAVINST 5100.19 - Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
- (k) NAVPERS 18068 - Manual of Navy Enlisted Manpower and Personnel Classification and Occupational Standards
- (l) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
- (m) COMNAVSURFLANT/COMNAVSURFPACINST 4400.1 - Surface Force Supply Procedures
- (n) MIL-STD 1686 - Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment
- (o) MIL-HDBK-773 - Electrostatic Discharge Protective Packaging
- (p) SPCCINST 4441.170 - COSAL Use and Maintenance Manual
- (q) NAVAIR 01-1A-23 - Electronic Assembly Repair Standard Maintenance Practice
- (r) NAVAIR 17-15-99 - Operations and Maintenance O and I Level
- (s) NAVAIR 17-600-193-6-1 - Pre-operational Check List
- (t) NAVAIR 17-600-193-6-2 - Periodic Maintenance Requirements Manual
- (u) COMNAVAIRLANTINST 13650.1 - Individual Material Readiness List (IMRL) Program
- (v) COMSUBLANTINST 4419.1 - Module Screening and Repair Activity (MSRA) Repairables Management Procedure

LISTING OF APPENDICES.

- A Emergency 2M Repair Process
- B Normal 2M Repair Process
- C MTRF 3-M Reporting (Aircraft Carriers Only)
- D Sample MTRF Amplifying Procedures Message
- E Sample CVN MTRF Repair Request Message
- F Sample MTRF Quarterly Report Message (Aircraft Carriers Only)
- G MTRF Equipment Configuration

8.1 PURPOSE. To promulgate policy, guidelines and procedures for the management of the Miniature/Microminiature (2M) Electronic Repair Program.

8.1.1 Scope. This chapter applies to all activities engaged in the repair of electronic equipment, assemblies, subassemblies, and modules. This chapter does not apply to electronic equipment under the cognizance of Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) or the Strategic Systems Project Office.

8.1.2 Policy. All failed Circuit Card Assemblies (CCA)/Electronic Modules (EM) are candidates for 2M screening and repair using Automated Test Equipment (ATE), General Purpose Electronic Test Equipment (GPETE) (including AN/USM-674(V)(2) and the Huntron 2000), and test bed installations. CCAs/EMs may be certified Ready For Issue (RFI) per reference (a).

8.1.3 Background. The 2M Electronic Repair Program, established by reference (b), supports the test and repair of electronic equipment at the Fleet level. Reference (c) describes 2M capabilities which include the performance of high quality repairs on CCAs and EMs. This 2M repair capability includes training, tools, techniques, technical documentation and certification.

8.2 RESPONSIBILITIES.

8.2.1 Fleet Commander. Fleet Commanders shall:

- a. Operationally administer the 2M Electronic Repair and the Module Test and Repair Programs.
- b. Inspect and certify 2M repair facilities and technicians in accordance with reference (b) in conjunction with the Command, Control, Communications, **Computers** and **Combat Systems** Readiness Assessment (C5RA)/Total Ship's Readiness Assessment (TSRA).
- c. Ensure all 2M maintenance actions are documented in accordance with reference (d).

8.2.2 Type Commander/Immediate Superior In Command. Type Commanders (TYCOM)/Immediate Superiors in Command shall:

- a. Coordinate and manage the 2M program.
- b. Monitor the effectiveness of the 2M program and provide recommendations concerning 2M equipment, tools, and training.
- c. Implement progressive repair procedures.
- d. Coordinate logistic support, outfitting requirements, and deployment priorities for 2M repair stations and associated test equipment.
- e. Monitor 2M certification status and direct corrective actions as required.
- f. Schedule 2M certifications in conjunction with the C5RA/TSRA prior to deployment, or as required.
- g. (Aircraft Carriers only) Conduct Module Test and Repair Facility (MTRF) inspections in accordance with reference (e) during the C5RA/TSRA, as required, or prior to deployment.

8.2.3 Commanding Officer/Officer In Charge. Commanding Officers/Officers In Charge shall:

- a. Establish a 2M program under the cognizance of the Electronics Material Officer (EMO) and the Combat Systems Officer. For Fleet Maintenance Activities (FMA), utilize the Electronics Repair Officer as the overall coordinator.
- b. Maintain certified 2M stations and technicians.
- c. Screen and repair all CCAs/EMs using the progressive repair process. Submit CCAs/EMs beyond Ship's Force repair capability to the FMA.
- 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 for surface ships, (OE15 for Aircraft Carriers) and NE02 for SSBN/SSGN Class submarines. 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.

- a. An OPNAV 4790/2K or Master Job Catalog item will be submitted to the local Regional Support Group/Regional Maintenance Center for brokering. The organizational WC/MTRF will advise the Regional Support Group/Regional Maintenance Center if the CCA/EM is time sensitive (i.e., Casualty Report (CASREP)) to prioritize for immediate scheduling.
- b. CASREP driven OPNAV 4790/2Ks will be accepted by the FMA on the same day the job is submitted and worked to support a 24 hour turn-around.
- c. Non-CASREP driven OPNAV 4790/2Ks will be screened to support activities and worked to support a 72-hour time limit or deadline date.
- d. If the FMA is unable to repair the CCA/EM, it is condemned according to Repairables Management procedures in accordance with the requirements of reference (a).

8.5.4 Certification of Miniature/Microminiature Repaired Assets as Ready for Issue. Reference (a) describes the definition and certification criteria for RFI items. Repaired CCAs/EMs will meet the following basic RFI requirements:

- a. Packaging and preservation.
 - (1) Repaired items from the 2M WC/MTRF will be packaged to meet the minimum standards of reference (a).
 - (2) A repair unit identification label shall be affixed to the body of each repaired unit in accordance with reference (a). The label must specify the command/activity performing the repair, the date repaired and the name of the 2M technician.
- b. ESD protection. ESD sensitive CCAs/EMs will be handled, prepared, and packaged in accordance with references (g) and (n). Ensure all CCAs/EMs are packaged for shipment per reference (o).

8.5.5 Miniature/Microminiature Module Test and Repair Piece Parts. Piece parts required for 2M repairs have been formalized into Allowance Parts Lists (APL) for each ship class having 2M/MTR repair capability. These APLs contain unique high usage piece parts such as resistors, diodes, capacitors, transistors, and integrated circuit chips determined from Fleet wide demand data, TYCOM recommendations and from the latest Gold Disk release which support, and are part of, the equipment and/or systems installed on a specific ship class. 2M/MTR piece part APLs are divided into two distinct groups, Baseline and Augmented APLs.

- a. Intermediate-Level Baseline APL. The Intermediate-Level Baseline APL is supply coded Operating Space Item. 2M/MTR piece parts listed in this APL are ordered, staged in three VIDMAR-type cabinets and delivered onboard selective intermediate level ships to the 2M work center. These 2M/MTR piece parts have been identified as maintenance critical. Operating Space Item parts consumed during 2M repairs must be reordered on a one-for-one basis as usage is reported and are eligible for demand base stocking by the supply department.
- b. Organizational-Level Baseline APL. The Organizational-Level Baseline APL is supply coded Storeroom Item and contains an Allowance Note Code to ensure that 100% of the listed 2M piece parts are stocked on board regardless of stocks presently on hand and/or past usage.
- c. Augmented APL. To ensure that sufficient piece parts are authorized to support increases in 2M/MTR repairs, additional APLs have been developed to support both I- and O-Level 2M/MTR ships and shore facilities. These APLs, labeled "Augmented APLs" list all 2M/MTR piece parts appearing in the latest Gold Disk release and are applicable to a ship's class and/or maintenance capability. These APLs are supply coded Storeroom Item and allowances will be computed using normal Fleet Logistics Support Improvement Program computations. Augmented APLs will continue to be updated as the number of Gold Disks continues to increase. Parts needed for a 2M/MTR repair but not listed in 2M/MTR APLs should be reported by Fleet Coordinated Shipboard Allowance List Feedback Report in accordance with reference (p).

8.6 UNIQUE MINIATURE/MICROMINIATURE GUIDANCE (NAVAL AIR FORCE ONLY).

8.6.1 Aviation Intermediate Maintenance Department.

- a. Use reference (q) as the standard maintenance instruction when repairing aircraft or aircraft support equipment CCAs/EMs. Copies of references (q), (r), (s), and (t) shall be maintained in each 2M WC.
- b. Ensure all 2M Collateral Duty Inspectors demonstrate in-depth knowledge of 2M repairs. All micro repair should be inspected by Collateral Duty Inspectors familiar with micro repair standards.
- c. Initial support equipment outfitting for 2M stations is accomplished under the Individual Material Readiness List Program in accordance with reference (u).

8.6.2 Aircraft Carrier Fleet Maintenance Activity Module Test and Repair Facility.

- a. The mission of the MTRF WC OE15 shall be to enhance the parent Aircraft Carrier and Battle Group units' Combat Systems readiness through onboard I-Level electronics repair of CCAs/EMs.
- b. MTRF evaluations will be conducted by the Naval Underwater Warfare Center, Fleet Engineering Office during the C5RA/TSRA or prior to deployment in accordance with reference (e).
- c. Ensure all MTRF WC repair actions are documented under the Maintenance and Material Management (3-M) system per reference (d) and the procedures delineated in Appendix C of this chapter, using a pre-formatted OPNAV 4790/2K. Maintain a file copy of the OPNAV 4790/2K with the completed QA Form 17 for a period of 12 months or until the next C5RA/TSRA or QA audit, whichever is the longer period.
- d. Ensure the ESD control procedures of references (g), (h), and (i) are instituted at the MTRF WC and all departments (less Aviation Intermediate Maintenance Department) to provide for the adequate protection of ESD sensitive CCAs/EMs.
- e. Ensure that the MTR Tracking System is used to record all repairs, maintain the production database and to produce required reports.
- f. Aircraft Carrier Combat Systems Material Officers will promulgate amplifying procedures by message for Battle Group units to request MTRF WC assistance. A sample format is provided in Appendix D of this chapter.
- g. Units requesting CVN MTRF repairs submit "IMMEDIATE" message in the format of Appendix E of this chapter. MTRFs will not accept CCAs/EMs for repair without prior notification.

- h. Each MTRF shall provide Commander, Naval Air Force Atlantic (COMNAVAIRLANT)/Commander, Naval Air Force Pacific (COMNAVAIRPAC) a quarterly summary report of MTRF accomplishments, by message or Naval Telegram, due by the 15th day of the month following the end of each quarter. A sample format is provided in Appendix F of this chapter.
- i. Employ the Progressive Repair Program to establish and support the interface between the Supply Department and Combat Systems MTRF in repair of all ship systems CCAs/EMs.

8.7 UNIQUE MINIATURE/MICROMINIATURE GUIDANCE (SUBMARINE FORCE ONLY).

8.7.1 Module Screening and Repair Activity. The Module Screening and Repair Activity (MSRA) has been developed to support the AN/BSY-1(V), AN/BQQ-15D/E, and CCS MK1/2 programs (WC 84). Parts supported by the MSRA Module Support List are managed in accordance with reference (v).

- a. MSRAs are located at the Naval Submarine Support Facility New London, CT, Submarine Base Pearl Harbor, HI, and Engineering Development Model, Norfolk, VA.
- b. The MSRA suite of test equipment includes a Teradyne tester for digital CCAs/EMs, an LTX for analog CCAs/EMs, a UTS-625 for power supplies, an Amplifier Test Set for Modular Power Amplifiers, and the Display Assembly Test for displays.
- c. (Submarine Base & Naval Submarine Support Facility only) FMAs shall establish and maintain an MTRF consisting of the combined capabilities of WCs 67L, 67M, and 84A.

8.7.2 Fleet Maintenance Activity/Submarine Base.

- a. Designate the R-4 Division Officer through the Production Officer to be the overall coordinator for the MTRF.
- b. FMAs are to maintain 2M/ATE/GPETE repair capability. The minimum acceptable capability is two 2M repair stations, one of which will be microminiature capable.
- c. Promulgate amplifying procedures for out-of-area or inter-service customers to request MTRF assistance using the guidance of Appendix D of this chapter.
- d. Maintain a complete inventory of MTRF using Appendix G of this chapter.

8.7.3 OHIO Class Organizational Repair Capability.

- a. OHIO CLASS SSBNs and SSGNs outfitted with 2M MTR capabilities are to maintain two trained and certified technicians that have completed the AN/USM-674 Operators Training (CIN: A-100-0076) and Miniature Electronic Repair Training (CIN: A-100-0072) for each Blue-Gold crew. Designate one of these technicians from each crew as the 2M MTR Program Coordinator. Responsibilities are cited in paragraph 8.2.4 of this chapter.
- b. In accordance with 2M MTR Certification requirements of reference (f), 2M MTR technicians shall complete re-certification every 18 months. Site reviews shall be conducted every 18 months. Site reviews and personnel re-certifications are conducted by certified 2M MTR Inspectors.
- c. Additional 2M MTR program management responsibilities are cited in sections 8.2 and 8.3 of this chapter.
- d. Submit Module Test and Repair Tracking System Reports (backup file) to NUWCDET Norfolk after completion of each patrol/crew turnover (2mtrdata@navy.mil).
- e. For submarines that possess the organic electronics repair capability (2M), utilize work center NE02.

8.7.4 Reports. FMAs shall utilize the appropriate turn-in repairable tracking system to generate a quarterly Mandatory Turn-in Repairable Summary Package, with option (1) of the MTRF accomplishments, forwarded to the TYCOM (N42). This summary package is due by the 15th day of the month following the end of each quarter.

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 and Amphibious Assault Ships Metrology and Calibration (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 **TYCOM Calibration Program of Record by maintaining at least 95% accomplishment rate for all TMDE in its inventory. The TYCOM Calibration Program of Record readiness reports will be used to monitor the accomplishment rates.**
- g. (Submarine Force only) **Support and participate in the TYCOM's CTRA process. Ensure corrective actions resulting from the conduct of a CTRA are completed for activities under the Immediate Superior In Command's (ISIC) cognizance.**

9.2.5 Commanding Officers All Forces.

- a. 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.
- d. (Submarine Force only) **Prior to the completion of a CTRA, deliver excess, rejected and obsolete (PRI 95) test equipment for the designated CTRA center.**
- e. 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.
- f. Ensure TMDE is submitted for calibration prior to the calibration due date, with all accessories, power cords and technical manuals required to complete calibration.

- g. 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.
- h. 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, **Maintenance Index Page (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.
- h. Use the RLP for maintenance requirements while the ship's test equipment is being calibrated or as indicated in the SPETERL (borrow from Regional Loan Pool).
- i. Ensure all TMDE has a current calibration sticker, reference (i).
- j. Ensure all calibration is conducted at the lowest level of calibration feasible.
- k. Ensure all ship's instrumentation appears in a formal calibration accounting and recall system. This data should reflect CRL information such as system, nomenclature, periodicity, etc. The CRL should also be validated annually and these updates (adds/deletes) should be forwarded via Technical Manual Deficiency/Evaluation Report (TMDER) to correct the hull specific CRL.
- l. SGCP FCA calibration procedures are listed in MIP 9802 series and should be listed under PMS work center FCA1.

9.2.7 Commanding Officers Naval Air Force. Naval Air Force activities shall also follow the detailed procedures outlined in reference (j) for TMDE management and for operation of the consolidated FCA.

9.2.8 Regional Maintenance Center Metrology and Calibration Coordinators.

- a. Coordinate and schedule off-ship calibration or repair services for ships within their geographic area of responsibility. Specific lack of capability is the only justification for off-ship calibration.
- b. Maintain close liaison with the RMC/RCC shipboard calibration coordinators and the ISIC to prevent or resolve calibration scheduling and readiness problems.

- c. Review ship's calibration work requests to ensure that TMDE within the calibration capability of the ship's FCA are not sent to a higher-level calibration laboratory.
- d. Contact all deploying ships that have not delivered a pre-deployment calibration work package at least 45 days before deployment to determine ship's requirements.
- e. Notify TYCOM METCAL Managers, as applicable, of all changes in RMC/RCC calibration capability.
- f. Assist RMC/RCC calibration laboratories in obtaining calibration or repair services for laboratory standards.
- g. Identify TMDE calibration requirements beyond the technical capability of the RMC/RCC. Coordinate with TYCOM METCAL Managers for scheduling of TMDE overflowed to an approved calibration laboratory.

9.2.9 Regional Maintenance Center/Regional Calibration Center.

- a. In the absence of an approved Instrument Calibration Procedure for TMDE within the general range of the laboratory capability, develop a Local Calibration Procedure in accordance with reference (e), and then calibrate the instrument. Technical manuals, manufacturers' guides or other equipment technical documentation may be used to develop the interim procedure. Forward the locally developed procedure to NSWC Corona for review and approval.
- b. Calibrate and/or repair TMDE including calibration standards assigned by the RMC METCAL Coordinators. Document all calibration actions using the Metrology Automated System for Uniform Recall and Reporting (MEASURE) or the TYCOM directed data collection method.
- c. Ensure that electronic TMDE submitted by the Fleet is standard test equipment listed in reference (h). Contact the submitting activity and the TYCOM METCAL Manager when non-standard TMDE is submitted for calibration. Non-standard TMDE will not be calibrated or repaired unless approved by the TYCOM.
- d. Ensure all laboratory standards are properly calibrated at the lowest appropriate level. Notify the TYCOM METCAL Manager of any lost or reduced laboratory capability.
- e. Ensure all TMDE repaired by the RMC/RCC are completely recalibrated before being returned to service. Calibration of a repaired instrument will serve as Quality Assurance of an accomplished repair.
- f. Prepare and submit Calibration Problem Reports to NSWC Corona for assistance or guidance concerning calibration problems encountered during operation of the calibration laboratory.
- g. Refer to Section 9.5 of this chapter for replacing malfunctioning calibration standards certified by a repair facility to be Beyond Economical Repair (BER), (i.e., having a repair cost in excess of 50% of the replacement cost).

9.3 CALIBRATION MANAGEMENT.

9.3.1 Shipboard Gage Calibration Program Field Calibration Activity (Surface Force only). The SGCP provides onboard calibration capability for TMDE in the following measurement areas: temperature (high and low), pressure, vacuum and torque (selected ship classes only).

- a. Only certified SGCP FCAs are authorized to calibrate installed instrumentation within their capability as designated in the CRL. Beyond capability calibration is submitted to the RMC Calibration Coordinator for scheduling and accomplishment.
- b. The SGCP technicians are responsible for placing the appropriate METCAL label on the installed instruments. The SGCP Calibration Coordinator is responsible for adding the calibration data into the TYCOM directed recall program.
- c. SGCP FCAs shall establish PMS work center FCA1. PMS MIP 9802 series are the calibration procedures for SGCP FCAs.

- d. Non-critical instrumentation will have an NCR METCAL label attached. When a NCR instrument's reliability is suspect, it will be sight compared with a critical instrument or a SGCP standard. When a NCR instrument is repaired or replaced, it will be installed and sight compared with a critical instrument or SGCP standard. If a primary instrument is out of commission, a NCR instrument may be calibrated at the discretion of the inspection team to validate system parameters.
- e. The SGCP Calibration Coordinator is responsible for ensuring that the CRL data is aligned with ship's configuration and ensuring that instrumentation identified in the TYCOM calibration recall inventory matches CRL data: system, nomenclature, periodicity, etc. Recommended changes shall be forwarded to the EA via METBENCH Calibration Management System (MCMS) or TMDERs.

9.3.2 Calibration Accounting. TMDE calibration actions are recorded in the TYCOM directed Calibration Recall Program. Surface force ships use one of the three different programs: MEASURE (LHA/LHD), MCMS, or the TYCOM Calibration Recall Program (TCR).

- a. Measure implementation and operation guidance, reference (k).
- b. MCMS supports surface force ships and provides shipboard personnel with the capability to update inventory files using LAN access. MCMS also provides the capability to generate reports and upload data to the master server through distance support. Readiness information and inventory status is readily available to Ship's Force and TYCOM METCAL Managers.
- c. TCR program (Excel file) is used on those ships that do not yet have MCMS installed. The file provides inventory information to track calibration status.

9.3.2.1 Shipboard Calibration Recall Inventories for MEASURE, TCR, and MCMS (Surface Forces).

- a. MEASURE and TCR.
 - (1) "S" inventory: All installed instrumentation identified in the CRL and mechanical TMDE that is not SCAT coded (i.e., torque wrenches, micrometers, etc.). The SGCP calibration standards are included in this inventory.
 - (2) "E" inventory: All portable test equipment including electronic and mechanical SCAT coded test equipment that appears in the SPETERL (excluding the SGCP calibration standards).
- b. MCMS.
 - (1) "S" inventory: All installed instrumentation identified as CAL=Y in the CRL. (All installed instruments i.e., both Cal = Y or N are in the "CRL" tab.)
 - (2) "E" inventory: All portable test equipment including electronic and mechanical SCAT coded test equipment that appears in the SPETERL (excluding the SGCP calibration standards).
 - (3) "P" inventory: All mechanical TMDE that is not SCAT coded (i.e., torque wrenches, micrometers, etc.). The SGCP calibration standards are included in this inventory.

9.3.3 Submarine Forces Management Policy.

- a. Personnel certified as submarine FCA technicians will use PMS MIPs/MRCs to accomplish shipboard in-place calibrations.
- b. Personnel certified as FCA Technicians for platforms assigned to COMSUBLANT/COMSUBPAC are to utilize PMS MIP 9802 series for the performance of in-place shipboard instrument calibration.
- c. The scheduling and reporting of calibration actions will be accomplished via Maintenance Data System using the Periodic Maintenance Requirement Scheduling Module and its associated Micro-Calibration and Scheduling Management program and MEASURE systems as directed by the appropriate TYCOM. All assigned MIPs/MRCs are to be maintained in accordance with the requirements of reference (I).
- d. All components being calibrated using a calibrator (i.e., 3666, 3461, 1127, 3604, 3605, etc.) will have a calibration sticker affixed. The system calibration periodicity will be governed by the CRL.
- e. A certified FCA technician is required for the operation of calibration equipment called out for use in the performance of any PMS requirement.

- f. System calibration will utilize the miniature yellow “Special Calibration” sticker annotated to reflect system calibration and the components tested. This Special Calibration sticker is to be located on the “readout component”. When the “readout component” is a flat panel display, PLC interface display, laptop or similar display method, apply the label to the instrument vice the “readout component”. Also, in those cases where a transducer provides an alarm or shutdown function but no indication or parameter measurement (i.e., air compressor high pressure shutdown), apply the calibration sticker to the transducer.

9.4 REGIONAL LOAN POOLS. RLPs are established at the RMC/RCC to alleviate shipboard maintenance support shortfalls caused by a lack of shipboard GPETE due to calibration or repair requirements.

- a. RLPs include a wide variety of calibrated, Ready For Issue items stocked in sufficient quantity to ensure continuous availability.
- b. GPETE from the RLPs may be checked out for a specific purpose (i.e., repair of the AN/SPS-73 Radar, PMS of the AN/WSC-3, etc.) or to satisfy a temporary requirement for special purpose items not normally included in the ship’s allowance. Pool items are intended as short-term substitutes for unavailable shipboard items. Pool items may be checked out for ten working days; however, the RMC METCAL Coordinator may authorize an extension of the ten day limit on a case basis.
- c. All GPETE returned to the RLP shall be inspected by representatives of the lending RMC/RCC and the borrowing command. The original inventory receipt is checked to see if the GPETE has been damaged or is missing accessories provided at the time of the loan. GPETE lost, damaged beyond repair or destroyed must be surveyed by the borrowing command using procedures established in reference (m). A copy of the completed survey report shall be forwarded to the appropriate TYCOM METCAL Manager.

9.5 REPLACEMENT OF GENERAL PURPOSE ELECTRONIC TEST EQUIPMENT/CALIBRATION STANDARDS.

9.5.1 Depot Level Repairables. GPETE/Calibration Standards (CAL STD) (7Z Cog), certified by a RMC/RCC or a higher-level activity as BER will be turned into the Naval Supply System. (Note: NAVAIR CAL STDs will not fall under these instructions.) For BER NAVAIR CALSTDs, RMC/RCC and Customer activities are required to contact TYCOM METCAL manager.

- a. The RMC/RCC certifying the GPETE/CAL STD as BER may turn the defective unit in to the Navy Supply System for the customer activity, provided the customer has given the RMC/RCC a requisition number under which a replacement will be ordered. If the RMC/RCC turns the defective GPETE/CAL STD in to the Naval Supply System, all turn-in data must be given to the customer to assist in any future carcass tracking follow-up investigations by the Naval Supply System.
- b. The customer activity may accept return of the defective GPETE/CAL STD from the RMC/RCC and initiate turn-in and replacement procedures through the normal Navy Supply System process.
- c. Depot Level Repairable GPETE/CAL STD will not be processed for survey by a RMC/RCC.

9.5.2 Navy Stock Funded. GPETE (1H or 9N Cog), certified by an RMC/RCC or a higher-level authority as BER will be processed for survey.

- a. The RMC/RCC certifying the GPETE/CAL STD that is BER must notify the customer of a requirement to survey the defective GPETE/CAL STD. The customer is responsible for initiating a survey action and requisitioning a replacement item through normal Operating Target funded supply channels.
- b. The RMC/RCC certifying the GPETE/CAL STD as BER may retain the carcass for cannibalization of repair parts provided the customer has acknowledged that the survey process has been initiated and has provided a copy of the survey document to the RMC/RCC.

9.6 TEST MEASUREMENT DIAGNOSTIC EQUIPMENT MANAGEMENT.

9.6.1 Ship’s Portable Electronic Test Equipment Requirements List. The SPETERL is the allowance document for all GPETE, SPETE and FCA calibration standards. Test equipment and FCA calibration standards allowance requirements (quantity and type) are computed on an individual ship’s entire configuration of installed electrical and

electronic equipment, with due consideration for function, quantity, usage and location of prime equipment. The Allowance Change Request form, NAVSUP 1220-2, is used to request an increase or decrease in the SPETERL allowance.

9.6.2 Test Measurement Diagnostic Equipment Index. Reference (h) is the primary source for determining test equipment uses and requirements. Consult reference (h) to determine the preferred model of test equipment needed to fill a specific deficiency. Test equipment deficiencies fall into two categories, initial outfitting and replacement.

9.6.3 Sub-Category Code. Defines a family of test and measurements parameters. Test equipment within the SCAT code is prioritized in accordance with reference (m), with the lowest priority number assigned to the TMDE currently being procured to fill outstanding deficiencies. SCAT codes are the basis for identifying TMDE on MRCs.

9.6.4 Ship's Configuration and Logistics Support Information System Index. The primary test equipment inventory document for ships. The Ship's Configuration and Logistics Support Information System (SCLISIS) Index must be kept current by the submission of completed OPNAV 4790/CK forms.

9.6.5 Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment.

9.6.5.1 Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment Program. The CTRA Program is a joint fleet program that improves fleet and shore command non-Aviation TMDE readiness. The CTRA Program also includes the receipt, staging and redistribution of Fleet excess electronic test equipment, mechanical test equipment and calibration standards used to replace equipment that is missing or BER.

9.6.5.2 Type Commander Metrology and Calibration Program Managers. TYCOM METCAL Program Managers are responsible for the following:

- a. Scheduling a CTRA during ship Fleet Readiness Training Plan or Integrated Logistics Overhaul and every 18 to 24 months for shore commands.
- b. Budget for the CTRA program as necessary.
- c. Develop and promulgate CTRA schedule as required.
- d. Maintain excess test equipment and calibration standards at CTRA staging area for redistribution to fleet activities.

9.6.5.2.1 Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment Review Process.

- a. Brief ship's department heads, division officers and technicians.
- b. Conduct training for TMDE management and the calibration recall software.
- c. Review SPETERL and electronic (E) TMDE inventory with the ship's Combat Systems Test Equipment manager. Review will include: Configuration verification of prime systems and Fleet Supplemental Test Equipment Requirements, verification of shipboard TMDE inventory and revisions to the TYCOM approved calibration recall system inventory, prime system and test equipment updates to Navy configuration database (if during Integrated Logistics Overhaul availability), identification of SPETERL allowance changes based on actual configuration, listing of inoperable items and coordination of repair of items that fill deficiencies, removal of excess equipment from the ship and filling of deficient equipment from CTRA staging assets. Deficient initial outfitting items will be coordinated through NAVSEA.
- d. Review Mechanical "S" inventory with the SGCP Coordinator using the CRL to determine calibration requirements (TCR and MEASURE ships only). Mechanical test equipment will be listed on this mechanical inventory. Use the CRL to validate the recall inventory (TCR and MEASURE ships only).
- e. (Submarine Force only) Prior to the completion of a CTRA, coordinate the delivery of identified excess test equipment to the designated CTRA facility.
- f. Provide the results of the assessment to the ship.

9.6.5.2.2 Consolidated TMDE Readiness Assessment Test, Measurement and Diagnostic Equipment Redistribution. The CTRA Center manages the redistribution of Fleet TMDE to fill allowance deficiencies or replace equipment that is missing or BER. Excess TMDE and decommissioned ships' assets are received and made available for redistribution to FLEET activities. Fleet activities are required to forward all excess TMDE to the CTRA Center and to utilize the CTRA Center for the initial requests to fill replacement or deficient SCAT coded TMDE.

9.6.5.2.3 Completion and Corrective Action Reporting (Submarines only). Executive Director, Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity issue a CTRA Completion Report, via the parent ISIC with TYCOM on copy, outlining corrective actions to be taken by the assessed command as a result of the CTRA. The assessed command will issue a corrective action letter within 90 days of receipt of the CTRA Completion Report, via the parent ISIC with TYCOM on copy, to Executive Director, SUBMEPP Activity.

9.7 SHIPBOARD INSTRUMENTATION AND SYSTEM CALIBRATION. The SISCAL Program, which includes SGCP, is responsible for the calibration and maintenance support for installed instrumentation and machinery control system calibration requirements per reference (e). Installed instrumentation calibration support parameters are documented in the ship specific CRL as follows:

- a. Calibration Activity. Defines responsibility for calibration of shipboard installed instrumentation for the following three calibration activities.
 - (1) Calibration Activity 1 (Level 1). **Shipboard** FCA is responsible for calibrating stand-alone instrumentation (i.e., gages, thermometers and switches). Instruments are typically calibrated onboard (in place/onsite) by the certified SGCP technicians using PMS MIP 9802 calibration procedures per the hull specific CRL. On submarines, shipboard FCA also perform transducer calibrations (system calibration) using H coded calibration cards in the PMS deck.
 - (2) Calibration Activity 2 (Level 2). (Applicable to Surface Force ships, aircraft carriers and Landing Craft Air Cushion (LCAC)) SISCAL teams perform calibration support for machinery control system components (i.e., pressure transducers, temperature transducers, signal conditioners, display devices, meters, etc.). Except during yard/industrial periods when testing is mandated, these components are not calibrated as individual items. Instead, the entire measurement chain is calibrated as a single entity using Navy approved calibration standards and SCPs. **Only SISCAL teams are authorized to use SCPs.** Level 2 calibrations are performed onboard (in place/onsite) by SISCAL teams certified by the SISCAL EA, SSES 953. **These teams are:**
 - (a) Surface Ships and aircraft carriers - NSWC SSES, NAVSHIPYD and IMF Pearl Harbor and NAVSHIPREPFAC Japan.
 - (b) Landing Craft Air Cushion (LCAC) - certified SISCAL teams at Assault Craft Units. **These teams will be augmented by RMC I-Level Production.**
 - (3) Calibration Activity 3 (Level 3). RCC calibrates those instruments which require the use of unique calibration standards or facilities.
- b. SISCAL Team Scheduling. (Not applicable to Sub platforms) SISCAL scheduling begins approximately six months before expiration date and is coordinated between the Port Engineer/CVN Maintenance Manager/SHIPSUP and the SISCAL scheduler. The SISCAL team workload is the Calibration Activity 2 instruments listed in the ship's CRL and is accomplished only by the NAVSEA authorized calibration agents listed above. SISCAL visits are scheduled for both triennial SISCALs and subsequent return visits (call-back). If a ship is in an industrial environment then reference (n) applies until SISCAL effort can commence within the six months post industrial availability period.
- c. SISCAL Dashboard. A bi-weekly document issued by the SISCAL EA via email to all SISCAL stakeholders provides the following:
 - (1) Triennial SISCAL visit scheduled on or before the calibration due date.
 - (2) SISCAL Report. A SISCAL report is provided to the ship after the triennial SISCAL visit. The report identifies the results of the calibration effort and includes a listing of all instruments that were not calibrated during the visit. Instruments that were not calibrated are listed under the following categories:
 - (a) Rejected (broken or out of tolerance).

- (b) Previously rejected (PRE_REJ), left over from last SISCAL.
 - (c) Not Installed (NI), instrument missing.
 - (d) Not Done Due to Ship Operations (NDSO).
 - (e) Not Done at Ship's Request (NDSR).
 - (f) Not Done Due to Shipyard (NDSY).
 - (g) Could Not Be Isolated (CNI).
 - (h) Equipment Out Of Commission (OOC).
 - (i) Not On Site Capable (NOSC), No Procedure (NOPRO) or No Calibration Standard (NS). NSWC SSES will coordinate with NAVSEA Program Offices to resolve.
- (3) Call-back SISCAL visit. Listed as either a SISCAL call-back or SISCAL II. SISCAL II is used when more than 100 instruments require calibration. **Visit is requested by ship, SHIPSUP or Port Engineer/CVN Maintenance Manager via OPNAV 4790/2K or AWR. Call-back requests citing multiple instruments are preferred to maximize SISCAL manpower availability and minimize cost. Non-specific requests (e.g., calibrate various instruments) should be avoided since the task breadth (quantity of instruments) and scope (type of instruments) cannot be readily determined. The 2K also identifies the deferred maintenance for the instrumentation in the Current Ships Maintenance Project (CSMP).**
- d. Departure From Specification (DFS). DFS messages are requests for temporary departures and are submitted in accordance with Volume V, **Part I**, Chapter 8 of this manual.
- (1) A DFS **for deferring SISCAL** could be submitted for the following reasons:
 - (a) Extending the periodicity of the ship's SISCAL requirement. TYCOM approves DFS up to six months. DFS in excess of six months requires NAVSEA 04RM concurrence.
 - (b) Extending the periodicity for individual Level 2 and 3 instruments with expired calibration due dates or replaced while away from homeport/calibration facility.
 - (c) Level 2 instruments that were not calibrated during SISCAL due to lack of a calibration procedure or calibration standard.
 - (d) Other shipboard SISCAL DFS requests will be evaluated on a case-by-case basis.
 - (2) DFS requests will not be approved for the following:
 - (a) Instrumentation within the calibration capability of the SGCP FCA.
 - (b) Instrumentation not calibrated during a SISCAL visit due to an out of commission or rejected status.
- e. **Shipboard Level 1 calibration workload beyond shipboard FCA capability or capacity must be submitted to their respective TYCOM and/or RMC calibration coordinator for scheduling and accomplishment. When contracted out to a Commercial Calibration Activity (CCA) or Commercial Service Provider (CSP) or an Original Equipment Manufacturer (OEM), the CCA/CSP/OEM calibrating such instruments must meet the NAVSEA METCAL TWH guidance for certification/accreditation, traceability and Test Accuracy Ratio/Test Uncertainty Ratio/Probability of False Accept. Commercial activities must provide the results of all calibrations performed by them and must use periodicities listed in the CRL for installed instruments. Commercial activities must also provide calibration event data to Ship's Force and TYCOM in a Microsoft Excel format for easy entry into the TYCOM Calibration Recall Program. Entries in the calibration events file shall not be abbreviated. For existing, permanently installed instruments, the calibration events file data set shall include the nomenclature, CRL reference number, condition received (i.e., In Tolerance (IT) or Out of**

Tolerance (OOT)), date calibrated, date due, procedure used, calibration standard used, servicing lab code and service label applied (i.e., calibrated, special calibration, rejected, etc., in accordance with reference (i)).

9.7.1 Calibration Requirements List. The CRL is the technical **authority document** for installed calibration requirements and includes data pertinent to each instrument (e.g., nomenclature, system, periodicity, calibration activity, etc.).

- a. The CRL is the **specific** primary technical **authority guidance** for shipboard installed instrumentation. **CRLs are uploaded and maintained in the MCMS. For those ships that don't have MCMS, a CD-ROM will be distributed.**
- b. CRL Validation. **Ship's Force and/or TYCOM validate the CRL to identify any gaps or required modifications for their platform's unique configuration. Submit TMDERs for CVNs, Technical Feedback Reports for submarines and MCMS feedback for surface ships for conflicts in nomenclature, function, range, location or calibration requirement. SISCAL teams are responsible for validating Level 2 instruments on surface ships and LCACs, LHA/LHDs/CVNs.**

Hardcopy **TMDER** 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>

- c. **Non-MCMS platforms** Ship's Force **should** match CRL data to the METCAL **Automated Information System** or **TYCOM** Calibration Recall and submit changes to the MEASURE Operational Control Center **to update their recall data if** the CRL and METCAL **Automated Information System** do not have matching data elements.
- d. 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 shall not calibrate these instruments unless specifically approved by NAVSEA METCAL TWH.**
- e. Broken or inoperative Level 2 installed instruments identified as CAL=Y in the CRL that are replaced during deployment must be calibrated prior to use. **Broken or inoperative Level 2 instruments replaced during deployment must be calibrated as stand-alone instruments if they cannot be system calibrated prior to use.** If unable to calibrate due to lack of Calibration Standard, qualified personnel or calibration procedure, submit a DFS 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.

9.7.2.1 Switch Settings. Switch settings shall be in accordance with the applicable values listed in the CRL/MCMS for surface ships/Air Capable Ships and PMS system MRCs for submarines. If there is “To Be Determined” or no value listed, consult the applicable equipment technical manual and submit TMDER/Technical Feedback Report or MCMS feedback to get the documentation updated. Provide CRL Reference Number, setting used and the reference document used to derive the setting.

9.7.3 Markings for Test, Measurement and Diagnostic Equipment.

- a. **Installed Instrumentation.** All instrumentation will have easily read serial numbers and be clearly labeled with current calibration labels per NAVAIR 17-35-TR8 except the Level 1 instruments that are calibrated by CCAs, CSPs or OEMs meeting the requirements of 9.7e. of this chapter will be affixed with their own labels showing their unique identifiers instead of the Navy METCAL labels. If the instrument does not have a serial number inscribed by the manufacturer, Ship’s Force must inscribe a ship-generated serial number in a clearly visible location. Attached tags are acceptable for instruments without space for inscribing a serial number. Serial number should include: Hull Number + CRL reference number (i.e., DDG5100025).
- b. **Serial Numbers for TMDE other than Installed Instrumentation.** All TMDE will have easily read serial numbers and be clearly labeled with current calibration labels per NAVAIR 17-35-TR8 except TMDE that is calibrated by CCAs, CSPs or OEMs meeting the requirements of 9.7e. of this chapter will be affixed with their own labels showing their unique identifiers instead of the Navy METCAL labels. If the TMDE item does not have a serial number inscribed by the manufacturer, Ship’s Force must inscribe a ship-generated serial number in a clearly visible location. Attached tags are acceptable for TMDE without space for inscribing a serial number. Serial number should include: Hull Number + Work Center + four digit sequential number starting with 0001 (i.e., DDG51OE010001). The new serial number should be annotated in the TYCOM Calibration Program, either by the SGCP FCA for mechanical instrumentation or the Test Equipment Petty Officer for electronic test equipment.
- c. The “Out-of-Cal” label listed in reference (o) is not a METCAL label but rather an operational label used to make watch standers aware of abnormalities that require additional attention. Please refer to reference (o) for proper use of the label. Extreme care should be exercised when using “Out-of-Cal” instruments.

9.7.4 SISCAL System Level Calibration Guidance for Ship Conversion Navy Platforms and Platforms in CNO or other Maintenance Availabilities.

- a. The purpose of this section is to address the calibration of shipboard installed instrumentation requiring system calibration (Level 2) for new construction ships, ships in availability/overhaul and ships in their Fleet Response Training Plan (FRTP). This section does not apply to systems/instruments that are calibrated using the reactor plant manual guidance.
- b. For Ship Conversion Navy (SCN) platforms, the CRL is promulgated within 90 days of delivery and a baseline SISCAL team visit should occur as soon as practicable but must be completed within six months of Post Shake-Down Availability or availability completion. Prior to system/equipment acceptance testing and turnover to the Navy, the SCN program managers shall ensure that all installed instrumentation requiring Level 2 calibration has been verified/tested by the shipyard/repair activity to ensure that they meet manufacturer’s performance specification.
- c. For COMNAVSURFOR and COMNAVAIRFOR FRTP platforms, no changes have been made to the current Level 2 calibration requirements for ships in their FRTP cycle. Ships shall submit a work request as needed to maintain current periodicity requirements.
- d. Any work package authorizing modernization (i.e., accomplishment of a Ship Change Document outside of a scheduled availability), shall include a requirement for calibration of Level 1 components as stand-alone individual items before turnover to the Navy and is the responsibility of the sponsor of the specific modernization item. These components shall have valid calibration labels per NAVAIR 17-35-TR8 or calibration labels from CCA/CSP/OEM that meet NAVSEA METCAL TWH requirements. In addition, work packages that modify or install either complete or partial “measurement/signal chains” consisting of individual components (e.g., sensors, signal conditioners, displays) shall also include a requirement for a Level 2 (system-level) calibration by a NAVSSES

certified SISCAL team after completion of system acceptance testing by the Navy. All installed instrumentation requiring Level 2 calibration should be verified/tested by the shipyard/repair activity to ensure that they meet manufacturer's performance specification. The Level 2 calibration must be completed within six months of system turnover to the ship. Should this requirement not be identified in existing planned and budgeted modernization efforts, it should be handled individually with sponsor. Work packages which only replace individual measurement chain components that are designated as NCR in the CRL such as Remote Temperature Detectors, thermocouples, magnetic pickups, etc., would not require Level 2 system calibration.

- e. To mitigate warranty and contractual issues on ships in industrial availabilities (i.e., maintenance availabilities or SCN overhauls), the NAVSEA Metrology and Calibration TWH has authorized a six month temporary DFS for system calibration of systems designated as Level 2 per the ship's CRL. To facilitate equipment testing and acceptance by the Navy during the industrial period, the following actions should be taken:
 - (1) Systems requiring system level calibration which are not affected by the availability or overhaul shall be calibrated prior to start of the availability/overhaul to ensure that such systems are not in overdue status upon completion of the yard period.
 - (2) Systems or equipment that are added or modified with either complete or partial "measurement/signal chains" consisting of individual components (e.g., sensors, signal conditioners, displays) shall include a requirement for the components to be verified/tested by shipyard/repair activity to ensure that they meet manufacturer's performance specification before system/equipment acceptance testing and turnover to the Navy. Note that while the TWH has authorized a DFS for system level calibration during the industrial period, the DFS must be approved by the TYCOM in accordance with Volume V, Part I, Chapter 8 of this manual.
 - (3) Validity of all calibration labels shall be verified during start-up maintenance.
 - (4) The Level 2 system calibrations must be scheduled and completed within six months of system turnover to the ship.
- f. It should be recognized that individually calibrated components, which are part of a measurement chain requiring system calibration, may not adequately represent the measurement accuracy normally provided by the system calibration process. Therefore, care should be exercised when using systems under temporary departure from system level calibration requirements.
- g. Inspection teams, assessment organizations and training groups shall not require ships coming out of an availability, overhaul or new construction to have Level 2 calibrations completed prior to the ship's first post maintenance period SISCAL visit unless the 6 month period has passed.

9.8 LHA AND LHD CLASS SHIP METROLOGY AND CALIBRATION PROGRAM.

9.8.1 **Purpose.** To establish the consolidated METCAL program for LHA and LHD class ships. This guidance implements policy and responsibility for the management of TMDE onboard these ship classes. The CNO METCAL policy is 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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VOLUME VI
CHAPTER 14
CANNIBALIZATION

REFERENCES.

- (a) COMSUBLANT/COMSUBPACINST 4406.1 - Submarine Supply Procedures Manual
- (b) NWP 1-03.1 - Naval Warfare Publication Operational Report
- (c) OPNAVINST 4440.19F - Policies and Priority Rules for Cannibalization of Operational Equipment and Diversion of Material at Contractor Plants to Meet Urgent Operational Requirements

LISTING OF APPENDICES.

- A Sample Cannibalization Request Message (**Aircraft Carriers and Surface Force Ships Only**)

14.1 PURPOSE. To provide guidance for active ship cannibalization and the resultant payback process between ships and Type Commander (TYCOM) cannibalization reporting requirements.

14.1.1 Policy. Cannibalization between active Fleet units is not a normal peacetime practice and will not occur unless:

- a. A significant degraded readiness condition has been reported.
- b. All possible actions have been taken to satisfy the material requirement through other means.
- c. The impact on maintenance personnel has been considered.

14.2 DEFINITIONS.

14.2.1 Self-Cannibalization. When a component is available on board the ship, but in a less essential or already inoperative piece of equipment, it may be desirable for the ship to disable the equipment/system to correct a casualty to a more critical piece of equipment or system. Such self-cannibalization is the prerogative of the Commanding Officer. Self-cannibalization is a temporary measure to return a more critical piece of equipment to an operational status. Replacement of the cannibalized component may or may not be required.

14.2.2 System Cannibalization. System cannibalization is cannibalization of system assets beyond the TYCOM's purview, including other TYCOM end-use material and inactive ship equipment and components. System cannibalizations are a supply system action whereas active cannibalizations are a maintenance action. TYCOM expeditors will initiate all system cannibalizations.

14.2.3 Active Ship Cannibalization. Active ship cannibalization is removal of component(s)/equipment installed in an active ship (or component(s)/equipment removed for overhaul from an active ship) for installation in another active ship. Because of the adverse effects of active ship cannibalization, such action will be taken as a last resort and only in exceptional cases when all other sources have been exhausted. When active ship cannibalization is authorized, the primary source for cannibalization is ships in Chief of Naval Operations Maintenance Availabilities, with recourse to operational ships only as a last resort.

14.3 AUTHORIZATION (Active Ship). Conditions upon which authorization decisions are based, include the following criteria.

- a. There is an urgent operational requirement for the equipment and the existing degradation to the equipment/system is considered to be unacceptable to meet the specific operational commitments.
- b. A Casualty Report (CASREP) and a Not Operationally Ready Supply requisition for the material or component to be cannibalized have been issued. The scheduled or estimated delivery date must be such that the parts will not be available from the designated supply stocking point in time to achieve satisfactory material readiness at least seven days prior to an underway date or operational commitment. The required part must not be available from other equipment on board the ship, where such equipment is not essential for the ship to accomplish its mission.

- c. All other sources, including screening of all ashore supply support sources, afloat inventory assets, local fabrication and system cannibalization have been exhausted.
- d. Operational alternatives such as delays in deployment and gapping requirements have been considered. Routine operations may not be sufficient cause to justify active ship cannibalization.
- e. Immediate Superiors in Command (ISIC) will normally initiate the cannibalization when special circumstances or urgent operational commitments exist.

14.3.1 Commander Naval Surface Force Ships.

- a. Cannibalization Not Involving Ships in Overhaul. When a system asset is not available and if the degree of readiness degradation (normally a CASREP) warrants such action, the only remaining alternative is to cannibalize from an active ship. Approval of active ship cannibalization request (not involving ships in overhaul) required to satisfy CASREP requirements will be authorized by the appropriate TYCOM.
- b. Cannibalization Involving Ships in Availabilities. Cannibalization from ships in availabilities will be minimized since such actions often affect maintenance/operational schedules for several ships. Cannibalization may be initiated only after non-availability of materials through the supply system or alternate sources has been ascertained. Cannibalization from ships in overhaul/availability must be approved through the appropriate TYCOM. Requests must be submitted via the normal chain of command.
- c. COMNAVSURFLANT/COMNAVSURFPAC (N43) and (N4111) will be included as information addressees for tracking purposes on all cannibalization request and approval messages.

14.3.2 Naval Air Force Ships. All cannibalization shall be requested from and authorized by the TYCOM. The request and authorizations will be via message. The requesting message will specify the source of replacement parts, and will reference communications indicating the cannibalized ship's Commanding Officer's concurrence with the cannibalization action. The message shall further specify the method of replacement.

14.3.3 Submarine Force Ships. In all cases cannibalization actions shall be in strict compliance with Appendix K of reference (a).

14.4 REQUEST AND AUTHORIZATION. The following procedures apply when requesting authorization for active ship cannibalization:

14.4.1 Requesting Ship.

- a. Submit a CASREP in accordance with reference (b) on equipment involved.
- b. Submit a Not Operational Ready Supply requisition for the parts.
- c. Specify the required delivery date. Verify, through the supply system, the part will not be available in time to correct the casualty.
- d. Determine that the required parts are not available from on board stock, other ships of the force in the same port, or other non-essential equipment on board the requesting ship.
- e. Initiate an active ship cannibalization request via naval message. Appendix A of this chapter contains a sample cannibalization message with specific reporting requirements. This format must be utilized when requesting cannibalization.
- f. (Surface Force only) Initiate an active ship cannibalization request via naval message. Cannibalization message should be addressed to approving authority as outlined in paragraph 14.3.1a. of this chapter. Appendix A of this chapter contains a sample cannibalization message.
- g. (Submarines only) INFO the following Plain Language Address Directory (PLAD) for all components that have a Last Maintenance Action Date assigned in the Planned Maintenance Requirements Inventories and Schedule: SUBMEPP PORTSMOUTH NH//DDS/SS//.

14.5 SHIP'S RESPONSIBILITIES.

APPENDIX A

SAMPLE CANNIBALIZATION REQUEST MESSAGE

(AIRCRAFT CARRIERS AND SURFACE FORCE SHIPS ONLY)

FM USS (SHIP'S NAME)/(CANNIBALIZING SHIP)
 TO TYCOM/ISIC/(AS APPROPRIATE)
 INFO TYCOM/ISIC/(AS APPROPRIATE)
 NAVSUP WEAPON SYSTEMS SUPPORT MECHANICSBURG PA/
 (APPROPRIATE RMC AND/OR RMC DET)
 SUBMEPP PORTSMOUTH NH/ (PARA 14.4.1.G) (AS APPROPRIATE)
SURFMEPP PORTSMOUTH VA/(AS APPROPRIATE)
 USS (SHIP'S NAME)/(CANNIBALIZED SHIP PLAD)
 BT
 UNCLAS/N04400/
 PASS TO OFFICE CODES: (AS APPROPRIATE)
 SECINFO/U/-/
 SUBJ/ACTIVE SHIP CANNIBALIZATION REQUEST//
 MSGID/GENADMIN/USS (ORIGINATING SHIP'S NAME AND HULL NO.)//
 REF/A/**CASREP**/USS (SHIP'S NAME)/(DTG)/
 REF/B/DOC/COMUSFLTFORCOMINST 4790.3/
 REF/C/DOC/OPNAVINST 4440.19F/
 NARR/REF A IS **CANNIBALIZING SHIP'S CASREP**. REF B IS JOINT FLEET MAINTENANCE MANUAL
 VOLUME VI, CHAPTER 14, PROVIDING TYCOM POLICY ON ACTIVE CANNIBALIZATION. REF C IS
 POLICIES AND PRIORITY RULES FOR CANNIBALIZATION OF OPERATIONAL EQUIPMENT AND
 DIVERSION OF MATERIAL AT CONTRACTOR PLANTS TO MEET URGENT OPERATIONAL
 REQUIREMENTS./
**GENTEXT/REMARKS/1. TO CORRECT CASREP PER REF A ON BOARD USS (CANNIBALIZING SHIP'S
 NAME) REQUEST ACTIVE SHIP CANNIBALIZATION PER REF B AND REPORT CANNIBALIZATION
 DATA PER REF C. THE FOLLOWING INFORMATION IS REQUIRED PER CANNIBALIZATION
 REQUEST/REQUISITION:**

- A. REQUISITION NUMBER (UIC-JULIAN DATE-SERIAL NUMBER) **AND CURRENT STATUS**
 - B. **REQUISITION REQUIRED DELIVERY DATE (RDD):**
 - C. EQUIPMENT NOMENCLATURE/EQUIPMENT IDENTIFICATION CODE (EIC)
 - D. CASREP SERIAL NUMBER
 - E. COG SYMBOL/NSN/FSCM-PART NUMBER/NOMENCLATURE
 - F. APL NUMBER.
 - G. CIRCUIT SYMBOL (IF APPLICABLE OR N/A)
 - H. JOB CONTROL NUMBER (JCN) USED IN THE CASREP PARTSID/DATA SET
 - I. **REQUIRED QTY/ALLOWANCE QTY/ON HAND QTY**
 - J. PART SUPPORTS INTERMEDIATE MAINTENANCE OR REPAIR, YES OR NO
 - K. PART CARRIED ONBOARD **THE OPERATIONAL UNIT, YES OR NO (SHOULD COINCIDE WITH
 THE ALLOWANCE QTY ABOVE)**
 - L. PART AVAILABLE IN SUPPLY SYSTEM WHOLESALE, YES OR NO
**YES=ASSETS ARE AVAILABLE IN THE SUPPLY SYSTEM BUT WILL NOT MEET RDD.
 NO=ASSETS ARE NOT AVAILABLE IN THE SUPPLY SYSTEM.**
 - M. **IF ASSETS ARE AVAILABLE IN THE SUPPLY SYSTEM, PROVIDE THE ESTIMATED SHIPPING
 OR DELIVERY DATE.**
 - N. **PROVIDE JUSTIFICATION FOR CANNIBALIZATION WHEN ASSETS ARE AVAILABLE IN THE
 SUPPLY SYSTEM.**
 - O. REASON PART NOT IN STOCK AT OPERATIONAL UNIT (E.G., CONSUMED, INSUFFICIENT
 QUANTITY, NOT CARRIED, ETC.)
 - P. REASON FOR NOT REPLENISHING (E.G., INSUFFICIENT FUNDING, NOT CARRIED, ETC.)
2. **RECOMMENDED** SOURCE IS (CANNIBALIZED SHIP'S NAME).

3. CANNIBALIZATION ACTION NECESSARY FOR (CANNIBALIZING SHIP'S NAME) TO MEET (E.G., UNDERWAY OPERATIONAL COMMITMENT, LIGHT OFF, ETC.)//

BT

NNNN

NOTE: PROVIDE HEADER DESCRIPTION IN ACTIVE CANNIBALIZATION REQUEST MESSAGE FOR LINE ITEMS 1.A THRU 1.P (E.G., D. CASREP SERIAL NUMBER).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH CURRENT MESSAGE FORMAT AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS UTILIZED.

VOLUME VI
CHAPTER 19
MAINTENANCE AND MATERIAL MANAGEMENT

REFERENCES.

- (a) NAVSEAINST 4790.8/OPNAVINST 4790.4 - Ship's Maintenance and Material Management (3-M) Manual
- (b) NAVEDTRA 43241 - Personnel Qualification Standard for Ship's Maintenance and Material Management (3-M) System

LISTING OF APPENDICES.

- A 3-M System Assessment/Evaluation Procedures
- B Format for Reporting 3-M Assessments
- C Listing of Standard Work Center Codes
- C_{1A} Standard Work Center Codes for Naval Air Force Ships (CVN-68 Class)
- C_{1B} Standard Work Center Codes for Naval Air Force Ships (CVN-78 Class)
- C₂ Standard Work Center Codes for Naval Expeditionary Combat Command
- C₃ Standard Work Center Codes for Naval Submarine Force Ships
- C₄ Standard Work Center Codes for Naval Surface Force Ships and Shore Commands
- D Listing of Standard Work Center Codes for Master Job Catalog Items Contained in Ship's CSMP (Surface and Submarine Forces only)
- E Job Originator Values
- F Sample Situational Requirement Reference Sheet

19.1 PURPOSE. To provide guidance for the implementation of policies for the Maintenance and Material Management (3-M) system set forth in reference (a).

19.1.1 Policy. To maintain high levels of Operational Readiness by ensuring that Material Readiness, which is a key component of Operational Readiness, is supported throughout the chain of command with clear and concise directives, maintenance requirements and maintenance procedures.

19.1.2 Scope. This chapter applies to all ships, service craft, small boats, Type Commander (TYCOM) cognizant shore activities, and non-aviation fleet test and support equipment, except as exempted in paragraph 19.1.2.b below. This includes, but is not limited to, Navy Meteorological Equipment, equipment of the Naval Air Traffic Control, Air Navigation and Landing Systems, Aviation Launch and Recovery Equipment, activities under the cognizance of Commander Naval Expeditionary Combat Command, Commander Naval Reserve Force, and Naval Personnel Development Command.

- a. Any departure from the policies, procedures or responsibilities delineated in reference (a) are not authorized without prior Naval Sea Systems Command (NAVSEA) approval and Chief of Naval Operations (CNO) concurrence.
- b. This chapter does not apply to Fleet Ballistic Missile systems under the cognizance of Strategic Systems Programs, nuclear power plants and associated test equipment under the cognizance of Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) or aeronautical equipment used in support of the aviation maintenance mission. Also excluded are civilian operated and maintained ships, small boats, and service craft, unless specifically included in a Base Operating Contract or other similar document.

19.2 SHIP MAINTENANCE AND MATERIAL MANAGEMENT.

19.2.1 Responsibilities.

19.2.1.1 Type Commander. Exercises primary responsibility for the effective operation and support of the 3-M System. The areas of responsibility include but are not limited to the following as applicable:

- a. Afloat Maintenance Data System (MDS).
 - (1) Ship's Non-Tactical Automated Data Processing System (SNAP) I/II/III Organizational Maintenance Management System (OMMS).
 - (2) Optimized Ship's Non-Tactical Automated Data Processing System (Optimized SNAP) (R-Admin, R-Supply, Organizational Maintenance Management System – Next Generation (OMMS-NG)).
 - (3) Mission Readiness Assessment System.
- b. Ashore **MDS**.
 - (1) Maintenance Figure of Merit **Family of Systems**.
 - (2) **Advanced Industrial Management for Regional Maintenance Centers**.
 - (3) Regional Maintenance Information System (RMAIS).
 - (4) Maintenance Resource Management System.
 - (5) TRIDENT Logistical Data System.
- c. Planned Maintenance System Scheduling (SKED software).
- d. Alteration Management System.
 - (1) Navy Data Enterprise.
 - (2) Type Commander Alteration Management System.
- e. Current Ship's Maintenance Project (CSMP).
- f. Master Job Catalog (MJC).
- g. (Submarines only) Technical Feedback Report (TFBR) Screening.
- h. Maintain an Assessment Data File in accordance with Appendix A.
- i. **Provide program enhancement requirements to the respective Fleet Commander via N43.**

19.2.1.2 Type Commander 3-M Regional Representatives (Submarines only). TYCOM 3-M Regional Representatives have been established at all submarine homeports. These Regional Representatives provide TYCOM continuous monitoring of 3-M requirements for assigned submarines and provide assistance to Submarine Force Activities and Squadron Commanders in the operation and administration of the 3-M Program. Their areas of responsibility include but are not limited to the following:

- a. Act as team "lead" for all 3-M Assessments of activities under their cognizance and provide the results of the assessment to the ship or activity via the Immediate Superior In Command (ISIC) using the format of Appendix B.
- b. Originate all correspondence relating to 3-M Assessments, Periodic Monitoring, and reports of non-compliance with CNO WASHINGTON DC/YMS: 941107/4790.4C and COMUSFLTFORCOMINST 4790.3.
- c. Carry out the duties and responsibilities of the TYCOM during **Planned Maintenance System (PMS)** installations.
- d. Monitor MDS documents and report deficiencies to the ISIC for corrective action.
- e. Provide the following support to the ISIC:
 - (1) 3-M System monitoring.
 - (2) TYCOM 3-M Assist Visits as described by reference (a).
 - (3) PMS MDS technical assistance.
 - (4) On site training in PMS, MDS and PMS Scheduling (SKED software).

- (5) Assistance with the preparation and submission of TFBRs.
- (6) Assistance in obtaining prompt correction to faulty PMS documentation (liaison with In-Service Engineering Activity (ISEA)).
- (7) On a case basis, provide the authorization to use modified (red lined) PMS documentation.

19.2.1.3 Immediate Superior In Command. The ISIC shall designate a 3-M Officer in writing. The 3-M Officer is responsible for the satisfactory administration of 3-M programs, in accordance with reference (a) and this chapter, for subordinate Commands or activities.

19.2.1.4 In-Service Engineering Activity. ISEAs are those activities designated by NAVSEA as the technical expert for specific systems and/or equipment. Naval Surface Warfare Center, Carderock Division (NSWCCD), for example, is the ISEA for the majority of Hull, Mechanical and Electrical equipment installed on most ships. ISEA responsibilities include but are not limited to the following:

- a. Development of PMS documentation to include validation of newly developed or changed procedures.
- b. Maintenance of PMS documentation.
- c. Timely responses to TFBRs.
- d. Providing copies of critical TFBR resolutions to all holders of the affected Maintenance Index Page (MIP)/Maintenance Requirement Card (MRC). All other resolutions will be integrated into the next available Force Revision.

19.2.1.5 Naval Sea Logistics Center Detachments. Responsibilities include but are not limited to the following:

- a. Maintain the Navy PMS Database.
- b. Receive, screen and process TFBRs.
- c. Resolve TFBRs within their technical capability.
- d. Develop and distribute Force Revisions as required.

19.2.1.6 Submarine Maintenance Engineering, Planning and Procurement Activity (Submarines only). Submarine Maintenance Engineering, Planning and Procurement Activity (SUBMEPP) is a NAVSEA engineering activity chartered to support NAVSEA and the submarine TYCOMs in their effort to maintain a high degree of Submarine Force Material and Operational Readiness. In support of 3-M, SUBMEPP is tasked by NAVSEA and the TYCOMs with the following:

- a. Act as the TYCOM screening activity for TFBRs submitted by Submarine Force activities.
- b. Maintain the Submarine Force **Technical Feedback Report History/Tracking** (TFBR H/T) Program.
- c. Establish, maintain, update and distribute all requirements as MJC Items in support of TYCOM Alteration Management System, Periodic Maintenance Requirements (PMR), Baseline Overhaul Work Packages/Selected Restricted Availability (SRA) Routines and Standard Availability Routines.
- d. Provide semi-annual analysis of Naval Sea Logistics Center (NAVSEALOGCEN) historical MJC originated data and distribute updated planning and estimating data to include changes in estimated MJC manhours.
- e. Provide semi-annual analysis of NAVSEALOGCEN historical PMR originated data and distribute updated manhour and material requirements to the PMR scheduling and Technical Repair Standards.
- f. Liaison with ISEAs and NAVSEALOGCEN detachments to ensure submarine TFBRs receive accurate and timely responses.
- g. Assist with PMS installation on all new construction submarines.

19.2.1.7 Afloat Training Group (Surface Force Ships only). Afloat Training Groups are under the technical administration of the Fleet Training Commands. They provide Surface Force platforms with the following:

- a. Conduct 3-M Assessments.

- b. Technical and personal support for 3-M training.
- c. 3-M training services as needed.

19.2.1.8 Ship's Maintenance and Material Management Coordinator/Officer. The duties and responsibilities of the Ship's Maintenance and Material Management Coordinator (3-MC)/3-M Officer are well defined in reference (a). Specifically the 3-M Coordinator/3-M Officer is the functional manager of the 3-M System and is responsible to the Executive Officer for the administrative requirements of the Ship's 3-M program. In addition to the requirements of reference (a) the following applies:

- a. Develop and administer the Ship's PMS Spot Check Program. Section II-A of Appendix A of this chapter may be used as a spot check evaluation sheet.
- b. Monitor the Ship's 3-M Personnel Qualification Standard (PQS) Program and maintain an auditable record of personnel qualified in 3-M PQS.
- c. Ensure that all Equipment Status Log/Ship's Force Work List items outstanding for more than 30 calendar days are converted to 3-M deferrals.
- d. Administer the Ship's configuration management program.

19.2.1.8.1 Optimally Manned Ships. (Littoral Combat Ships (LCS) only). The Littoral Combat Ships Squadron (LCSRON) and Mission Package Support Facility (MPSF) shall have dedicated 3-MCs responsible for the effective implementation of the 3-M Program of all assigned ships. Responsibilities also include:

- a. Review, update, schedule, all PMS.
- b. Ensure Location Guide Lists are fully developed and all MRCs are assigned to the correct equipment.
- c. Maintain and update the master PMS SKED ensuring that ship and sustainment contractor data are current.
- d. Receive update files from the sustainment contractor, mission modules or sea-frames for maintenance status reporting TFBR submissions and equipment association changes.
- e. Review and analyze all exception or error reports providing corrective actions to the Regional Maintenance Center who provides the government oversight on sustainment contractor performed PMS.
- f. Initiate situational and state triggered maintenance by activating Global Events.
- g. Review and approve or reject submitted TFBRs.
- h. Perform the duties of paragraphs 19.2.1.8 and 19.2.1.9 of this chapter.

19.2.1.9 Command Maintenance Availability Coordinator/Ship's Material Maintenance Officer. The Command Maintenance Availability Coordinator/Ship's Material Maintenance Officer 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/Ship's Material Maintenance Officer 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. Ensure Command's preparations for an FMA availability are conducted in accordance with Volume II, Part I, Chapter 4 of this manual.
- c. Meet daily, during an availability, with the assigned Ship Superintendent to discuss the status of all active jobs.
- d. Attend all FMA production, night work, and management meetings.
- e. Provide a daily FMA job status to each Department Head, Division Officer, and Leading Petty Officer.
- f. (LCS only) Provide oversight of the MDS and PMS program along with all availabilities.
- g. (LCS only) Approve scheduled PMS and work candidates as the Department Head when LCSRON/MPSF N-4 is not available.

19.2.2 Qualifications. All personnel assigned to billets associated with the 3-M system must be 3-M PQS qualified for the assigned billet 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.
- c. Situational maintenance scheduling shall be managed utilizing the tools provided by the computer based PMS scheduling software employed by the activity. All event driven situational requirements shall be "triggered" when required and performed per reference (a).
- d. (LCS/DDG 1000 only) A plus sign (+) denotes PMS to be performed by the sustainment contractor or other Maintenance Personnel not assigned to Ship's Force.

19.2.3.5 Execution. MRC accomplishment is critical for maintaining equipment in a ready state and achieving expected service life. The maintenance tasks directed by MRCs are the minimum standards for organizational (shipboard) preventative maintenance and therefore equipment degradation can be assumed if maintenance is deferred. The following provisions are provided to maximize on time performance of PMS and provide increased Fleet latitude in maintaining equipment.

- a. MRC accomplishment shall be as directed by reference (a). MRCs are prepared as instructions to complete a maintenance task based upon the premise that the personnel assigned to perform the task has sufficient knowledge of the rate listed on the card, and is qualified to perform maintenance as directed by the MRC. The MRC shall be accomplished in sequential order, adhering to all warnings, cautions and notes. Routine sub-steps (e.g., fastener removal, steps to don and remove Personnel Protective Equipment (PPE), turning on a vacuum) may or may not be included in the MRC and their absence should not prevent the maintainer from completing the maintenance task. If a step is missing that is necessary to complete the task, and is not obvious to the maintenance person, a TFBR should be submitted.
- b. MRC completion status is dependent on the accomplishment of all procedural steps on all of the equipment listed on the MRC or its accompanying Equipment Guide List (EGL) or items listed on the Location Guide List section of the MRC.
- c. The performance of additional rational actions during the accomplishment of an MRC is authorized. Examples of such actions include turning on and off items utilized during the performance of the MRC (Vacuum cleaners, test equipment, etc.) and general housekeeping (cleaning up or containing spilled fluids or dirt) as experiences gained from prior accomplishments warrant and in no way detracts from the accomplishment status.
- d. The substitution of any tools, materials or test equipment not held by the activity should be considered prior to deciding to defer the maintenance until the exact tools, materials or test equipment listed on the MRC are procured. This is especially critical for frequently required maintenance where several performance cycles can be missed while waiting for supply to provide the correct items. Substitution requirements are provided by reference (a) and other technical documents.

19.2.3.6 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. To maintain accountability, personnel are required to sign for the completion of assigned maintenance in an Accountability Log. The Work Center Supervisor (WCS) is required to review and sign the Accountability Log weekly to verify the accuracy and completeness of entries. Accountability sheets will be maintained in the WC PMS Manual for a period of not less than 13 weeks.

19.2.4 Preventive Maintenance Feedback Reports. The PMS Feedback Report (FBR) is used to notify NAVSEALOGCEN Det Norfolk/San Diego of matters related to PMS, and the FBR may be screened by the TYCOM. Feedback forms are used to report problems and also to request PMS coverage for newly installed systems or equipment. While a request for PMS coverage will provide initial PMS coverage and changes,

submission of an OPNAV 4790/CK form is required to initiate the rest of the logistic support change process in accordance with reference (a). All SKED users shall submit FBRs via SKED. Non-SKED users may submit FBRs via the Planned Maintenance System Management Information System (PMSMIS) website at <https://algol.seajax.navy.mil/pmsmis> by selecting the Feedback tab and Feedback Wizard. Non-SKED users accessing this website for the first time will need to request an account. Click on File Manager and select New User Account Request. This displays options to select a form and readme file, which can be downloaded, filled out and sent via e-mail as directed in the readme file. An e-mail will be sent to you confirming your account and providing access to the main screen.

19.2.4.1 Technical Feedback Report Reporting (Submarine Force only). Submarines transmit TFBRs to their parent 3M Representative on navy.smil.mil via SIPERNET (3M Coordinators should be aware of the default SEAJAX email address that is programmed into SKED. They should ensure that TFBRs are emailed via SIPERNET to the parent 3M Representative in their homeport). **The TFBR H/T Program is a database that contains summary information taken from TFBRs initiated by COMSUBLANT/COMSUBPAC units and support activities.**

19.2.4.2 Preventive Maintenance System Feedback Reports. The PMS FBR (OPNAV form 4790.7B) is used specifically to notify the NAVSEALOGCEN of matters related to PMS.

- a. While the FBR will provide initial PMS coverage and changes, submission of an OPNAV 4790/CK form is required to report configuration changes and changes in logistic support.
- b. Automated forms for FBR submission may be transmitted electronically using:
 - (1) SKED Feedback Report Wizard (preferred).
 - (2) **PMS Management Information System** website identified in paragraph 19.2.4 of this chapter.
 - (3) Anchor Desk website.

19.2.4.3 Feedback Report Types. There are three types of FBRs: Category A, Category B and Urgent.

- a. Category A - non-technical in nature and intended to meet PMS needs which do not require technical review, including changes in WCs. Category A FBRs are submitted to request classified or other PMS documentation, which cannot be obtained locally.
- b. Category B - technical in nature and are used to report technical discrepancies inhibiting PMS performance or shift of maintenance responsibilities.
- c. Urgent - reason for submission involves safety of personnel, ship or potential for damage to equipment and relates to the technical requirements of PMS. Urgent FBRs will be forwarded by naval message, containing a PMS Feedback Serial Number, to NAVSEALOGCEN with info to the cognizant System Command, Bureau of Medicine and Surgery, Naval Safety Center and TYCOM. The message shall describe the unsafe procedures or conditions and identify the specific MIP/MRC involved.

19.2.4.4 Feedback Report Screening. The ship's 3-MC is responsible to screen all FBRs and serialize and forward within four days of receipt.

- a. The 3-MC shall maintain accountability for all PMS FBRs submitted and actions taken until corrected PMS documentation is received.
- b. The 3-MC shall also ensure that the originator and all applicable WCs are kept apprised of action taken and ensure the originating and other applicable WC Supervisors implement the changes or corrections when received.
 - (1) NAVSEALOGCEN is responsible to provide expeditious resolution to all FBRs whenever possible.
 - (2) Where resolution by NAVSEALOGCEN is not possible, the FBR will be electronically forwarded to the cognizant Technical Review Activity for resolution.

19.2.4.5 Preventive Maintenance System Technical Feedback Reports. TFBRs are specifically used for reporting technical deficiencies or errors in PMS documents. Technical PMS discrepancies that could have a detrimental effect on personnel safety, safety of ship or could result in significant equipment damage are classified as "Urgent". All other TFBRs are classified as "Routine".

19.2.4.6 Preventive Maintenance System Coordinating Activities. The central control points for processing TFBRs are the Preventive Maintenance System Coordinating Activities (PMSCA). Depending on the type and level of technical authority necessary to answer the TFBR, PMSCAs will either respond to the originator with a resolution or forward the TFBR to the appropriate NAVSEA technical authority for action.

19.2.4.7 In-Service Engineering Activities. ISEAs are those activities designated by NAVSEA as the technical experts for specific systems and/or equipment. NSWCCD is the ISEA for the majority of Hull, Mechanical and Electrical equipment installed on most ships, outside of Nuclear cognizant areas.

19.2.4.8 Action Activities. Design Activities, ISEAs or other activities under the direction of NAVSEA or other System Commands holding technical authority for systems and equipment take all appropriate action on TFBRs under their cognizance and forward the response to the PMSCAs. The PMSCAs will record the TFBR result in the system and provide the final response to the originator.

19.2.4.9 Urgent Technical Feedback Reports.

- a. Urgent TFBRs are those feedbacks reporting technical discrepancies that can result in personnel injury, risk to the safety of the ship or significant equipment damage.
- b. PMSCAs shall provide a message response to all Urgent TFBRs within one (1) working day of receipt. If the TFBR is forwarded to a Design Activity or ISEA for resolution, then the Design Activity or ISEA shall provide a message response to all Urgent TFBRs informing the originator of specific actions and/or required changes that will result from the TFBR evaluation within one (1) working day of receipt. This message response shall be addressed to the originator and distributed to TYCOMs. TYCOMs will forward this message to all commands that could be affected by PMS change. The Urgent TFBR response message may recommend pen and ink changes to the affected PMS requirement.
- c. PMSCAs shall distribute revised PMS documentation to all affected users within 30 calendar days from receipt, via special issue or Advance Change Notice.

19.2.4.10 Routine Technical Feedback Reports.

- a. PMSCAs shall perform technical review, research and provide a response to routine TFBRs where resolution does not require technical authority action.
- b. TFBRs that PMSCAs cannot resolve will be sent to the cognizant Design Activity or ISEA. The cognizant Design Activity or ISEA will provide the response to the appropriate PMSCA describing the action taken. The PMSCAs will provide the response to the originator by electronic means.
- c. Distribution of the revised MRC to the originator and other affected users will be accomplished via **Advanced Change Notices** or the next Force Revision.
- d. NAVSEA has established a goal of providing answers to TFBRs in one day. While it is realized that some TFBRs will require more extensive research, the majority of TFBRs received can and should be answered in one day.
- e. If no revision to PMS documentation is required, pertinent comments will be provided in the response to the appropriate PMSCA. When not concurring with the feedback report, the rationale for the non-concurrence must be provided to the appropriate PMSCA.

19.2.4.11 Type Commander Screening of Technical Feedback Reports. SUBMEPP has been designated by Commander Submarine Force as the TYCOM screening activity for all Submarine Force Activities. TFBRs are accessible via the PMS Management Information System prior to delivery to the NAVSEALOGCEN. **Naval Surface Forces TFBRs will be reviewed in accordance with Type Commander direction and SUBMEPP will review Submarine Force proposed TFBRs. The reviewer will:**

- a. Return the TFBR to the originator under any one or all of the following circumstances:
 - (1) An answer currently recorded in the TFBR H/T Program satisfies the proposed TFBR. The TFBR will be returned with authorization to implement the previously received response or rationale for non-concurrence.

- (2) A similar request has already been submitted and submission of another duplicative request will add no value to the process.
 - (3) The TFBR requests actions contrary to the direction of this manual or reference (a).
 - (4) The request does not adequately address or identify the problem. In cases of this nature, return of the TFBR to the originator. **For Submarine Force only, this** will be a last resort, as SUBMEPP will attempt to contact the originator to better define the issue.
- b. Forward the TFBR for further processing taking any one or a combination of the following actions:
- (1) Provide amplifying information.
 - (2) Correct erroneous data.
 - (3) Provide TYCOM concurrence of the requested change.
 - (4) Provide a Do Not Concur recommendation to NAVSEALOGCEN/ISEA.

19.2.5 Submarine Safety/Scope of Certification/Survivability and Escape (Submarine Force only).

- a. MRCs which direct work/entry within the Submarine Safety (SUBSAFE) Certification Boundary, require Re-Entry Controls to be invoked. In order to ensure that these controls are initiated, Ship’s Force personnel shall over stamp those MRCs requiring such work/entry with the word “SUBSAFE” in red ink. New PMS MRC editing programs are being developed where watermarking of MRCs will begin to show up on published PMS MRCs. If a “SUBSAFE” MRC has a “SUBSAFE” watermark, over stamping in red ink as described above is not required.
- b. MRCs which direct work/entry within the Scope of Certification (SOC) Certification Boundary, also require Re-Entry controls to be invoked. SOC documentation is applicable and governing to Dry Deck Shelter (DDS) host platforms and must be loaded to Work Center WK02 for those platforms. SOC MRCs are annotated on the MIP with either an “X” or an “R” in the “OTHER” column. Non-DDS platforms need not establish WK02 nor are they governed by SOC directives.
- c. Survivability and Escape Equipment and supporting maintenance has come under increased scrutiny since the loss of the Russian submarine KURSK. All MIPs and associated MRCs dealing with Survivability and Escape equipment are to be loaded to Work Centers (WC) in accordance with Table 19-1.

Table 19-1

MIP	SYSTEM	REQUIRED WC
5940/905	SCV and HIS Valves	EA01
5940/006	ExtendAir	EA01
5940/005	SEIE and Crash Bags	WK01 (WF01 for SSN 774 Class)
5940/004	Helicopter Transfer Kit	WK01 (WQ01 for SSN 774 Class)
5940/003	MROD	RL01 (SSBN/GN 726 Class and 21 Class only)
5940/002	SUB MKIIP (ANALOX)	NE01
5940/001	LiOH Curtain	EA01
4413/015	SEPIRB	OC01

19.2.6 Evaluation.

19.2.6.1 Assessments.

- a. **Goal/Intent.** To ensure that the Command's 3-M program is functioning at maximum efficiency and per the requirements of reference (a) and this chapter. The CNO Maintenance Availability should be counted when determining when these inspections are to be done. Evaluations shall be conducted on a not to exceed normal Fleet Response Plan cycle or more frequently when deemed necessary by either the TYCOM, ISIC (Command exercising administrative control) or the unit's Commanding Officer. 3-M assessments for each unit can be scheduled without advanced notice and shall be conducted in accordance with the criteria and format established in Appendix A of this chapter. The TYCOM shall ensure that each activity shall evaluate all departments performing PMS at least once every Fleet Response Plan cycle.
- b. **Method for Assignment of Numerical Evaluations.** Planned maintenance is the foundation of a well executed, effective maintenance program. Therefore PMS must be vigorously prosecuted and thoroughly monitored. The standards of PMS performance must remain high. The minimum performance requirements are identified below. TYCOMs may authorize the utilization of specific check sheets to reflect current directives and system operation modernization provided that attributes provided by Appendix A of this chapter are properly evaluated when applicable.
 - (1) 3-M Assessment Command Total Score - (Percentage).
 - (2) 3-M Assessment - Above Standards (90% or greater)/At Standards (80-89.99%)/Below Standards (less than 80%).

19.2.6.2 Assessment Reporting. Significant deficiencies and numerical assessments are reported to the assessed unit's Commanding Officer, ISIC and TYCOM using the format shown in Appendix B of this chapter. Reporting may be accomplished on the entire unit or on a departmental basis.

- a. Significant deficiencies require a report of corrective actions taken by the unit to be forwarded to the TYCOM via the ISIC within 30 days following the assessment.
- b. Any department receiving an overall evaluation of below standard in either PMS or MDS shall be re-evaluated within a reasonable period of time, not to exceed six months, to ensure below standard areas have been corrected.
- c. **Each TYCOM shall report the findings of the previous year's assessments to COMPACFLT/USFF N43 at the end of the calendar year.**
- d. Annually, the United States Fleet Forces Command (USFFC N43) will convene a conference with Commander, Pacific Fleet and all TYCOMs to review the previous year's 3-M Assessment trends, concerns and future direction.

APPENDIX A
SECTION II-A

ACCOMPLISHMENT CONFIDENCE FACTOR (SPOT CHECKS) CHECK SHEET - ACF

Ship	Department	Division/Equipment	Work Center	Date Performed	MRC Evaluated	MIP Evaluated
USS						
General						
*If attributes 1.a or 2 are evaluated as unsatisfactory, all subsequent attributes shall be graded as "0".						
Assessment Attribute				Value	Grade	Notes
1.	Contact the maintenance person assigned responsibility for the accomplishment of the MRC, have the individual deliver MRC (and EGL if applicable), and determine the following by questions and/or personal observation.					
*	a.	Is the maintenance person PQS qualified to perform the MR?	2			
	b.	Presented the correct tools, Personal Protective Equipment (PPE) parts (NSN), material (Military Specification (MILSPEC)) and test equipment (Calibrated).	3			
	c.	Properly identified the equipment (location, equipment validation).	4			
	d.	Are there any unauthorized changes or corrections to the MRC?	3			
	e.	Is this the correct MRC for the equipment maintained?	3			
2.* Demonstrated all steps of MR including all notes, warnings and cautions according to the MRC.						
*	a.	Followed all steps of the MRC.	5			
*	b.	Correctly performed equipment Tagout.	5			
*	c.	Followed all safety precautions.	5			
*	d.	If an EGL is used, was the MRC performed on all equipment?	5			
3. Does the equipment condition reflect accomplishment of the MRC?						
	a.	Is it apparent that maintenance was performed recently?	10			
	b.	Correctly demonstrated use and disposal of Hazardous Material.	3			
	c.	Was the MRC within the capability of the assigned individual to perform as written?	5			
4. PMS Reporting						
	a.	Maintenance person reports status of MR to the WCS if Completed or Not Fully Accomplished and makes appropriate updates.	2			
	b.	Work Center generates TFBR for any problem with MRC.	2			
	c.	Were material deficiencies detected by the PMS action and recorded in MDS?	2			

Totals (Attributes evaluated as N/A are not calculated.)	Total Points Available	Total Points Awarded
Spot Check (ACF) (Grade = Points Awarded/Points Available)		
<input type="checkbox"/> <u>Above Standards</u>	<input type="checkbox"/> <u>At Standards</u>	<input type="checkbox"/> <u>Below Standards</u>

Above Standards (90% or greater)/At Standards (80-89.99%)/Below Standards (less than 80%)
 Below Standard grade requires immediate accomplishment monitored by a Chief.

Additional Remarks:

Print and Sign Inspector Name/Command

Date

APPENDIX C

LISTING OF STANDARD WORK CENTER CODES

- Appendix C₁A Standard Work Center Codes for Naval Air Force Ships (CVN-68 Class)
- Appendix C₁B Standard Work Center Codes for Naval Air Force Ships (CVN-78 Class)
- Appendix C₂ Standard Work Center Codes for Naval Expeditionary Combat Command
- Appendix C₃ Standard Work Center Codes for Naval Submarine Force Ships
- Appendix C₄ Standard Work Center Codes for Naval Surface Force Ships and Shore Commands

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APPENDIX C₁A**STANDARD WORK CENTER CODES FOR NAVAL AIR FORCE SHIPS (CVN-68 CLASS)**

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
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	CS30
Administration	
Unclassified Appts/Hardware/LAN	CS31
Classified Appts/Hardware/LAN	CS32
NTCSS	CS33
PC Copier Repair	CS34
Distributed Data Communications Maintenance	CS35
(includes ICAN, DDCN, and MCS)	
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
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
Repair Division Administration	ER00
General Work Shop	ER01
Carpenter	ER02
Pipe Shop/Marine Sanitation Device (MSD)	ER03
Machine Shop/Locksmith	ER04
Maintenance Division Administration	PM00
3-M	PM01
MSC	PM02
Quality Assurance (QA)	PM03
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.	OF00
Ship's Security Force	OF01
Force Protection	OF02

	WC CODE
Brig	OF03
CDC	OI01
Undersea Warfare/Acoustics	OM01
Comm Intel/SESS	OS01
Electronic Warfare	OS02
Intelligence Department Administration (when assigned).	OZ00
Intelligence	OZ01
1. <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)	RC12
#2 Reactor Plant	RC21
#2 Reactor Plant (Non-Nuclear)	RC22
Reactor Instrumentation and Maintenance	RC30
Reactor Electrical Division Administration	RE00
#1 Reactor Plant	RE11
#1 Reactor Plant (Non-Nuclear)	RE12
#2 Reactor Plant	RE21
#2 Reactor Plant (Non-Nuclear)	RE22
Tool Issue and Technical Support	RE30
Reactor Laboratory Division Administration	RL00
#1 Reactor Plant	RL11
#1 Reactor Plant (Non-Nuclear)	RL12
#2 Reactor Plant	RL21
#2 Reactor Plant (Non-Nuclear)	RL22
Dosimetry	RL30
Reactor Mechanical Division Administration	RM00
#1 Reactor Room	RM11
#1 Reactor Room (Non-Nuclear)	RM12
#2 Reactor Room	RM21
#2 Reactor Room (Non-Nuclear)	RM22
Technical Support	RM30
Reactor Propulsion Division Administration	RP00
#1 Main Machinery Room	RP01
#2 Main Machinery Room	RP02
Shaft Alley/Reboiler/Oily Waste	RP05
Technical Support	RP30

	WC CODE	
	Reactor Training Division Administration	RT00
m.	<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
n.	<u>Training Department.</u>	TX01
o.	<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
	#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

	WC CODE
JP-5 QA/Testing Lab	VF04
V5 Division Administration. PRIFLY	VX00 VX01
p. <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
q. <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
r. <u>Airwing</u> (when assigned).	
CAG	ZW00
Reserved for Assignment to Embarked Airwings	ZW01 thru ZW11
3. Afloat Damage Control WC Codes.	
a. <u>Safety Department DC.</u>	AS40
b. <u>Command Religious Ministries Department DC.</u>	BC40
c. <u>Combat Systems Department DC</u> (note 1).	CS40
Telecommunications Division DC	CS41
Network Information Security DC	CS42
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</u> (note 1).	DX40
1st Division DC	DA40
2nd Division DC	DB40
3rd Division DC	DC40

	WC CODE
e. <u>Engineering Department DC</u> (note 1).	EX40
Auxiliaries Division DC	EA40
Damage Control Division DC	ED40
Electrical Division DC	EE40
Repair Division DC	ER40
Maintenance Department DC	PM40
f. <u>Graphics Media Department DC.</u>	GM40
g. <u>AIMD Department DC</u> (note 1).	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</u> (note 1).	OX40
OA Division DC	OA40
OC Division DC	OC40
OF Division/Department DC	OF40
OI Division DC	OI40
OM Division DC	OM40
OS Division DC	OS40
OZ Division/Department DC (as assigned)	OZ40
l. <u>Reactor Department DC.</u>	RX40
m. <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

		WC CODE
	n. <u>Training Department DC.</u>	TX40
	o. <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
	p. <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
	q. <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. Ship Alteration (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
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

WC CODE

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 C₁B**STANDARD WORK CENTER CODES FOR NAVAL AIR FORCE SHIPS (CVN-78 CLASS)**

1. Afloat Departmental Codes.

	WC CODE
Safety	A
Command Religious Ministries	B
Combat Systems	C
Deck	D
Engineering	E
Security	F
Graphics Media	G
Aviation Intermediate Maintenance Department (AIMD)	I
Legal	L
Dental	MD
Medical	MH
Navigation	N
Operations	O
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	CS12
	Information Sys Security/Assurance/EKMS	CS13
	Information Resources Divisional ADMIN	CS20
	Unclassified Appts/Hardware/LAN CANES	CS21
	Classified Appts/Hardware/LAN CANES	CS22
	SCI Networks(SESS)	CS23
	Data Systems Division Administration	CS50
	C2/Display Systems/SSDS/CEC/GCCS-M	CS51
	Equipment	
	Tactical USW Systems Maintenance (CV-TSC)	CS52
	INTEL Systems Maintenance	CS53
	2-M Repair/Fiber Repair	CS54
	Tactical Data Links	CS55
	Radar Division Administration	CS60
	Air Traffic Control	CS61

	WC CODE
Dual Band Radar/SPS-73 Surface Search Radar	CS62
IFF/TACAN/Electromagnetic Compatibility	CS63
Meteorology(NITES, MORIAH)	CS64
Test Equipment/Tool Issue	CS65
Self Defense Weapons Division Administration	CS70
CIWS	CS71
RAM	CS72
NSSMS	CS73
External Communications Repair Division Administration	CS90
HF/LOS/SATCOM Systems (NMT, Flight Deck Comms, CBSP, HF Antennas)	CS91
Peripherals/NAVMACS/Crypto Sys/	CS92
HYDRA/TVS/Announcing Systems	CS93
SITE-TV/CCTV(All 27 TV Systems)	CS94
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
Oxygen & Nitrogen	EA06
Boats	EA07
Outside Repair	EA08
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
Damage Control Repair Stations	ED05
Electrical Division Administration	EE00
Lighting/Battery Shop	EE01
Rewind	EE02
Power (Non-nuclear)/General	EE03
Hotel Services	EE04
IC Repair	EE05
Electrical Safety	EE20
Repair Division Administration	ER00
General Work Shop	ER01
Pipe Shop/VCHT	ER03

	WC CODE
Machine Shop/Locksmith	ER04
Maintenance Division Administration	PM00
3-M	PM01
MSC	PM02
Quality Assurance (QA)	PM03
f. <u>Graphics Media Department Administration.</u>	GM00
PAO	GM11
Photo Shop	GM12
Print Shop	GM13
g. <u>Security Department Administration.</u>	FS00
Ship's Security Force	FS01
Force Protection	FS02
Brig	FS03
h. <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
i. <u>Legal Department.</u>	LN01
j. <u>Dental Department.</u>	MD01
k. <u>Medical Department.</u>	MH01
l. <u>Navigation Department.</u>	NN01
m. <u>Operations Dept Administration.</u>	OX00
Meteorological	OA01
Air Ops/CATCC	OC01
CDC	OI01
Undersea Warfare/Acoustics	OM01
Comm Intel/SESS	OS01
Electronic Warfare	OS02
Intelligence Department Administration (when assigned).	OZ00
Intelligence	OZ01
n. <u>Reactor Department Administration.</u>	RX00
Reactors Auxiliaries Division Administration	RA00
FWD Emergency Diesels	RA01

	WC CODE
AFT Emergency Diesels	RA02
Shaft Alley & OWS(CVN-78)	RA05
Reactor Controls Division Administration	RC00
#1 Propulsion Plant	RC11
#2 Propulsion Plant	RC21
Reactor Instr. and Maint.	RC30
PPLAN/PPMC/TPL	RC31
Reactor Electrical Division Administration	RE00
#1 Propulsion Plant	RE11
#2 Propulsion Plant	RE21
Reactor Electrical Tool Issue	RE30
Reactor Laboratory Division Administration	RL00
#1 Propulsion Plant	RL11
#2 Propulsion Plant	RL21
Dosimetry	RL30
Reactor Mechanical Division Administration	RM00
#1 Propulsion Plant	RM11
#2 Propulsion Plant	RM21
Technical Support	RM30
Reactor Training Division Administration	RT00
Student Training	RT01
o. <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
p. <u>Training Department.</u>	TX01
q. <u>Air Department Administration.</u>	VV00
V1 Division Administration	VA00
Flight Deck	VA01
Crash and Salvage	VA02
V2 Division Administration	VB00
#1 Catapult	VB01

	WC CODE
#2 Catapult	VB02
#3 Catapult	VB03
#4 Catapult	VB04
#1 Arresting Gear	VB05
#2 Arresting Gear	VB06
#3 Arresting Gear	VB07
#4 Arresting Gear	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
r. <u>Weapons Department Administration.</u>	WG00
Division Flight Deck/Hanger Deck/AWSEP	WG01
Division Armory/Sprinklers	WG02
Division Weapons Assembly	WG03
Division Elevators/Forklifts	WG04
Division Admin/AWMCS/QA/Safety	WG05
Weapons Electrical Tool Issue	WG20
s. <u>Administration Department.</u>	
CO's Admin	XX01
XO's Admin	XX02
Administration	XX03
Personnel	XX04
Special Assistants -	XX05
ESO/CCC/CMC/DAPA/EOA	
Flag/Embarked Staff	XF01
t. <u>Airwing (when assigned).</u>	
CAG	ZW00

	WC CODE
Reserved for Assignment to Embarked Airwings	ZW01 thru ZW11
3. Afloat Damage Control WC Codes.	
a. <u>Safety Department DC.</u>	AS40
b. <u>Command Religious Ministries Department DC.</u>	BC40
c. <u>Combat Systems Department DC</u> (note 1).	CS40
Telecommunications Division DC	CS41
Network Information Security DC	CS42
Data Systems Division DC	CS45
Radar Division DC	CS46
Self Defense Weapons Division DC	CS47
External Communications Repair Division DC	CS49
d. <u>Deck Department DC</u> (note 1).	DX40
1st Division DC	DA40
2nd Division DC	DB40
3rd Division DC	DC40
e. <u>Engineering Department DC</u> (note 1).	EX40
Auxiliaries Division DC	EA40
Damage Control Division DC	ED40
Electrical Division DC	EE40
Repair Division DC	ER40
Maintenance Division DC	PM40
f. <u>Security Department DC.</u>	FS40
g. <u>Graphics Media Department DC.</u>	GM40
h. <u>AIMD Department DC</u> (note 1).	IM40
IM1 Division DC	IM41
IM2 Division DC	IM42
IM3 Division DC	IM43
IM4 Division DC	IM44
i. <u>Legal Department DC.</u>	LN40
j. <u>Dental Department DC</u>	MD40
k. <u>Medical Department DC.</u>	MH40
l. <u>Navigation Department DC</u>	NN40
m. <u>Operations Department DC</u> (note 1).	OX40

	WC CODE
OA Division DC	OA40
OC Division DC	OC40
OI Division DC	OI40
OM Division DC	OM40
OS Division DC	OS40
OZ Division/Department DC (as assigned)	OZ40
n. <u>Reactor Department DC.</u>	RX40
o. <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
p. <u>Training Department DC.</u>	TX40
q. <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
r. <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
s. <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. Ship Alteration (N/A for Ship's Force, used by TYCOM for planning purposes).

Combat Systems SCD	CSSA
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	WC CODE
Deck Department SCD	DXSA
Engineering Department SCD	EXSA
Security Department SCD	FSSA
AIMD SCD	IMSA
Health Services Department SCD	MXSA
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

APPENDIX C₂**STANDARD WORK CENTER CODES FOR NAVAL EXPEDITIONARY COMBAT COMMAND**

Appendix C ₂ A	Standard Work Center Codes for Explosive Ordinance Disposal Units
Appendix C ₂ B	Standard Work Center Codes for Mobile Diving and Salvage Units
Appendix C ₂ C	Standard Work Center Codes for EOD Training Evaluation Units
Appendix C ₂ D	Standard Work Center Codes for Mobile Security Squadrons/Navy Coastal Warfare Squadrons
Appendix C ₂ E	Standard Work Center Codes for RIVERINE Squadrons
Appendix C ₂ F	Standard Work Center Codes for Navy Mobile Construction Battalions
Appendix C ₂ G	Standard Work Center Codes for SEABEE Readiness Group
Appendix C ₂ H	Standard Work Center Codes for Construction Battalion Mobile Units
Appendix C ₂ I	Standard Work Center Codes for Underwater Construction Teams
Appendix C ₂ J	Standard Work Center Codes for Navy Mobile Construction Battalions Forward Headquarters
Appendix C ₂ K	Standard Work Center Codes for NCF FWD Detachments
Appendix C ₂ L	Standard Work Center Codes for Navy Expeditionary Logistics Support Group
Appendix C ₂ M	Standard Work Center Codes for Navy Cargo Handling Battalion ONE

NOTES:

1. It is recommended all units under COMNECC develop a tool room or shop for maintenance and distribution of tools used for maintenance.
2. Some units are not large enough to incorporate three different Communication Work Centers. In such cases, all aspects of Information Technology will be incorporated into one Work Center (CS02).
3. All detachments that serve a specific purpose as listed in this instruction shall use the first two letters as indicated in Appendices C2A through C2M and the first two numbers of the detachment provided it is not duplicated within the same Unit Identification Code.
4. Shore Detachments assigned outside the continental United States shall use the two letter country code in which they are located and the first two numbers of the detachment or unit number. Detachments within the United States shall use appropriate designator identified within this Appendix.
5. Multiple boat and service craft Work Centers shall use concurrent numbering to identify follow on Work Centers of the same type (e.g., CA01, CA02, etc.).

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APPENDIX C₂A

STANDARD WORK CENTER CODES FOR EXPLOSIVE ORDINANCE DISPOSAL UNITS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Administration Department</u>		XX00	ALL
	Administration Division	XX01	ALL
	Administration	XX02	ALL
	Safety	XS01	ALL
<u>Medical Department</u>		MH00	ALL
	Medical Division	MH01	ALL
	Medical	MH02	ALL
<u>Supply Department</u>		SUPP	ALL
	Supply Division	SS01	ALL
	Central Tool Room	SC01	NOTE 1
	Central Store Room	ST01	ALL
	HAZMAT	HZ01	ALL
	DTO	SS01	
<u>Stock Department</u>		STCK	ALL
	Stock Division	STOK	ALL
	Stock	STK	ALL
<u>Weapons Department</u>		WG00	
	Weapons Division	WG01	ALL
	Weapons (Small Arms)	WG02	ALL
	Weapons (Crew Served)	WG03	
<u>Maintenance Department</u>		AA00	
	Maintenance Division	AA01	
	Builder Shop	MR01	ALL
	CESE/Vehicles	AL01	ALL
	Dispatch	AO01	ALL
	Boat Shop Division	DA01	ALL
	Utility Craft	CU01	NOTE 5
	Small Boats (Inflatable)	CR01	ALL
	Repair (Hull/Fabrication/ Welding)	ER01	ALL
	Electric Shop	EE01	ALL
	Engineering DC	ER02	ALL
	Equipment		
	Engine Shop	EA01	ALL
	<u>Readiness and Training</u>		TT00
Training Division		TT01	ALL
Dive Locker Division		DV01	ALL
Dive Work Center		DC01	ALL
Dive Chamber Systems Division		DS01	ALL

STANDARD WORK CENTER CODES FOR EXPLOSIVE ORDNANCE DISPOSAL UNITS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
	Dive Systems Work Center	DS02	Fly Away
	Recompression Chamber	DC01	A/R
	Air Operations	VA01	A/R
<u>Communication Department</u>		CS00	ALL
	Communications Division	CS01	NOTE 2
	Radio Work Center	CS02	A/R
	ADP Center	CS03	A/R
	ET Shop	CS04	A/R
<u>Operations Department/ Detachments</u>			NOTE 3
	EOD DET	EX##	ALL
	EOD Equipment	EO##	A/R
	Dive Equipment	DV##	A/R
	FADL	DL01	ALL
	Magnetometer	DM01	ALL
	Shore DETS		NOTE 4
	Mine Counter Measures	MC##	A/R
	Combat Expeditionary Support	CE##	A/R
	Special Operation Force	SF##	A/R
	Underwater/IED	UD##	A/R
	Surface/IED	SD##	A/R
	Chemical NUC	CZ##	A/R
	Mobile Ashore Support Team	RS02	ALL

APPENDIX C₂B

STANDARD WORK CENTER CODES FOR MOBILE DIVING AND SALVAGE UNITS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>	
<u>Administration Department</u>		XX00	ALL	
	Administration Division	XX01	ALL	
	Administration	XX02	ALL	
	Safety	XS01	ALL	
<u>Medical Department</u>		MH00	ALL	
	Medical Division	MH01	ALL	
	Medical	MH02	ALL	
<u>Supply Department</u>		SUPP	ALL	
	Supply Division	SS01	ALL	
	Central Tool Room	SC01	NOTE 1	
	Central Store Room	ST01	ALL	
	HAZMAT	HZ01	ALL	
	DTO	SS01	A/R	
<u>Stock Department</u>		STCK	ALL	
	Stock Division	STOK	ALL	
	Stock	STK	ALL	
<u>Weapons Department</u>		WG00	ALL	
	Weapons Division	WG01	ALL	
	Weapons (Small Arms)	WG02	ALL	
	Weapons (Crew Served)	WG03	A/R	
<u>Maintenance/Support Department</u>		AA00	ALL	
	Maintenance Division	AA01	ALL	
	CESE/Vehicles	AL01	ALL	
	Dispatch	AO01	ALL	
	Boat Shop (Deck)	DA01	ALL	
	Small Boats (Inflatable)	DB01	ALL	
	Repair (Hull/Fabrication/ Welding)	ER01	ALL	
	Engineering DC Equipment	ER02	ALL	
	Engine Shop	EA01	ALL	
	Salvage Gear (Yellow Gear)	SG01	ALL	
	<u>Readiness and Training</u>	Chamber Systems	DS01	ALL
	<u>Operations Department/ Detachments</u>	Detachment 2 (LANT)	SE02	
		Detachment 3 DV (PAC)	SE03	
Detachment 3 SL (PAC)		SE33		
Detachment 4 (LANT)		SE04		
Detachment 5 DV (PAC)		SE05		

STANDARD WORK CENTER CODES FOR MOBILE DIVING AND SALVAGE UNITS (Cont'd)

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
	Detachment 5 SL (PAC)	SE55	
	Detachment 6 (LANT)	SE06	
	Detachment 7 DV (PAC)	SE07	
	Detachment 7 SL (PAC)	SE77	
	Detachment 8 (LANT)	SE08	
	Detachment 9 DV (PAC)	SE09	
	Detachment 9 SL (PAC)	SE99	
	Detachment 10 (LANT)	SE10	
	Detachment 11 DV (PAC)	SE01	
	Detachment 11 SL (PAC)	SE11	
	Detachment 12 (LANT)	SE12	
	Detachment 20 (LANT)	SE20	
	Detachment 13 DV (PAC)	SE13	
	Detachment 13 SL (PAC)	SE31	
	Detachment 30 (LANT)	SE30	
	Communications	CS01	

APPENDIX C₂C

STANDARD WORK CENTER CODES FOR EOD TRAINING EVALUATION UNITS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Administration Department</u>		XX00	ALL
	Administration Division	XX01	ALL
	Administration	XX02	ALL
	Safety	XS01	ALL
<u>Medical Department</u>		MH00	ALL
	Medical Division	MH01	ALL
	Medical	MH02	ALL
<u>Supply Department</u>		SUPP	ALL
	Supply Division	SS01	ALL
	Central Tool Room	SC01	NOTE 1
	Central Store Room	ST01	ALL
	HAZMAT	HZ01	ALL
	DTO	SS01	A/R
<u>Stock Department</u>		STCK	ALL
	Stock Division	STOK	ALL
	Stock	STK	ALL
<u>Weapons Department</u>		WG00	ALL
	Weapons Division	WG01	ALL
	Weapons (Small Arms)	WG02	ALL
	Weapons (Crew Served)	WG03	A/R
<u>Maintenance Department</u>		AA00	ALL
	Maintenance Division	AA01	ALL
	CESE/Vehicles	AL01	ALL
	Dispatch	AO01	ALL
	Boat Shop Division	DA01	ALL
<u>Readiness and Training</u>		RD00	A/R
	Training Division	TT01	ALL
	Dive Lockers	DV01	ALL
	Air Operations	VA01	ALL
<u>Communication Department</u>		CS00	NOTE 2
	Communications Division	CS01	ALL
	ADP Center	CS02	A/R
	ET Shop	CS03	
<u>Operations Department/ Detachments</u>		ED##	ALL
	Ordinance Clearing Diver	ED##	ALL
	Dive Chamber Systems	DS##	ALL
	Shore DETS		
	Underwater/IED	UD##	
	Surface/IED	SD##	
	Chemical NUC	CZ##	
	Dive Locker	DV01	

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APPENDIX C₂DSTANDARD WORK CENTER CODES FOR MOBILE SECURITY SQUADRON/NAVY COASTAL
WARFARE SQUADRON

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Administration Department</u>		XX00	ALL
	Administration Division	XX01	ALL
	Administration	XX02	ALL
	Safety	XS01	ALL
<u>Medical Department</u>		MH00	ALL
	Medical Division	MH01	ALL
	Medical	MH02	ALL
<u>Supply Department</u>		SUPP	
	Supply Division	SS01	ALL
	Central Tool Room	SC01	NOTE 1
	Central Store Room	ST01	ALL
	HAZMAT	HZ01	ALL
	DTO	SS01	
<u>Stock Department</u>		STCK	ALL
	Stock Division	STOK	ALL
	Stock	STK	ALL
<u>Weapons Department</u>		WG00	
	Weapons Division	WG01	ALL
	Weapons (Small Arms)	WG02	ALL
	Weapons (Crew Served)	WG03	
<u>Maintenance Department</u>		AA00	
	Maintenance Division	AA01	
	CESE/Vehicles	AL01	ALL
	Dispatch	AO01	ALL
	Boat Shop	DA01	ALL
	Repair (Hull/Fabrication/ Welding)	ER01	ALL
<u>Training</u>		TT00	ALL
<u>Operations Department</u>		CS00	
	Operations Division		
	Mobile Ashore Support Team	RS02	ALL
	Radar Sonar Surveillance Center (RSSC)	RS01	ALL
	Maritime Operations Center	OC01	ALL
	Communications	CS01	NOTE 2
	ADP Center	CS02	
	ET Shop	CS03	

**STANDARD WORK CENTER CODES FOR MOBILE SECURITY SQUADRON/NAVY COASTAL
WARFARE SQUADRON (Cont'd)**

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Boats and Service Craft</u>		DB00	NOTE 5
	Boat Division	DB01	
	Patrol Craft	CP01	ALL
	Utility Craft	CU01	ALL

APPENDIX C₂E

STANDARD WORK CENTER CODES FOR RIVERINE SQUADRONS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Administration Department</u>		XX00	ALL
	Administration Division	XX01	ALL
	Administration	XX02	ALL
	Safety	XS01	ALL
<u>Medical Department</u>		MH00	ALL
	Medical Division	MH01	ALL
	Medical	MH02	ALL
<u>Supply Department</u>		SUPP	
	Supply Division	SS01	ALL
	Central Tool Room	SC01	NOTE 1
	Central Store Room	ST01	ALL
	Stock Control	STK	ALL
	HAZMAT	HZ01	ALL
<u>Weapons Department</u>		WG00	
	Weapons Division	WG01	ALL
	Weapons (Small Arms)	WG02	ALL
	Weapons (Crew Served)	WG03	ALL
<u>Stock Department</u>		STCK	ALL
	Stock Division	STOK	ALL
	Stock	STK	ALL
<u>Boat Shop</u>		DA00	
	Boat Division	DA01	ALL
	Boat Work Center (Maint)	DA02	
	Boats (Individual)	CA01	A/R
<u>CESE Maintenance Department</u>		AA00	
	Maintenance Division	AA01	
	CESE Maintenance	AA02	ALL
	CESE/CEEI	AL01	ALL
	Dispatch	AO01	
<u>Communication Department</u>		CS00	ALL
	Communications Division	CS01	ALL
	Radar	CS02	ALL
	Radio	CS03	ALL

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APPENDIX C₂F

STANDARD WORK CENTER CODES FOR NAVY MOBILE CONSTRUCTION BATTALIONS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Administration Department</u>		XX00	ALL
	Administration Division	XX01	ALL
	Administration	XX02	ALL
	Safety	XS01	ALL
<u>Medical Department</u>		MH00	ALL
	Medical Division	MH01	ALL
	Medical	MH02	ALL
	Dental	MH03	ALL
<u>Supply Department</u>		SUPP	
	Supply Division	SS01	ALL
	Central Tool Room	SC01	ALL
	Central Store Room	ST01	ALL
	HAZMAT	HZ01	ALL
	DTO	SS01	
<u>Stock Department</u>		STCK	ALL
	Stock Division	STOK	ALL
	Stock	STK	ALL
<u>Alfa Company</u>		AA00	
	Alfa Division	AA01	ALL
	Cranes	AC13/AC15	ALL
	Heavy Shop (CESE)	AH03/AH05	ALL
	Light Shop (CESE)	AL03/AL05	ALL
	Mineral Products	AM05	ALL
	Machine Shop	AS01	ALL
	5000 Shop	AT03/AT05	ALL
	Dispatch	AO01	ALL
	<u>Bravo Company</u>		BB00
Bravo Co. Division		BB01	ALL
BU/SW Shop		BU01	ALL
UT/CE Shop		BE01	ALL
CBR		BR01	ALL
<u>Training</u>		TT00	ALL
	Training Division	TT01	ALL
	Weapons (Small Arms)	WG01	ALL
	Weapons (Crew Served)	WG02	
<u>Communication Department</u>		CS00	ALL
	Communications Division	CS01	ALL
	Communications Work Center	CS02	ALL

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APPENDIX C₂G

STANDARD WORK CENTER CODES FOR SEABEE READINESS GROUP

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>	
<u>Alfa Company</u>		AA00		
	Alfa Division	AA01	ALL	
	Cranes	AC03/AC13	ALL	
	Heavy Shop (CESE)	AH03/AH13	ALL	
	Light Shop (CESE)	AL03/AL13	ALL	
	Mineral Products	AM05	ALL	
	Machine Shop	AS01	ALL	
	5000 Shop	AT03/AT13	ALL	
	Dispatch	AO01/AO11	ALL	
<u>Bravo Company</u>		BB00		
	Bravo Division	BB01		
	Builder/SW Shop	BU01		
	CE/UT Shop	BE01		
	CEEI - TOA	BT01		
	CBR	BR01	ALL	
<u>Training Department</u>		TT00	ALL	
	Training Division	TT01		
	SRG Weapons (Small Arms)	WG01		
	SRG Weapons (Crew Served)	WG02		
	BATT Set #1 (Small Arms)	WG11		
	BATT Set #1 (Crew Served)	WG12		
	BATT Set #2 (Small Arms)	WG21		
	BATT Set #2 (Crew Served)	WG22		
	BATT Set #3 (Small Arms)	WG31		
	BATT Set #3 (Crew Served)	WG32		
	<u>Communication Department</u>		CS00	ALL
		Communications Division	CS01	ALL
		SRG	CS02	ALL
BATT Set #1		CS03		
BATT Set #2		CS04		
BATT Set #3		CS05		

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APPENDIX C₂H

STANDARD WORK CENTER CODES FOR CONSTRUCTION BATTALION MOBILE UNITS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Administration Department</u>		XX00	ALL
	Administration Division	XX01	ALL
	Administration	XX02	ALL
	Safety	XS01	ALL
	Medical	MH01	ALL
<u>Supply Department</u>		SUPP	
	Supply Division	SS01	ALL
	Central Tool Room	SC01	NOTE 1
	Central Store Room	ST01	ALL
	HAZMAT	HZ01	ALL
	Material Liaison Office	SM01	
	DTO	SS01	
<u>Stock Department</u>		STCK	ALL
	Stock Division	STOK	ALL
	Stock	STK	ALL
<u>Alfa Company</u>		AA00	ALL
	Alfa Division	AA01	ALL
	Heavy Shop (CESE)	AH03	ALL
	Light Shop (CESE)	AL03	ALL
	Dispatch	AO01	ALL
	Augment Equipment	AG05	
	5000 Shop	AT03	
<u>Bravo Company</u>		BB00	
	Bravo Division	BB01	
	Builder/SW Shop	BU01	
	CE/UT Shop	BE01	
	CEEI - TOA	BT01	
	CBR	BR01	ALL
<u>Communication</u>		CS00	
	Communications Division	CS01	ALL
	Tactical COMMS	CS02	ALL
<u>Training</u>		TT01	ALL
	Training Division	TT02	ALL
	Weapons Division (Small Arms)	WG01	ALL
	Weapons Division (Crew Served)	WG02	ALL
<u>Detachments DC</u>			
	Maintenance Division (CESE)	D103	
	Organic CESE	D104	
	Augment CESE	D105	
	Dispatch	D106	

**STANDARD WORK CENTER CODES FOR CONSTRUCTION BATTALION MOBILE UNITS
(Cont'd)**

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
	Maintenance Division (Non-CESE)	D108	
	Builder/SW Shop	D109	
	CE/UT Shop	D110	
	CEEI/CBR	D111	
	Weapons Division-TOA	D112	
	Safety/HAZMAT	D113	
	Central Tool Room	D114	
 <u>202 DET PREFIX CODES</u>		<u>303 DET PREFIX CODES</u>	
DET DC - D1		DET Bangor - D1	
DET KB - D2		DET Fallen - D2	
DET JAX -D3		DET Lemoore - D3	
DET KW - D4		DET Pearl Harbor - D4	
DET CL - D5			

APPENDIX C₂I

STANDARD WORK CENTER CODES FOR UNDERWATER CONSTRUCTION TEAMS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>	
<u>Administration Department</u>		XX00	ALL	
	Administration Division	XX01	ALL	
	Administration	XX02	ALL	
	Safety	XS01	ALL	
	Engineering Aid	XE01	ALL	
<u>Medical Department</u>		MH00	ALL	
	Medical Division	MH01	ALL	
	Medical	MH02	ALL	
<u>Supply Department</u>		SUPP		
	Supply Division	SS01	ALL	
	Central Store Room	ST01	ALL	
	HAZMAT	HZ01	ALL	
	DTO	SS01		
<u>Stock Department</u>		STCK	ALL	
	Stock Division	STOK	ALL	
	Stock	STK	ALL	
<u>Training</u>		TT00	ALL	
	Training Division	TT01	ALL	
	Weapons (Small Arms)	WG01	ALL	
	Weapons (Crew Served)	WG02		
<u>Communication</u>		CS00		
	Communications Division	CS01	ALL	
	Communications	CS02	ALL	
<u>Readiness Department</u>		RD00	ALL	
	Readiness Division	RD01	ALL	
	Boat Shop	DA01	ALL	
	Maintenance (CESE)	AL01	ALL	
	Dive Systems	DS00	ALL	
	Fly Away Dive System	DC00	ALL	
	SNDL Recompression Chamber	DC04	ALL	
	Dive Equipment	DL01	ALL	
	Central Tool Room	SC01	ALL	
	Facilities	NF02	ALL	
	<u>Operations Department</u>		OD00	ALL
		Operations Division	OD01	ALL
		Air DET ALFA	AD01	
BRAVO		AD02	ALL	
CHARLIE		AD03		
Lightweight Dive System		DS11/DS12/DS13	ALL	
Trans. Recompression Chamber		DC11/DC12/DC13	ALL	

STANDARD WORK CENTER CODES FOR UNDERWATER CONSTRUCTION TEAMS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
	TOA Equipment (Non-CESE)	TA11/TA12/TA13	ALL
	Weapons	WG11/WG12/WG13	ALL
	Communications	CS11/CS12/CS13	ALL
	Dive Boat	CU11/CU12/CU13	ALL

APPENDIX C₂JSTANDARD WORK CENTER CODES FOR NAVY MOBILE CONSTRUCTION BATTALIONS
FORWARD HEADQUARTERS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Administration Department</u>		XX01	ALL
	PS/YN Division	XX02	ALL
	Medical	MH01	ALL
	3MC	XO01	ALL
<u>Communication Department</u>		CS01	
	Communications	CS02	
<u>Supply Department</u>		SS01	
	Supply DIV	SS02	
	Central Tool Room	SS03	
	Material Liaison Office	SS04	
	Control Store Room	SS05	
	DTO	SS01	
<u>Stock Department</u>		STCK	
	Stock Div	STOK	
	Stock	STK	

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APPENDIX C₂K

STANDARD WORK CENTER CODES FOR NCF FWD DETACHMENTS

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Detachment 3MA</u>		XO11	
<u>CESE Maint Div</u>		AA11	
	CESE/CEEI Maintenance	AL11	
	Dispatch	AO11	
<u>Non-CESE Maint Div</u>		BC11	
	Weapons Division	WG11	
	Safety/HAZMAT	SZ11	
	Communication	CS11	
<u>DET Supply</u>		SS11	
	Central Tool Room	SC11	

Detachment Codes

11 - Camp Moreell	12 - Falluja
13 - Balad	14 - TQ
15 - Al Asad	16 - Ramadi
17 - Bagram	

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APPENDIX C₂L

STANDARD WORK CENTER CODES FOR NAVY EXPEDITIONARY LOGISTICS SUPPORT GROUP

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>
<u>Administration Department</u>		XX00	
	Administration Division	XX01	
	Administration	XX02	
	Safety	XS01	
	Medical	MH01	
<u>Supply Department</u>		SUPP	
	Supply	SS01	
	Central Tool Room	SC01	NOTE 1
	Central Store Room	ST01	ALL
	HAZMAT	HZ01	ALL
	DTO	SS01	
<u>Stock Department</u>		STCK	ALL
	Stock Division	STOK	ALL
	Stock	STK	ALL
<u>Operations Department</u>		OD00	
	Operations	OD01	
<u>Planning Department</u>		PA00	
	Plans	PA01	
<u>Training</u>		TT00	ALL
	Training Support	TT01	ALL
<u>Communication Department</u>		CS00	NOTE 2
	Communications	CS01	
	ADP Center	CS03	
<u>Engineering Department</u>		AA00	
	CESE/Vehicles	AL01	ALL
	Dispatch	AO01	ALL
	Engineering (DC Equip/ Facilities)	ER02	ALL
	Non-CESE (Hatch Boxes)	EH01	
	Weapons Division	WG01	ALL
	Weapons (Small Arms)	WG02	ALL
	Weapons (Crew Served)	WG03	

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APPENDIX C₂M

STANDARD WORK CENTER CODES FOR NAVY CARGO HANDLING BATTALION ONE

<u>WORK CENTER NAME</u>	<u>DIVISION W/C</u>	<u>W/C CODES</u>	<u>UNIT(S)</u>	
<u>Administration Department</u>		XX00		
	Administration Division	XX01		
	Administration	XX02		
	Safety	XS01		
	Medical	MH01		
<u>Supply Department</u>		SUPP		
	Supply Division	SS01		
	Central Tool Room (Hatch Boxes)	SC01	NOTE 1	
	Central Store Room	ST01	ALL	
	HAZMAT	HZ01	ALL	
	DTO	SS01		
<u>Stock Department</u>		STCK	ALL	
	Stock Division	STOK	ALL	
	Stock	STK	ALL	
<u>Operations Department</u>		OD00	NOTE 2	
	Operations Division	OD01		
	Plans	PA01		
	Communications	CS01		
	ADP Center	CS03		
<u>Training</u>		TT00	ALL	
	Training Support Division	TT01	ALL	
	CISO	TT02		
	Schedules/Quotas	TQ01		
	Graphics	TG01		
	School House	TS01		
	Curriculum	TS01		
<u>Platforms</u>		PA00		
	Platforms Division	PA01		
	Land Ship	PL01		
	Cape Ship	PS01		
	Crane Site	PC01		
<u>Engineering Department</u>		AA00		
	CESE/Vehicles Division	AL01	ALL	
	Dispatch	AO01	ALL	
	Engineering (DC Equip/Facilities)	ER02	ALL	
	Non-CESE (Hatch Boxes)	EH01		
	Weapons Division	WG01	ALL	
	Weapons (Small Arms)	WG02	ALL	
	Weapons (Crew Served)	WG03		

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APPENDIX C₃

STANDARD WORK CENTER CODES FOR NAVAL SUBMARINE FORCE SHIPS

Appendix C ₃ A	Standard Work Center Codes for Submarines
Appendix C ₃ B	Standard Work Center Codes for Submarine Force Surface Ships
Appendix C ₃ C	Standard Work Center Codes for Small Boat and Service Craft Managers (Submarine Force Only)
Appendix C ₃ D	Standard Work Center Codes for Tugs and Retrievers (Submarine Force Only)

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APPENDIX C₃A
STANDARD WORK CENTER CODES FOR SUBMARINES

Description	Used by Submarine Type	Code
<u>Executive</u>		
Executive/Administration (ADM - Functional Area Supervisor - SNAP)	All	XX00
Chief of the Boat	All	XX03
3-M Coordinator (SNAP OMMS Functional Area Supervisor)	All	XM01
Safety Petty Officer	All	SP01
<u>Engineering</u>		
Auxiliary	All	EA01
Damage Control Petty Officer (Note 1)	All	EDC1
Electrical (Main Power - SS)	All	EE01
Machinery	All	EM01
Engineering Administration	All	EX00
Engineering Log Room	All	EX02
Field Calibration	All	FCA1
Reactor Controls	All Nuclear	RC01
Engineering Laboratory	All	RL01
<u>Medical</u>		
Medical	All	MH01
<u>Navigation/Operations</u>		
Navigation/Electronics	All	NE01
Micro Miniature Repair (2M)	SSBN/SSGN	NE02
Radio/Communications	All	OC01
Afloat Information Systems/Automated Data Processing Coordinator (AIS/ADP)	All	OC02
Navigation/Operations Administration	All	OX00
<u>Research and Development</u>		
Mission Auxiliary	SSN-23 Only	MA01
Mission Electronics	SSN-23 Only	ME01
Mission Navigation	SSN-23 Only	MN01
Mission Auxiliary Support	SSN-23 Only	MV02

Description	Used by Submarine Type	Code
<u>Supply</u>		
General Stores	All	SS01
Food Services	All	SS02
Supply Administration (SNAP Functional Area Supervisor)	All	SX00
<u>Weapons</u>		
Divers	All	DV01
Central Computer (Tactical/Strategic)	SSN-688/SSN-21/SSBN/SSGN	WC01
Fire Control	All	WF01
Missile Fire Control	SSBN/SSGN	WF02
First Lieutenant	All	WK01
Dry Deck Shelter	774 Class	WK02
Special Operations Forces Support	SSGN	WK02
Sonar	All	WQ01
Torpedo	All	WI01
Missile Technicians	SSBN/SSGN	WM01
Missile Launcher	All	WS01
Weapons Administration	All	WX00

Note:

1. When Squadron must generate a CSMP deferral for the submarine, the Squadron will use the correct ship's work center and the Job Sequence Number (JSN) that is generated by Regional Maintenance Automated Information System (RMAIS). Example: EM01-Q123, Q denotes that the JSN was created by RMAIS.

APPENDIX C₃B

STANDARD WORK CENTER CODES FOR SUBMARINE FORCE SURFACE SHIPS

Description	Used by Ship Type	Code
<u>Deck</u>		
1 st Division	ARDM	DA01
Boat Division	AS/ARDM	DB01
<u>Engineering</u>		
Auxiliary Division	ARDM	EA01
Crane Maintenance	ARDM	EC01
Lighting and Power	ARDM	EE01
Pipe/Metal Shop	ARDM	ER01
Carpenter/Docking	ARDM	ER02
Damage Control Petty Officer	All	EDC1
Engineering Administration	All	EX00
Engineering Logroom	All	EX02
Calibration	ARDM	FCA1
<u>Medical</u>		
Medical	All	MH01
Dental	AS	MD01
<u>Navigation/Operations</u>		
Afloat Information Systems/Automated Data Processing Coordinator (AIS/ADP)	All	OC02
<u>Supply</u>		
Supply Administration	All	SX00
General Stores/Supply	All	SS01
Ship's Store	AS	SS03
Disbursing	AS	SS04
Inventory Control	AS	SS05
SUBSAT	AS	SS07
Post Office	AS	SS08
ROVSS	AS	SS09
<u>Weapons</u>		
Armory/Magazine	AS	WK02
Gunnery	AS/ARDM	WI05
Weapons Administration	All	WX00

STANDARD WORK CENTER CODES FOR SUBMARINE FORCE SURFACE SHIPS (Cont'd)

Description	Used by Ship Type	Code
Weapons Repair	AS	W10B
Fire Control Repair	AS	W67E
Weight Test	AS	W72D
Weapons Alarms systems	AS	W91D
Torpedo/Missiles repair	AS	W91E
Weapons QA	AS	W91Q
<u>Executive</u>		
Executive Administration	AS	XX00
3-M Coordinator	All	XM01
Safety Petty Officer	All	SP01
Personnel Office	All	XX02
<u>Repair</u>		
Tool Room	AS	R06B
Repair Administration	AS	R10A
Planning P&E	AS	R10C
Tech Library	AS	R10E
Shipfitter/welding	AS	R11A
Sheet metal/Wood working	AS	R17A
Shore Services	AS	R25D
Welding	AS	R26A
Inside Machine shop	AS	R31A
Engraving shop	AS	R31B
Diesel shop	AS	R31C
Valve shop	AS	R31D
Engine and Governor shop	AS	R31E
Hydraulics shop	AS	R31F
Optical shop	AS	R35A
Print shop	AS	R37A
Outside Machine shop	AS	R38A
Nuc Repair	AS	R38N
Photo/Repair Admin/Print	AS	R39A
Elect Repair/Motor Rewind	AS	R51A
Outside Electrical shop	AS	R51B
IC Shop	AS	R51G
Pipe shop/Powder Coat shop	AS	R56A

STANDARD WORK CENTER CODES FOR SUBMARINE FORCE SURFACE SHIPS (Cont'd)

Description	Used by Ship Type	Code
AC&R shop	AS	R56B
Flex Hose shop	AS	R56C
Insulation Lagging/Canvas shop	AS	R57A
Rubber and Plastics	AS	R57B
Woodworking shop	AS	R64A
Key and lock shop	AS	R64E
General Electronics/Computer Repair	AS	R67A
Calibration	AS	R67B
Mast & Antenna shop	AS	R67H
2M Repair	AS	R67M
Rigging services	AS	R72A
Dive Locker	AS	R72B
Dive Locker (fly away team)	AS	R72F
Sail and Canvas	AS	R74A
Sound & analysis	AS	R92A
NDT/QA	AS	R93A
QA	AS	R93B
Radiological Controls	AS	R94A
MIRCS Lab	AS	R96A

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APPENDIX C₃C

**STANDARD WORK CENTER CODES FOR
SMALL BOAT AND SERVICE CRAFT MANAGERS
(Submarine Force Only)**

Name	Code	Name	Code
COMSUBRON ONE	PS	SUBASE PEARL HARBOR (IMF)	PK
COMSUBRON SIX	TQ	TRIDENT Refit Facility BANGOR	PM
COMSUBRON SEVEN	PW	TRIDENT Refit Facility KINGS BAY	TM
COMSUBRON EIGHT	TW		
COMSUBRON ELEVEN	PQ		
COMSUBRON SEVENTEEN	PV	USS EMORY S. LAND (AS-39)	TJ
COMSUBRON TWENTY	TX	USS FRANK CABLE (AS-40)	TA
COMSUBRON TWENTY-TWO	TS		
NAVSUBSUPPFAC NLON	TK		
SUBASE BANGOR	PY		
SUBASE KINGS BAY	TY		
SUBASE NLON	TC		

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APPENDIX C₃D
STANDARD WORK CENTER CODES FOR
TUGS AND RETRIEVERS
(Submarine Force Only)

Description	Used by Ship Type	Code
Engineering	TWR/YTB/YTM	TE01
Other	TWR/YTB/YTM	TD01
Safety Petty Officer	TWR/YTB/YTM	SP01

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APPENDIX C₄**STANDARD WORK CENTER CODES FOR NAVAL SURFACE FORCE SHIPS AND SHORE
COMMANDS**

Appendix C ₄ A	Standard Work Center Codes for LPD-4 Class Ships
Appendix C ₄ B	Standard Work Center Codes for PC Class Ships
Appendix C ₄ C	Standard Work Center Codes for MCM Class Ships
Appendix C ₄ D	Standard Work Center Codes for LSD Class Ships
Appendix C ₄ E	Standard Work Center Codes for LHA/LHD Class Ships
Appendix C ₄ F	Standard Work Center Codes for CG/DDG/FFG Class Ships
Appendix C ₄ G	Standard Work Center Codes for LCS Class Ships
Appendix C ₄ H	Standard Work Center Codes for LCC-19 Class Ships
Appendix C ₄ I	Standard Work Center Codes for LPD-17 Class Ships
Appendix C ₄ J	Standard Work Center Codes for DDG-1000 Class Ships
Appendix C ₄ K	Standard Work Center Codes for NBU-7 Command

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APPENDIX C₄A
STANDARD WORK CENTER CODES FOR
LPD-4 CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>EXECUTIVE DEPARTMENT</u>	EX		
	PERSONNEL	EX01	ALL
	ADMIN	EX02	Can Be Combined With EX01
	3MC	EX03	ALL MDS ONLY
	MAA	EX04	ALL
	OFF SHIP SERVICES	ES01	ALL Contains All X Service XRICS MDS ONLY
<u>MEDICAL DEPARTMENT</u>	MH		
	MEDICAL	MH01	ALL
<u>DENTAL DEPARTMENT</u>	MD		
	DENTAL	MD01	AS REQUIRED
<u>SUPPLY DEPARTMENT</u>	S1		
	STOCK CONTROL	SS01	ALL
	HAZMAT/ENVIRONMENTAL	HE01	ALL
	AVIATION STORES	SS06	AS REQUIRED
	S2		
	FOOD SERVICE	SS02	ALL
	WARD ROOM	SS05	AS REQUIRED
S3			
SHIP SERVICES	SS03	ALL	
<u>DECK DEPARTMENT</u>	DA		
	DECK	DA01	ALL
	BOATS	DA02	AS REQUIRED
		DA03	AS REQUIRED
	DB		
	SECOND	DB01	ALL
		DB02	AS REQUIRED
	DB03	AS REQUIRED	
<u>ENGINEERING DEPARTMENT</u>	EA		
	AUXILIARY EN	EA01	ALL
	ENGINE SHOP	EA02	AS REQUIRED
	HYDRAULICS	EA04	ALL

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
	AC&R	EA05	ALL
	EE		
	ELEC TOOL ISSUE/SAFETY	EE01	ALL
	ELECTRICAL SHOP	EE02	ALL
	INTERIOR COMMS	EE03	ALL
	SITE TELEVISION	EE04	AS REQUIRED
	EM		
	MAIN MACHINERY RM 1	EM01	ALL
	MAIN MACHINERY RM 2	EM02	ALL
	AUX MACHINERY RM 1	EM03	ALL
	AUX MACHINERY RM 2	EM04	ALL
	OIL LAB	EB14	ALL
	GAGE CAL	FCA1	ALL
	ER		
	HULL REPAIR	ER01	ALL
	MACHINERY REPAIR	ER03	ALL
	DAMAGE CONTROL	ER04	ALL
	DCPO	ER09	ALL
	ENGINEERING ADMIN	EX00	AS REQUIRED
<u>AIR DEPARTMENT</u>	V		
	FLIGHT DECK	V101	ALL
	AVIATION FUELS	V401	ALL
	GROUND SUPPORT EQUIPMENT	VM04	ALL
<u>OPERATIONS DEPARTMENT</u>	OC		
	RADIO	OC01	ALL
	LAN/ADP	OC02	ALL
	OE		
	ELECTRONICS	OE01	ALL
	RADARS	OE05	ALL
	2-M REPAIR	OE03	ALL
	TEST EQUIPT ELEC CAL	OE04	ALL
	OI		
	CIC	OI01	ALL
	NAVIGATION	OI02	ALL
	ELECTRONIC WARFARE	OT01	ALL
	OW		
	GUNNERY/ARMORY	OW03	ALL
	FORCE PROTECTION		
	CIWS	OW04	ALL

APPENDIX C₄B
STANDARD WORK CENTER CODES FOR
PC CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>W/C CODE</u>	<u>CLASS</u>
<u>EXECUTIVE DEPARTMENT</u>	EX		
	OFF SHIP SERVICES	ES01	ALL
	MEDICAL	MH01	ALL
	3MC	XX03	
<u>ENGINEERING DEPARTMENT</u>	EN		
	ELECTRICAL SHOP	EE02	ALL
	MER FWD	EM01	ALL
	MER AFT	EM02	ALL
	DCPO	ER09	ALL
<u>OPERATIONS DEPARTMENT</u>	OP		
	RADIO	IS01	ALL
	ARMORY/FORCE PROTECTION	CG03	ALL
	NAVIGATION	OI02	ALL
	DECK	OD01	ALL
	CIC	OI01	ALL

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APPENDIX C₄C
STANDARD WORK CENTER CODES FOR
MCM CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>ENGINEERING</u> <u>DEPARTMENT</u>	EE ELECTRICAL SHOP	EE02	ALL
	EM AUXILIARY	EA01	ALL
	MER	EM01	ALL
	AMR	EM02	ALL
	OIL LAB	EB14	ALL
	FLEET CAL ACTIVITY	FCA1	ALL
	ER HULL REPAIR	ER01	ALL
	DAMAGE CONTROL	ER04	ALL
	DCPO	ER09	ALL
<u>EXEC</u> <u>DEPARTMENT</u>	EX MEDICAL	EH01	ALL
	ADMIN	EX01	ALL
	3MC	EX03	ALL MDS ONLY
	OFF SHIP SERVICES	ES01	ALL Contains All X-Services XRICS MDS ONLY
<u>OPERATIONS</u> <u>DEPARTMENT</u>	OE INTERIOR COMMS	OE02	ALL
	RADIO	OC01	ALL
	ELECTRONICS	OE01	ALL
	OI CIC/MINE COUNT	OI01	ALL
	MEAS		
	NAVIGATION	OI02	ALL
	OD DECK	OD01	ALL
	ARMORY/FORCE	OD02	ALL
	PROTECTION		
<u>SUPPLY</u> <u>DEPARTMENT</u>	S1 GENERAL STORES	SS01	ALL
	FOOD SERVICE	SS02	ALL
	HAZ/ENV	HE01	ALL

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APPENDIX C₄D
STANDARD WORK CENTER CODES FOR
LSD CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>	
<u>DECK</u> <u>DEPARTMENT</u>	DA			
	DECK BOATS	DA01	ALL	
		DA02	AS REQUIRED	
		DA03	AS REQUIRED	
	DB			
		DB01	ALL	
		DB02	AS REQUIRED	
		DB03	AS REQUIRED	
	<u>ENGINEERING</u> <u>DEPARTMENT</u>	EA		
		ENGINE/BOAT SHOP	EA02	ALL
HYDRAULICS		EA04	ALL	
AC&R		EA05	ALL	
EE				
ELEC TOOL ISSUE/SAF		EE01	ALL	
ELECTRIC SHOP		EE02	ALL	
EM				
MAIN MACHINERY RM 1		EM01	ALL	
MAIN MACHINERY RM 2		EM02	ALL	
AMR FWD		EM03	AS REQUIRED	
AMR AFT		EM04	AS REQUIRED	
OIL LAB		EB14	ALL	
GAGE CAL		FCA1	ALL	
ER				
HULL REPAIR		ER01	ALL	
MACHINE SHOP		ER03	ALL	
DAMAGE CONTROL		ER04	ALL	
DCPO		ER09	ALL	
<u>EXECUTIVE</u> <u>DEPARTMENT</u>		EX		
	ADMIN	EX01	ALL	
	3MC	EX03	ALL MDS ONLY	
	OFF SHIP SERVICES	ES01	Contains All X-Services XRICS MDS ONLY	
	MAA	EX04	ALL	
<u>MEDICAL</u> <u>DEPARTMENT</u>	MH			
	MEDICAL	MH01	ALL	

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>DENTAL</u> <u>DEPARTMENT</u>	DA DENTAL	DH01	ALL
<u>OPERATIONS</u> <u>DEPARTMENT</u>	OC RADIO LAN/ADP	OC01 OC02	ALL ALL
	OE IC SHOP ELECTRONICS 2-M REPAIR TEST EQUIPT ELEC CAL RADARS	OE06 OE01 OE03 OE04 OE05	ALL ALL ALL ALL ALL
	OI CIC ELECTRONIC WARFARE	OI01 OT01	ALL AS REQUIRED
	OW GWS FIRE CONTROL ARMORY/FORCE PROTECTION CIWS	OW02 OW03 OW04	ALL ALL ALL
<u>NAVIGATION</u>	NN NAVIGATION	NN01	ALL
<u>SUPPLY</u> <u>DEPARTMENT</u>	S1 STOCK CONTROL HAZ/ENV	SS01 HE01	ALL ALL
	S2 FOOD SERVICE	SS02	ALL
	S3 SHIP SERVICES	SS03	ALL

APPENDIX C₄E
STANDARD WORK CENTER CODES FOR
LHA/LHD CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>AIMD DEPARTMENT</u>			
	IM		
	PRODUCTION/ QA/SUPPLY/TRAINING	IM01	ALL
	PWR PLANTS/AIRFRAMES	IM02	ALL
	AVIATION LIFE SUPPORT		
	ARMAMENT SUPPORT EQUIP/ CALIBRATION LAB	IM03	ALL
	AVIATION SUPPORT EQUIPMENT	IM04	ALL
<u>AIR DEPARTMENT</u>			
	V1		
	FLIGHT DECK	V101	ALL
	CRASH AND SALVAGE	V102	ALL
	V3		
	HANGER DECK	V301	ALL
	V4		
	FLIGHT DECK FUELS	V401	ALL
	BELOW DECK FUEL	V402	ALL
<u>CHAPLAIN</u>			
<u>DEPARTMENT</u>			
	CH		
	CHAP	CH01	Req'd If Chaplain Assigned
<u>COMBAT CARGO</u>			
<u>DEPARTMENT</u>			
	CD	CCD1	MDS ONLY
<u>COMBAT SYSTEMS</u>			
<u>DEPARTMENT</u>			
	CE		
	RADAR REPAIR	CE01	ALL
	COMMUNICATION REPAIR	CE02	ALL
	2-M REPAIR	CE03	ALL
	TEST EQUIP ELEC CAL	CE04	ALL
	IC SHOP	CE05	ALL
	INTERIOR COMM	CE06	ALL
	CCTV	CE07	ALL
	CF		
	ACDS	CSF1	ALL
	RADARS	CSF2	ALL
	CIWS	CSF3	ALL
	MISSILES (RAM, TAS)	CSF4	ALL
	CC		

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
	RADIO	CC01	ALL
	LAN/ADP	CC02	ALL
	COMPUTER REPAIR	CC03	ALL
<u>DECK DEPARTMENT</u>			
	DA		
	FOWARD GEAR	DA01	ALL
	DB		
	AFT GEAR	DB01	ALL
<u>DENTAL DEPARTMENT</u>			
	MD		
	DENTAL	MD01	Req'd If Dentist Assigned
<u>ENGINEERING DEPARTMENT</u>			
	EA		
	AUX MACHINERY ROOM	EA01	As Required
	ENGINE SHOP	EA02	ALL
	STEAM SHOP (HOTEL SRV)	EA03	ALL
	AC&R	EA05	ALL
	AS		
	HYDRAULICS	AS01	ALL
	ASSAULT SHOP	AS02	ALL
	EE		
	ELEC TOOL ISSUE/SAFETY	EE01	ALL
	ELECTRIC SHOP	EE02	ALL
	POWER AND REWIND	EE03	ALL
	DISTRIBUTION	EE04	ALL
	EM		
	MAIN MACHINERY ROOM 1	EM01	ALL
	MAIN MACHINERY ROOM 2	EM02	ALL
	BOILER/ELECT CONTROL	EM03	ALL
	OIL LAB	EB14	ALL
	ER		
	HULL REPAIR	ER01	ALL
	MACHINE SHOP	ER03	ALL
	DAMAGE CONTROL REPR	ER04	ALL
	DCPO	ER09	ALL
<u>EXECUTIVE DEPARTMENT</u>			
	EX		
	ADMIN	EX01	ALL
	3MC	EX03	ALL
	MAA	EX04	ALL
	TRAINING	ET01	MDS ONLY
	OFF SHIP SERVICES	ES01	X-SERVICE XRICS MDS ONLY

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
	VI MASS COMMUNICATION SPECIALIST	VI01	ALL
<u>MEDICAL DEPARTMENT</u>	MH MEDICAL	MH01	ALL
<u>NAVIGATION DEPARTMENT</u>	NN NAVIGATION	NN01	ALL
<u>OPERATIONS DEPARTMENT</u>	OC AIR TRAFFIC CONTROL	OC01	ALL
	OI CIC	OI01	ALL
	OT ELECTRONIC WARFARE CRYPTOLOGIC WARFARE	OT01 OT02	ALL As Required
	OZ JOINT INFORMATION CENTER	OZ01	ALL
<u>SAFETY DEPARTMENT</u>	SA SAFETY	SA01	ALL
<u>SUPPLY DEPARTMENT</u>	S1 STOCK CONTROL	SS01	ALL
	S2 FOOD SERVICE	SS02	ALL
	S3 SHIP SERVICES	SS03	ALL
	S5 WARD ROOM	SS05	ALL
	S6 AVIATION STORES	SS06	ALL
	S8 GENERAL STORES HAZMAT/ENVIRONMENTAL	SS08 HE01	ALL ALL
<u>WEAPONS DEPARTMENT</u>	G1 AVIATION ARMS	WG01	ALL
	G2 ARMORY/FORCE PROTECTION	WG02	ALL

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
	G3 CARGO HANDLING MAG	WG03	ALL
	G4 AMMO ADMIN	WG04	ALL

APPENDIX C₄F

STANDARD WORK CENTER CODES FOR CG/DDG/FFG CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>	
<u>COMBAT SYSTEMS</u>	CC			
	RADIO	CC01	ALL	
	LAN/ADP	CC02	ALL	
	CF			
	SPY	CF01	CG, DDG	
	ACNT/DISPLAY	CF02	ALL	
	FCS/ORTS	CF03	ALL	
	CE			
	INTERIOR COMMS	CE01	ALL	
	RADAR/NAV	CE03	ALL	
	TEST EQUIPT ELEC CAL	CE04	ALL	
	ELECTRONICS	CSE1	ALL	
	2M REPAIR	CSE3	ALL	
	CA			
	SPS-53/V-10/MAIN SONAR	CA01	ALL	
	TOWED ARRAY	CA02	AS APPLICABLE	
	MINE COUNTERMEASURE	CA04	AS APPLICABLE	
	CG			
	GUNS	CG01	CG, DDG	
	GWS	CG02	CG, DDG	
	ARMORY/TORPEDO/FORCE PROTECTION	CG03	ALL	
	CIWS	CG04	AS APPLICABLE	
	CM			
	TOMAHAWK	CM01	CG, DDG	
	VLS	CM02	CG, DDG	
	SPARROW/HARPOON/MISSILE	CM03	AS APPLICABLE	
	<u>ENGINEERING DEPARTMENT</u>	EA		
		AUXILIARY	EA01	ALL
		DIESEL	EA02	FFG
		RAST	EA04	AS APPLICABLE
		EE		
		ELEC TOOL ISSUE/SAFETY	EE01	ALL
		ELECTRICAL SHOP	EE02	ALL
EM				
MER 1		EM01	ALL	
MER 2		EM02	CG, DDG	
PROPULSION ELECTRICAL		EM04	ALL	
OIL LAB		EB14	ALL	

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
	FLEET CAL ACTIVITY	FCA1	ALL
	ER		
	HULL REPAIR	ER01	ALL
	MACHINERY REPAIR	ER03	CG, DDG
	DAMAGE CONTROL	ER04	ALL
	DCPO	ER09	ALL
<u>EXECUTIVE DEPARTMENT</u>			
	EX		
	ADMIN	EX01	ALL
	3MC	EX03	ALL MDS ONLY
	OFF SHIP SERVICES	ES01	ALL MDS ONLY
	MAA	EX04	ALL
<u>HEALTH SERVICES DEPARTMENT</u>			
	HM		
	MEDICAL	HM01	ALL
<u>OPERATIONS DEPARTMENT</u>			
	OD		
	DECK	OD01	ALL
	OT		
	ELECTRONIC WARFARE	OT01	ALL
	CRYPTOLOGIC WARFARE	OT02	REQUIRED FOR PCMS
	OI		
	CIC	OI01	ALL
<u>NAVIGATION DEPARTMENT</u>			
	NN		
	NAVIGATION	NN01	ALL
<u>SUPPLY DEPARTMENT</u>			
	S1		
	GENERAL STORES	SS01	ALL
	HAZMAT/ENVIRONMENT	HE01	ALL
	S2		
	FOOD SERVICE	SS02	ALL
	S3		
	SHIP SERVICES	SS03	ALL
		STK	

APPENDIX C₄G

STANDARD WORK CENTER CODES FOR LCS CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>COMBAT SYSTEMS DEPARTMENT</u>			
	CG		
	GUNNERY/ARMORY GRP	CG03	ALL
	FORCE PROTECTION	FP01	ALL
	CS		
	ELECT/COMMS/LAN GRP	CSE1	ALL
	ELECT/ELECT ISSUE	CE04	ALL
<u>ENGINEERING DEPARTMENT</u>			
	EA		
	MECHANICAL GROUP	EA01	ALL
	EE		
	ELECTRICAL GROUP	EE02	ALL
	ER		
	REPAIR/DC/DCPO GROUP	ER09	ALL
<u>EXECUTIVE DEPARTMENT</u>			
	EX		
	3MC	XX03	ALL (NO PMS)
	OFF SHIP SERVICES	ES01	ALL (NO PMS)
<u>OPERATIONS DEPARTMENT</u>			
	OI		
	CIC/NAVIGATION GROUP	OI01	ALL
	OD		
	DECK GROUP	OD01	ALL
<u>SUPPLY DEPARTMENT</u>			
	S1		
	SUPPLY GROUP	SS01	ALL
	MEDICAL	MH01	ALL

**LCS MISSION MODULES -
4 DEPARTMENTS**

The work center assignments will be as follows: (This will be based on the number and LCS hull number the module is assigned.)

SHORE DEPARTMENT SH01 to SH99

Note 1: The shore department receives all of the material and tracks the maintenance of the gear while at the MPSF. All initial assignments of equipment and equipage will be work center SH01. The SH01 will be the secondary work center on all configuration records to allow for the ordering of parts while the module is deployed.

ASW DEPARTMENT AS01 to AS99

Note 2: For all ASW based Mission Modules

SUW DEPARTMENT SU01 to SU99

Note 3: For all SUW based Mission Modules

MCM DEPARTMENT MC01 to MC99

Note 4: For all MCM based Mission Modules

Each of the departmental structures will be broken down into work centers, using the first 2 letters of the department. There is one work center for each Mission Module. There can be a maximum of 99 work centers under each department.

To place the gear in a different department or work center, just change the work center assignment for the record. Upline reporting informs CDMD-OA of the change, or communication with the CDM so they can do bulk changes.

Include the PMS team at NSLC when making the changes to keep PMS data updated.

The MPSF will receive and serialize the equipment then assign to the correct mission module.

APPENDIX C₄H

STANDARD WORK CENTER CODES FOR LCC 19 CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>INFORMATION SYSTEM</u>			
<u>DEPARTMENT</u>			
	CE		
	SATELLITE COMM	CE01	
	LINE OF SIGHT COMMS	CE02	
	RADAR	CE03	
	2-M	CSE3	
	TEST EQUIPT ELEC CAL	CE04	
	CSI		
	INTERIOR COMM	CSI1	
	CR		
	RADIO	CR01	
	CI		
	LAN AND LAN HARDWARE	CI01	
<u>DECK DEPARTMENT</u>			
	DA		
	ANCHOR/MOORING STA	DA01	
	SPONSON/BOATS	DA02	
	DB		
	MAIN DECK	DB01	
<u>ENGINEERING</u>			
<u>DEPARTMENT</u>			
	EA		
	AUXILIARY	EA01	
	ENGINE/BOAT SHOP	EA02	
	AC&R	EA05	
	EE		
	ELECTRICAL SHOP	EE01	
	ELEC TOOL ISSUE/SAF	EE02	
	EM		
	ENGINE ROOM	EM01	
	FIRE ROOM	EM02	
	EABC LAB	EM03	
	OIL LAB	EM04	
	GAGE CAL	EM05	
	ER		
	HULL REPAIR	ER01	
	MACHINE SHOP	ER03	
	DAMAGE CONTROL REP	ER04	
	DCPO	ER09	
<u>EXECUTIVE</u>			
<u>DEPARTMENT</u>			
	EX		
	ADMIN	EX01	
	3MC	EX03	MDS ONLY
	OFF SHIP SERVICES	ES01	MDS ONLY
	MAA/LNS	EX04	

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
	VI MCS	VI01	
<u>CHAPLAIN DEPARTMENT</u>	CH CHAP	CHA1	IF CHAPLAIN ASSIGNED
<u>MEDICAL DEPARTMENT</u>	MH MEDICAL	MH01	
<u>DENTAL DEPARTMENT</u>	MD DENTAL	MD01	IF DENTIST IS ASSIGNED
<u>OPERATION DEPARTMENT</u>	OI CIC	OI01	
	ELECTRONIC WARFARE	OI03	
	ON NAVIGATION	ON01	
	OW GUNNERY MAINTENANCE	OW01	
	SHIPS ARMORY	OW03	
	CIWS	OW04	
<u>SUPPLY DEPARTMENT</u>	S1 STOCK CONTROL/POSTAL	SS01	
	HAZ/ENV	HE01	
	S2 FOOD SERVICE	SS02	
	S3 SHIPS SERVICE	SS03	
	S5 WARD ROOM	SS05	
	FLAG MES	FS05	
	STOK STOCK	STK	

APPENDIX C4I

STANDARD WORK CENTER CODES FOR LPD 17 CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>AIR DEPARTMENT</u>			
	V		
	FLIGHT DECK (ABH)	V101	ALL
	AVIATION FUELS	V401	ALL
	GROUND SUPPORT EQUIP	VM04	ALL
<u>CHAPLAIN DEPARTMENT</u>			
	CH		
	CHAP	CH01	ALL
<u>COMBAT CARGO DEPARTMENT</u>			
	CD		
	CCD	CCD1	MDS ONLY
<u>COMBAT SYSTEMS DEPARTMENT</u>			
	CC		
	RADIO	CC01	ALL
	LAN/ADP	CC02	ALL
	CE		
	TEST EQUIPT ELEC CAL	CE04	ALL
	RADAR REPAIR/NAV COMMUNICATION REPAIR	CSE1	ALL
		CSE2	ALL
	2-M REPAIR/STO	CSE3	ALL
	COMPUTER REPAIR	CSE4	ALL
	CM		
	ACDS/SSDS	CM01	ALL
	RADARS	CM02	ALL
	MISSILES (RAM, TAS)	CM04	ALL
	CG		
	GWS	CG02	ALL
	ARMORY/FORCE PROTECTION	CG03	ALL
	CARGO/AVIATION MAGZN	CG04	ALL
	IC SHOP	CSE5	ALL
	INTERIOR COMM	CSE6	AS REQUIRED
	CCTV	CSE7	ALL
<u>DECK DEPARTMENT</u>			
	DA		
	FIRST BOATS	DA01	ALL
		DA02	AS REQUIRED
		DA03	AS REQUIRED
	DB		
	SECOND	DB01	ALL
		DB02	AS REQUIRED

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>ENGINEERING DEPARTMENT</u>		DB03	AS REQUIRED
	EA		
	AUXILIARY	EA01	ALL
	ENGINE SHOP	EA02	AS REQUIRED
	HYDRAULICS	EA04	ALL
	AC&R	EA05	ALL
	EE		
	ELEC TOOL ISSUE/SAF	EE01	ALL
	ELECTRICAL SHOP	EE02	ALL
	POWER AND REWIND	EE03	AS REQUIRED
	ENGINEERING CONTROL SYSTEMS	EE07	AS MANNING RECEIVED CREATE WC
	EM		
	MAIN MACHINERY RM 1	EM01	ALL
	MAIN MACHINERY RM 2	EM02	ALL
	AUX MACHINERY RM 1	EM03	ALL
	AUX MACHINERY RM 2	EM04	ALL
	AUX MACHINERY RM 3	EM05	ALL
	OIL LAB	EB14	ALL
	GAGE CAL	FCA1	ALL
	ER		
	HULL REPAIR	ER01	ALL
	MACHINERY REPAIR	ER03	ALL
	DAMAGE CONTROL REP	ER04	ALL
	DCPO	ER09	ALL
<u>EXECUTIVE DEPARTMENT</u>			
	EX		
	ADMIN	EX01	ALL
	3MC	EX03	ALL MDS ONLY
	MAA	EX04	ALL
	TRAINING	ET01	ALL MDS ONLY
	OFF SHIP SERVICES	ES01	All Contains All X- Services XRICS
<u>HEALTH SERVICES DEPARTMENT</u>			
	HM		
	MEDICAL	HM01	ALL
	HD		
	DENTAL	HD01	ALL
<u>OPERATIONS DEPARTMENT</u>			
	OI		
	CIC	OI01	ALL
	ON		

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
	NAVIGATION	ON01	ALL
	OT		
	ELECTRONIC WARFARE	OT01	ALL
	CRYPTO WARFR (PCMS)	OT02	ALL
<u>SUPPLY DEPARTMENT</u>			
	S1		
	STOCK CONTROL	SS01	ALL
	HAZ/ENV	HE01	
	AVIATION STORE	SS06	AS REQUIRED
	S2		
	FOOD SERVICE	SS02	ALL
	WARD ROOM	SS05	AS REQUIRED
	S3		
	SHIP SERVICES	SS03	ALL

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APPENDIX C₄J

STANDARD WORK CENTER CODES FOR DDG-1000 CLASS SHIPS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
<u>COMBAT SYSTEMS</u>			
	CF (STO)		
	SPY/FCS/ORTS/DISPLAY	CF01	
	CE (EMO)		
	INTERIOR COMMS	CE01	NEED IC RATED
	RADAR/NAV	CE03	
	COM ELECTRONICS	CSE1	
	RADIO	CC01	
	LAN/ADP	CC02	
	CA (ASWO)		
	MAIN SONAR	CA01	
	CG (WEPS)		
	GUNS	CG01	
	GWS	CG02	
	ARMORY/TORPEDO/FORCE	CG03	
	PR		
	VLS	CM02	
<u>ENGINEERING DEPT</u>			
	EA (AUXO)		
	AUXILIARY	EA01	
	RAST	EA04	
	EM (MPA)		
	MECHANICAL (GSM)	EM01	
	MACHINERY CONTROL	EM04	
	SYS		
	OIL LAB	EB14	
	FLEET CAL ACTIVITY	FCA1	
	ELEC TOOL ISSUE/SAF	EE01	
	ELECTRICAL SHOP	EE02	
	ER (DCA)		
	HULL REPAIR	ER01	
	DAMAGE CONTROL	ER04	
	DCAO	ER09	
<u>EXECUTIVE DEPT</u>			
	EXEC (XO)		
	ADMIN	EX01	
	OFF SHIP SERVICES	ES01	ALL MDS ONLY
	MAA	EX04	
	MEDICAL	HM01	
<u>OPERATIONS DEPT</u>			
	OD (1ST LT)		
	DECK	OD01	
	NAVIGATION	ON01	
	OT (IOW)		
	ELECTRONIC WARFARE	OT01	
	CRYPTO LOGIC WARFARE	OT02	REQUIRED FOR PCMS

<u>DEPARTMENT</u>	<u>DIVISION W/C</u>	<u>SHIP CODE</u>	<u>CLASS</u>
	OI (CICO) CIC	OI01	
<u>SUPPLY DEPT</u>	S-1 (LSC) GENERAL STORES HAZ/ENV	SS01 HE01	
	S-2 (LSC) FOOD SERVICE	SS02	
	S-3 (LSC) SHIP SERVICES	SS03	

APPENDIX C₄K

STANDARD WORK CENTER CODES FOR NBU-7 COMMAND

<u>DEPARTMENT</u>	<u>DIVISION</u>	<u>WORK CENTER</u>	<u>NOTES</u>	
<u>EXECUTIVE (EX)</u>		EX03	3MC	
		EX04	SECURITY FORCE SPECIALIST	
	ADMIN (AX)	ES01	OFF UNIT SERVICES	
		AX01	UNIT OFFICE	
		AX02	OFFICER SUPPORT	
		AX03	CAREER COUNSELOR	
	HEALTH SERVICES (HS)	MH01	MEDICAL	
	INFORMATION SYSTEMS (IS)	IS01	RADIO	
		IS02	ADP	
	<u>QUALITY ASSURANCE/ MAINTENANCE MANAGEMENT (MA)</u>	QUALITY ASSURANCE (QA)	Q93B	QAO/UNIT MAINTENANCE MATERIAL OFFICER (UMMO)
		Q10S	SAFETY	
		Q10C	PLANNING & ESTIMATING	
		Q10E	TECH LIBRARY	
		Q06B	TOOL ROOM	
<u>MAINTENANCE (MD)</u>	POWER PLANT (PP)	P31T	TURBINE SHOP	
		P31F	HYDRAULIC SHOP	
		P38A	PROP & LIFTFAN SHOP	
		P31D	DIESEL SHOP	
	STRUCTURAL (SS)	S26A	WELD SHOP	
		S93A	NDT	
		S64A	AIRFRAMES	
		S31A	MACHINE SHOP	
		S56B	A/C & R SHOP	
		S71B	CORROSION CONTROL SHOP	
		S09D	DAMAGE CONTROL SHOP	
	ELECTRICAL/ ELECTRONICS (EE)	E67B	ELECTRONIC TOOL ISSUE/CAL	
		E51B	GSE SHOP	
		E67A	ELECTRONIC REPAIR SHOP	
		E67M	2M/MTR	
	ROLLING STOCK	RS01	LARC\LARC-V	
		RS02	VEHICLES	
	<u>SUPPLY (SU)</u>	S1	SS01	SUPPLY SUPPORT
		HAZMAT (HZ)	HZ01	HAZMAT ISSUE/RECEIPT
S2		SS02	FOOD SERVICES	
FUELS (FU)		FU01	FUEL SERVICES	

<u>DEPARTMENT</u>	<u>DIVISION</u>	<u>WORK CENTER</u>	<u>NOTES</u>
<u>QUALITY ASSURANCE/ MAINTENANCE MANAGEMENT (MA)</u>	QUALITY ASSURANCE (QA)	Q93B	QAO/UNIT MAINTENANCE MATERIAL OFFICER (UMMO)
		Q10S	SAFETY
		Q10C	PLANNING & ESTIMATING
<u>OPERATIONS</u>	WEAPONS (WE)	WG01	ARMORY
	CRAFT CONTROL (CC)	CC01	CRAFT CONTROL (OS RATING)
	LCU (CU)	CU33	LCU 1633
		CU34	LCU 1634
		CU51	LCU 1651
		CU46	LCU 1646
		CU66	LCU 1666
	LCAC (LC)	LC08	LCAC 08
		LC09	LCAC 09
		LC10	LCAC 10
LC21		LCAC 21	
LC 29		LCAC 29	
LC30		LCAC 30	
LC47	LCAC 47		
<u>STOCK REPLENISHMENT (SR)</u>	REGULAR STOCK		
	DLR STOCK REPLENISHMENT		

- (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 equipment includes ship's propeller, Ship's Service Turbine Generators, towed arrays, towed buoys, Integrated Radio Room cabinets, etc. Like TRIPER, MSS equipment is managed by NAVSEA (PMS 392). Configuration tracking is under the cognizance of the applicable Participating Manager and is identified in the TRIDENT MSS Catalog published by NAVSEA (PMS 392). Equipment under the cognizance of the Strategic System Project Office and Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) is not included in the TRIPER or MSS programs.

22.2.4 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

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TOPSIDE SURVEY

Reference: (a) MIP SO-591/901 MRC BNJ6 (R-1)

1. **Responsibility.** Noise Reduction Officer.
2. **Procedure.** The First Lieutenant shall ensure that the following items are accomplished in accordance with reference (a):
 - a. Open and inspect all line lockers and free flood areas for loose gear and other sources of noise, such as loose zincs, rattling pipes, loose grates, etc.
 - b. Check all deck hatches to ensure they shut properly and will not rattle.
 - c. Check that all towed array fairing plates are properly secured (if applicable).
 - d. Check all cleats for proper operation and ensure that they do not rattle when stowed.
 - e. Check stowage of all portable equipment topside to ensure that proper gasket material is installed, all bolts and wing nuts are present, and equipment is securely held in place when mounted.
 - f. When required, inspect sail area for loose gear and sources of rattles. Particular attention should be given to the mast bearings and operating equipment to ensure that masts will not be damaged or fouled. Before reinstalling sail plates, the sail should be inspected by the Noise Reduction Officer.
3. **Frequency.** A complete Topside Survey, including the sail, shall be conducted after any major upkeep or inport period, or whenever major topside work is completed. A sail closeout inspection shall be conducted by an officer prior to the reinstallation of any sail plate removed. Surveys should be completed as far in advance of underway as possible. Other inspections shall be conducted as directed by the First Lieutenant.
4. **Reports.** A written report in memorandum form shall be submitted to the Commanding Officer at the completion of each inspection. This report shall include, as a minimum, the date the inspection was made, names of personnel conducting the inspection and uncorrected discrepancies noted in the ESL. Reports shall be routed via the Noise Reduction Officer, with copies to cognizant Department Heads.
5. **Review.** A written report in memorandum form will be submitted for each inspection and will include, as a minimum, the date of the inspection, names of personnel conducting the inspection and the discrepancies noted in the Equipment Status Log. This report shall be reviewed by the First Lieutenant and retained by the Noise Reduction Officer until all discrepancies are corrected.

Enclosure (2c)

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VOLUME VI

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) 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 **establishing plant conditions, authorizing shipboard work**, monitoring **work in process**, interference removal, delivery of ship to shop items, retesting and accepting work. Ship's Force Work Center (WC) will not be assigned as Lead Work Center (LWC) for I-Level PMR work but may be assigned as an assist WC.

24.2 TYPE COMMANDER SCHEDULING SYSTEM. PMR program management has been assigned to Submarine Maintenance Engineering, Planning and Procurement Activity (SUBMEPP) who develops CMPs, Maintenance Requirement Cards (MRC), Maintenance Repair Standards (MRCs, Technical Repair Standards (TRS) and 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 are distributed automatically by SUBMEPP to the parent ISIC every three (3) months. Appendix D of this chapter provides a flow chart of the Submarine PMR Management System. In addition, scheduling/configuration files (M79E11) and Master Job Catalog (MJC) update files are distributed to those activities using Micro-PMR for PMR/URO calldown.

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 Maintenance and Shipwork Planning (M&SWP)/local scheduling system, and brokered by the ISIC. PMRs should be screened to the FMA with a Priority Level of 2.

24.2.4 Calculating Adjusted Last Maintenance Action Date.

- a. Fleet Availabilities. When a PMR is accomplished during a Fleet availability (Fleet Maintenance Activity (FMA)/Refit, Continuous Maintenance Availability, 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. When PMRs cannot be accomplished by their scheduled due date, they will appear overdue on the PMR Status web page. For overdue PMRs, the SUBMEPP representative assigned to each ISIC shall identify on the web page the reasons the PMR could not be accomplished. The purpose of the web page is to provide increased visibility of overdue PMRs to aid the ISIC in their PMR Management responsibilities.

24.4 MATERIAL SUPPORT FOR FLEET MAINTENANCE ACTIVITY ACCOMPLISHED PERIODIC MAINTENANCE REQUIREMENTS.

24.4.1 Mandatory Parts. Parent FMAs requisition mandatory parts as specified on TRS/MRC/MS documentation for PMRs that are scheduled to be accomplished by that FMA. Material requisitioning is accomplished by the FMA using standard supply procedures. Material is not normally stocked by the FMA and is requisitioned from the nearest stocking point.

24.4.2 Contingency Parts. Contingency parts will not be procured in advance for PMR requirements and will be ordered only upon determination that a contingency part is required based on observed equipment condition. Parent FMAs may have some high usage contingency material available in stock, as identified by the Tender Load List supplements, (**not applicable to SSBN/SSGN 726 Class submarines**) however, low usage contingency material is stocked only at designated stock points or not at all.

24.4.3 Requisitioning Procedures. Submarine Engineered Operating Cycle (SEOC) PMR material requisitions shall be submitted through normal channels and shall use a Project Code of "732". Appendix 6 of Reference (b) refers. Contingency material requisitions shall be forwarded by message or telephone, and shall include appropriate "work stoppage" indicator/codes. Forward Contingency Material requisitions directly to, Fleet Industrial Support Center San Diego, Pearl Harbor or Submarine Base New London by message or telephone as appropriate; use the phrase "SEOC Requisition" as the subject line on message requisitions.

24.4.4 Material Support Provided by the Advance Equipment Repair Program. Shore based spares are available for replacing some critical equipment, such as seawater system pumps and motors, during CNO Maintenance Availabilities. The Advanced Equipment Repair Program (AERP) is managed by SUBMEPP under the direction of Naval Sea Systems Command (NAVSEA) and both TYCOMs. AERP equipment scheduled for change-out will be specifically authorized in the ship's Availability Work Package (AWP). Although originally intended to support CNO Availabilities, AERP assets, when available, are used to support Casualty Reports (CASREP). In these instances, a CASREP requisition must be submitted to Naval Inventory Control Point and the shipment of equipment is monitored and tracked until the condition "F" off-load has been returned to the refurbishment activity/vendor identified by Naval Inventory Control Point. The expedited return of an AERP off-load is essential to ensure adequate restoration turnaround time is afforded and to minimize AERP impact.

24.4.5 Material Support Provided by the TRIDENT Planned Equipment Replacement Program.

- a. TRIDENT Planned Equipment Replacement (TRIPER) is a rotatable pool program for SSBN/SSGN 726 Class submarines. TRIPER equipment **is** removed from the ship via pre-planned access routes and six-foot diameter Logistics and Escape Trunks, using specifically designed handling attachments and procedures. Removed equipment **is** replaced with fully interchangeable, tested, ready for issue units which can be rapidly installed and made fully operational within a refit period. Equipment replacement periodicity is determined by maintenance and reliability analysis and engineering judgments intended to preclude equipment failure or significant degradation during operational periods. Removed equipment **is** refurbished by approved Designated Overhaul Points, tested and returned to ready for issue condition for use on another SSBN/SSGN 726 Class submarine.
- b. Safety spares are made available for CASREPs which are considered as unplanned change outs. The TRIPER Program rotatable pool is managed by NAVSEA (PMS 392) and supported by various agencies and activities. Hull, Mechanical, Electrical, Ordnance and Electronics and Command and Control System equipment comprise the TRIPER inventory pool. Items under the cognizance of the Director, Strategic Systems Project Office and the Deputy Commander, NAVSEA Nuclear Power Directorate are excluded.

24.5 CORRECTIVE MAINTENANCE OF EQUIPMENT USING PERIODIC MAINTENANCE REQUIREMENTS.

Scheduled restoration of equipment by the FMA or industrial activity is done in accordance with specified Maintenance Standards (MRC, MS, TRS, Technical Manual, etc.). Whenever corrective maintenance is required on Hull, Mechanical and Electrical equipment, the SUBMEPP combined I and D-Level PMR inventory shall be reviewed by the ISIC and FMA. The ISIC and FMA will determine whether to limit repairs to those described by the ship or to have the Maintenance Standard accomplished. If the corrective maintenance is to include the criteria of the MRC, MS or TRS, the work request shall be processed in accordance with paragraph 24.7.3 and 24.7.4 of this chapter.

NOTE: IN ORDER TO RECEIVE ACCOMPLISHMENT CREDIT, THE ISIC SHALL ENSURE PROMPT COMPLETION REPORTING OF THE PMR AS DESCRIBED ABOVE. THIS WILL ENSURE THE CORRECT SCHEDULING OF PMRs FOR FUTURE ACCOMPLISHMENT.

NOTE: EQUIPMENT IS CONSIDERED TO HAVE BEEN RESTORED IN ACCORDANCE WITH PMR CRITERIA WHEN THE FOLLOWING SOFTWARE (MRC, MS, TRS) REQUIREMENTS HAVE BEEN SATISFIED.

- (1) THE EQUIPMENT IS RESTORED TO PLAN SPECIFICATIONS.**
- (2) THE COMPONENTS SATISFACTORILY PASS THE TEST REQUIREMENTS WITHIN THE MRC/MS/TRS.**
- (3) ALL MATERIAL LISTED ON THE MRC/MS/TRS AS MANDATORY HAS BEEN REPLACED.**
- (4) COMPONENTS AND EQUIPMENT ARE REPLACED WITH SUPPLY SYSTEM, AERP, OR TRIPER ASSETS.**

24.6 PERIODIC MAINTENANCE REQUIREMENTS ACCOMPLISHMENT DURING CHIEF OF NAVAL OPERATIONS MAINTENANCE AVAILABILITIES. PMRs to be accomplished by the industrial activity will be included in the SUBMEPP PMR Inventories and Schedules.

a. For SSN 688, SSN 774 and SSN 21 Class submarines:

- (1) The AWP prepared by SUBMEPP will reflect all PMRs authorized for shipyard accomplishment during the CNO Availability period at the AWP Ship Work List Item Number (SWLIN) level. The Work Package Supplement (WPS) accompanying the AWP will identify a specific PMR to the applicable AWP SWLIN paragraph. Appendix E of this chapter provides an example of the WPS format. In addition, the DMP and overhaul AWP's will contain an I-Level PMR work package cross-index. This cross-index will enable maintenance planners to readily determine the I-Level PMRs accomplished incidental to accomplishing higher D-Level PMRs or other industrial activity authorized work. The cross-index will also identify I-Level PMRs which will become overdue by availability completion plus six months. These I-Level PMRs should only be listed in the cross index as a reference and not listed in the body of the AWP. Appendix F of this chapter provides an example of the cross-index format. This ISIC will report any I-Level PMRs from the cross-index that will not be completed prior to the arrival conference for adjudication.
- (2) Upon receipt of Issue Two of a 6 month or greater scheduled CNO availability AWP the ISIC will review the AWP against the schedules and inventories and add those PMRs not covered by the Work Package (WP) coming due within 6 months after availability completion that aren't assigned to shipyard to a fleet maintenance availability prior to the CNO period, to a concurrent availability, or to a future availability with TYCOM concurrence.
- (3) For I-Level PMRs assigned to the depot, or I-Level PMRs covered by higher level maintenance assigned to the depot, the ISIC will enter "Assigned to <depot name> by AWP <AWP number>" in the Remarks/Completion block of the PMR Schedule/Inventory, Part 2 Section III and in the local scheduling system.
- (4) Completions and MCA data for PMRs accomplished by the industrial activity during CNO Availabilities will be retrieved from the appropriate maintenance database. The WPS, or comparable report, annotated by SUBMEPP to show PMR completions and material condition feedback categories, will be retained by SUBMEPP upon completion of the availability. The PMR Schedule/Inventory and local scheduling system will be updated by SUBMEPP.

b. For SSBN/SSGN 726 Class submarines:

- h. Ensure that all I-Level PMRs, which will become due during a scheduled CNO Availability (but not authorized for industrial activity accomplishment), are scheduled for accomplishment by the FMA prior to the end of the availability. The PMRs may be assigned to an FMA concurrent availability with an end date the same as the CNO availability. This will allow for a more appropriate Adjusted LMA Date.
- (1) Any I-Level PMR that is overdue by the availability start date minus 6 months and is identified in the AWP/WPS by SUBMEPP to be accomplished by the industrial activity does not have to be done prior to the availability start. This includes I-Level PMRs for which the higher tier D-Level PMR is authorized in the AWP/WPs.
 - (2) Notify the TYCOM representative at the Pre-Arrival Conference of any I-Level PMRs that will either not be accomplished prior to the availability start date or will become due during the availability.
 - (3) Any PMR accomplished within ten months prior to start of a major CNO Availability that becomes due again during the availability, will have their scheduled due date adjusted by SUBMEPP by the number of months of the availability duration.
- i. Review completed AWRs or electronic certified Task Group Instructions prior to close-out of PMRs to resolve any discrepancies.
- j. Transferring Periodic Maintenance Requirements to other Fleet Maintenance Activities for Accomplishment. When submarine availabilities are accomplished by other than the parent FMA (whether another FMA in the same geographic area or due to deployment), the parent ISIC will take the following action:
- (1) Coordinate with the parent FMA to select only those PMRs for accomplishment for which all plans and materials will be available and ready for shipment prior to the availability or deployment of the submarine.
 - (2) Dispatch a message to the submarine, the recipient squadron and FMA identifying by JCN the PMRs to be accomplished, confirming that plans and materials are being shipped or will be carried by the deploying submarine and that the submarine's total CSMP tape will be either retained by the parent ISIC or transferred to the recipient squadron/Regional Support Group/Regional Maintenance Center as mutually agreed prior to the availability or deployment.
 - (a) If the CSMP is retained by the parent ISIC, an AWP tape (MM6031) will be provided to the recipient FMA which will maintain it as I-Level (only AWR completions for the tended submarine accomplished by the FMA will be passed upline). The submarine will forward all 3-M transactions to the parent ISIC.
 - (b) If the total CSMP is transferred, the recipient FMA will maintain it as level II (the submarine will pass all 3-M transactions to the availability FMA). In addition, the PMR configuration and scheduling file will be transferred to the recipient FMA for URO/PMR/Calibration scheduling purposes.
 - (c) When the submarine departs from the tending FMA, the CSMP and PMR data files will be updated and returned to the parent ISIC with the letter of transfer. FMAs receiving only the work package tape will create a CSMP transfer out tape and transmittal letter for return to the parent ISIC. The parent ISIC Maintenance Document Control Officer (MDCO) will reconcile the master CSMP with the returning submarine's 3-M coordinator.
 - (3) Ensure that the FMA properly packages by JCN all materials, plans, drawings, etc., for dispatch to the receiving FMA or for custodial turnover to the submarine's Engineer Officer for delivery to the deployed FMA.
 - (4) Ensure MDCO/Analysis, Records and Reports Section (ARRS) takes coordinated action to provide a correct CSMP tape and letter of transmittal. The parent ISIC MDCO must retain copies of transfer-out and in letters for MJC Job Sequence Number control.

NOTE: ONCE A DEFERRAL HAS INITIALLY BEEN ENTERED IN THE COMPUTER AT THE ORIGINATING FMA, IT IS AUTOMATICALLY PASSED TO THE TYCOM MASTER CSMP. SUBSEQUENT TAPE TRANSFERS BETWEEN FMAs WILL NOT CAUSE THE DEFERRAL TO PASS AGAIN TO THE TYCOM PROVIDING THAT MDCO INPUTS THE TRANSFER TAPE (MM6031) TO MAINTENANCE RESOURCE MANAGEMENT SYSTEM (MRMS) PROGRAM 173 NOT 174.

- k. Non-Scheduled Repairs of PMR components. The ISIC must add to the ship's CSMP those PMRs to be accomplished in conjunction with a repair action, in lieu of a repair action, or to be credited subsequent to a repair or replacement action. One of the following actions must be taken by the ISIC and MDCO:
 - (1) When a ship's submitted deferral references a PMR for concurrent accomplishment with the repair action, or if ISIC or FMA planners recommend a PMR, the ISIC must make the decision whether or not to invoke the PMR in conjunction with or in lieu of the requested repair. This will result in two AWRs being created. The planner will have work accomplished under one JCN (EA01) and use the second JCN (EAJC) for administrative completion crediting of the PMR.
 - (2) If the repair job has resulted in replacement of the PMR component or if the maintenance standard requirements were completely accomplished prior to retrieving the PMR from the MJC, calldown the item from the local scheduling system. The ISIC should instruct FMA to report its completion including the added narrative to identify the originally assigned ship's JCN. Though the materials used cannot be re-identified to the PMR JCN, it is recommended that the total man hours expended also be reported on the PMR AWR or subsequent analysis of required PMR support.
- l. Training. The parent ISIC is responsible to provide assigned ship's training in the TYCOM PMR Scheduling System. Such training should include an overview of the SEOC Program, PMR scheduling products, MS Library and PMR program accomplishment and reporting systems. Emphasis should be placed on the ship's responsibilities to the PMR program as identified in paragraph 24.7.5 of this chapter.

24.7.4 Fleet Maintenance Activity.

- a. The FMA is responsible for accomplishing all PMR work as scheduled to the required repair standards.
- b. Commence the planning and material procurement function when the PMR is called down by the ISIC from the local scheduling system and brokered to the FMA.
- c. Progress the job, ensuring that the LWC coordinates with ship superintendent and all Assist WCs and that production time and current status is reflected in the local scheduling system.
- d. Complete the job, report its accomplishment and as found material condition feedback code on the AWR. Any significant findings should also be documented on the AWR. **The LWC then completes the AWR by filling in action taken codes, signing for completion and then obtains acceptance signature from Ship's Force. The AWR is then returned to ARRS. The ARRS will verify that all participating WCs have documented completion of their assigned tasks and then pass the AWR to the ISIC for review and updating of SUBMEPP inventories and schedules prior to close-out of the AWR by ARRS.** The material condition feedback codes are described in Appendix B of reference (a) as part of the action taken code, and are as follows:

NOTE: THE BELOW MATERIAL CONDITION FEEDBACK CODES SHALL DESCRIBE THE "AS FOUND" CONDITION OF THE COMPONENTS AND NOT THE AFTER REFURBISHED CONDITION OF THE COMPONENTS.

- (1) Code "A" means the material condition of the component being refurbished could have allowed the PMR to be deferred (extend the periodicity).
- (2) Code "B" means the material condition of the component being refurbished justified the scheduled PMR.

- (3) Code “C” means the material condition of the component being refurbished should have mandated an earlier completion of the PMR (shorten the periodicity).

NOTE: VARIATIONS TO THESE CODES MAY BE DESCRIBED IN INDIVIDUAL PMR MJC NARRATIVES.

- e. ARRS will verify that all participating WCs have documented completion of assigned tasks, Ship’s Force acceptance signature is on AWR and the final action taken code (2 characters) is entered. Prior to close-out of the AWR, ARRS will pass the AWR to the ISIC for review. For MRMS FMA sites, it is essential that ARRS verify that the MRMS Availability file has the proper scheduled completion date and code to identify that it is a scheduled availability. This is done by showing a “Y” in answer to “Is this a CNO Availability” on the appropriate screen.
- f. Adjustments of scheduled start and completion dates of the PMR and factual reporting of status codes.
- g. Review corrective action request submitted by Ship’s Force via an OPNAV 4790/2K to determine if the corrective action is to include the criteria of MRC, MS or TRS requirements.
- h. If the PMR maintenance procedure has a material condition feedback form, fill out the form and submit in accordance with the reporting requirements defined in the procedure.
- i. Report to the ISIC when PMRs are met in accordance with paragraph 24.5 of this chapter, due to the expansion of work boundaries.
- j. At the conclusion of an availability (not later than the Departure and Assessment Conference), in which I-Level PMRs were screened for FMA accomplishment, provide to the ISIC, verbally or by memo, the reason that any PMRs could not be accomplished (e.g., parts, manpower not available) as scheduled.

24.7.5 Submarine Commanding Officer.

- a. The ship’s Commanding Officer is responsible for the execution of PMR work on the ship.
- b. All discovered maintenance deficiencies which affect the equipment and systems covered by the PMR program should be documented to reflect the possible PMR with which the deficiency is associated. This will provide the ISIC with the alternative of simultaneously imposing repairs to the criteria of the specified Maintenance Standard and credit PMR accomplishment.
- c. All maintenance deficiencies will reflect in Block 46 (TYCOM SPECIAL PURPOSE), of the OPNAV 4790/2K whether or not quality control and Quality Assurance standards are required.
- d. Review Depot Availability Work Packages and provide comments to the TYCOM and SUBMEPP representatives during the work package review.
- e. Review the status of PMR maintenance in the SUBMEPP Quarterly PMR inventories and schedules and CSMP reports with parent ISICs prior to upkeep periods in order to assist in planning for accomplishment of required PMR maintenance.
- f. All maintenance deficiencies which affect the equipment and systems covered by the PMR program should be documented to reflect the possible PMR with which the deficiency is associated. Review ship's submitted deferrals of corrective maintenance for FMA accomplishment against the PMR inventory and record any applicable Maintenance Standard numbers on the OPNAV 4790/2K. If a component or piece of equipment is listed in the inventory but a Maintenance Standard number is not identified, annotate the OPNAV 4790/2K with “PMR applies”.
- g. Ensure that the current SUBMEPP Quarterly PMR Inventories and Schedules CD, MRCs, Maintenance Requirements and TRSs applicable to the ship class are carried on board.
- h. Ensure that MRCs, MSs and TRSs, which provide detailed information and repair guidance are referenced and used during equipment maintenance. Additionally, SUBMEPP PMR inventories provide useful guidance in preparing maintenance documents and planning work (i.e., component identification, Equipment Identification Codes, Allowance Parts Lists, Maintenance Standards, etc.).

- i. If Ship's Force accomplishes a repair of a PMR component to an MRC, MS or TRS, report same to the ISIC Material Officer so that the SUBMEPP Inventory and Schedules may be updated and follow-up reporting action may be initiated.
- j. Ensure all completed AWRs for PMRs are signed as accepted by Ship's Force.
- k. At the conclusion of an availability (not later than the Departure and Assessment Conference), in which I-Level PMRs were screened for FMA accomplishment, provide to the ISIC, verbally or by memo, the reason that any PMRs could not be accomplished (e.g., parts, manpower not available) as scheduled.

- j. Monitor the timely submission of URO MRC data report forms and the report of accomplishment for URO MRCs completed by the FMA and Ship's Force to ensure required documentation is submitted in accordance with paragraph 25.2.7 of this chapter. Ensure data report forms are submitted to report component replacement/repair/operation out of specification. Review all Ship's Force accomplished URO MRC data for compliance with the requirements of the URO MRC Program prior to submittal to SUBMEPP.
- k. Prior to a ship's underway period, review the ship's certification continuity report, if submitted, to ensure the ISIC and ship's records (including the CSMP) accurately reflect URO MRC status.
- l. The Parent ISIC of deploying ships will:
 - (1) Ensure that any URO MRC due for accomplishment by the ship during its deployment period is identified in the CSMP transfer file and that the ship possesses the AWRs and URO MRC data report forms (if applicable) for reporting job completion.
 - (2) Provide a message to the applicable deployed FMA/Squadron identifying any URO MRC expected to be accomplished by the deployed FMA and the status of required materials for each submarine deploying to cover the period of the deployment.
- m. Deployed Squadrons will review the URO MRC status of deployed submarines upon in-chop. Perform the function of the Parent ISIC in ensuring all URO MRCs are accomplished and reported within the required periodicity while the submarine is deployed.

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

- n. Prior to the start of a CNO availability, ISIC URO coordinators will:
 - (1) Assign JCNs to URO MRC items assigned to Forces Afloat in the AWP and screen them to an availability prior to the start of the CNO availability or to the concurrent availability in accordance with the directions in the AWP. Forces Afloat items are accomplished by Ship's Force or Performance Monitoring Team. Care must be taken to appropriately assign URO MRC items to the correct accomplishing activity.
 - (2) ISIC URO coordinators will not assign JCNs to URO MRC items assigned to the shipyard in the AWP. In the URO MRC inventories and schedules, in the remarks/completion information area, enter "assigned to (name of shipyard) by AWP (name and number of availability)". The shipyard is responsible for performing, auditing and reporting all URO MRC items assigned by the AWP.
 - (3) URO MRCs assigned to Forces Afloat by the AWP for accomplishment prior to the start of the depot period, but for some reason were not completed, will be reassigned to a concurrent availability or formally reassigned to the shipyard via a supplemental work request.
- o. During a CNO availability, URO MRCs assigned to the shipyard by the AWP which are not accomplished during the depot period will be placed on the guarantee list or reassigned to a fleet availability by the TYCOM following the depot period provided the URO MRC does not exceed its due date. The ISIC will be notified of this reassignment by formal correspondence which will include justification and reason why the scheduled and planned requirements were not met.
- p. Prior to CNO availability completion, ISICs will audit URO MRCs assigned to Forces Afloat by the AWP and ensure all have been satisfactorily completed and documented within the required periodicity. The ISIC audit will also verify that all URO MRC items coming due within six months of availability completion are complete or assigned to a follow-on fleet availability. Under no circumstances are URO MRC due dates to be exceeded. ISIC Quality Assurance Officers will not be responsible for auditing URO MRCs assigned to the depot in the AWP.
- q. Following CNO availability completion, the ISIC URO coordinator will ensure that all URO MRCs assigned to the shipyard were reported and subsequently updated by SUBMEPP. ISICs will only upline the closed JCNs for URO MRCs completed by Forces Afloat.

25.3.4 Submarine Commanding Officer.

- a. Ensure all URO MRCs are accomplished within the required periodicity as specified by reference (a), Volume V, Part I, Chapter 5 of this manual and this chapter.
- b. For visual inspections in between URO MRC 003 inspections, see Volume V, Part I, Chapter 5, paragraph 5.8.3.d. of this manual for a description of requirements to inspect submarine hull structure in between the periodic URO MRC 003 inspections.
- c. Maintain auditable records of the accomplishment of URO MRCs to permit verification of compliance with reference (a), Volume V, Part I, Chapter 10 of this manual and this chapter. These records shall consist of:
 - (1) A copy of the TYCOM and NAVSEA SUBSAFE Material Certification message from new construction, Depot Modernization Period or overhaul until the ship's current status is reflected in reference (c). When the ship's current status is reflected in reference (c) the messages may be destroyed and the current notice will be retained.
 - (2) Copies of letter of completion for all URO MRC work accomplishment by other activities, including most recent FMA URO Accomplishment Letter. These may be disposed of once accomplishment is captured electronically on ISIC provided SUBMEPP Schedules and Inventories.
 - (3) Copies of letters of completion and inspection reports for work accomplished by Ship's Force. The required report forms are located at the end of the individual URO MRCs. A copy of each completed report shall be submitted to the ISIC for review a minimum of 24 hours prior to underway.
 - (4) One copy each of the current Quarterly URO MRC inventories and schedules as printed from the CD provided by SUBMEPP via the ISIC. Annotate the URO MRC Inventory Report when accepting completed work requests from the FMA or Ship's Force (LWC 991). It is the ship's responsibility for ensuring that the reports reflect the actual configuration, especially with regards to the equipment identity and the Allowance Parts List.
 - (5) Copy of outstanding URO MRC AWRs to be accomplished by Ship's Force.
 - (6) One copy of each approved DFS from the requirements of reference (a), Volume V, Part I, Chapter 8 of this manual and this chapter. This authority is based on the following factors and considerations:
 - (a) The completion of all URO MRCs, or portions thereof, will be reported on AWRs provided by the ISIC in accordance with paragraph 25.2.5.3 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 URO MRC.
 - (b) Deviations from URO MRC 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 URO MRC maintenance actions unless formal NAVSEA approval of such deviations has been granted by an approved DFS or as allowed in paragraph 25.2.4 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 submerged operations if all required URO MRC 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 URO MRC to design test depth are contingent upon the satisfactory completion of these maintenance actions.

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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. When capability and capacity allow, work shall be brokered to the Fleet Maintenance Activity, otherwise, Depot level maintenance will normally be screened to the MSMO contractor. The Maintenance Team may go to other contracting vehicles when:
 - (1) The MSMO contractor and government cannot agree on cost and scope.
 - (2) The MSMO contractor does not have the capability or capacity.
 - (3) Other organic RMC assets are available and have the capability for the work.
 - (4) Work is to be accomplished outside of homeport area.
 - (5) AIT/Indefinite Delivery, Indefinite Quantity has been identified by the Naval Supervisory Authority (NSA) as the preferred provider.
- 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 MSMO contractor work item estimates to independently developed government work item estimates throughout the development of the work package. Completion of package development and submission of the 100% Work Package Proposal is followed by the Technical Cost and Scope analysis, proposal revisions, TAR, establishment of the Prorate, Pre- and Post Business Clearance, and signing of the bi-lateral contract modification (definitization).

31.4.3.1 Concept. Use of the CEIPRP is intended to achieve flow of work items into the work package up to 100% lock while continuously comparing government to contractor estimates to avoid last minute surprises due to estimate differences. This process also allows for flexibility up to the 100% lock in order to develop a package that best addresses the material condition of the ship as it begins the availability. Following the planning activity specification development, the MSMO contractor continuously submits a **Class C** Planning Estimate. Simultaneously, the government Maintenance Team continuously develops the Independent Government Estimate (IGE). These two estimates are then compared and any differences in scope and price (generally those in excess of 10% difference) are resolved. Resolving these differences during work package development also reduces the

amount of time required for the TAR process. Following the 100% package lock, the planning activity completes planning, the MSMO contractor assembles and submits the 100% package proposal. Based on the 100% package proposal, an estimate of prorates is communicated to resource sponsors along with a final funding notification (as early as possible but no later than 14 days prior to the need date) in order to ensure on-time funding. This is followed by accomplishment of the TAR and business clearance processes.

31.4.3.2 Business Rules.

- a. The contractor shall continuously submit Class C estimates for each work item as a bottom line work item cost. The Planning Estimate provides a budget level tracking and establishes a basis for determining cost reasonableness. Paragraph cost estimates will be provided by the MSMO contractor when requested by the government to resolve differences between the contractor's Planning Estimate and the IGE.
- b. The IGE is the government's detailed estimate to the trade and paragraph level. The IGE provides budget level tracking and establishes a basis for determining cost reasonableness allowing the government to validate the Planning Activity Estimate and resolve any differences in scope or cost estimates.
- c. The package will be assessed at the 50% and 80% budget to ensure that work has been brokered to planning activities continuously. These milestones also reinforce timely identification of work by Ship's Force. Following the 50% and 80% milestones, the planning activity will complete planning and estimating for all work brokered to date.
- d. Upon completion of the Planning Activity Estimate, that estimate will be compared to the IGE to gage whether the government and the Planning Activity are estimating a similar scope of work. If the individual work item Class C estimates vary by more than 10% or \$10,000 (whichever is higher), the government Program Manager will establish a scoping conference to discuss/resolve the scope.
- e. The 100% package lock is the official milestone to mark identification of 100% of the work requirements for an availability based on the MMBP budget. All work added to or deleted from the package after the 100% lock will be via an errata, addendum or inducted as new work via the Request for Contractual Change Process.
- f. The Final Funding Notification with Estimates of Prorates will be a formal communication with resource sponsor (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 TAR will include all necessary information to develop a negotiation strategy, pricing recommendation and rationale to support a scope conference, if necessary, and subsequent work package cost definition. It 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 Project Team, Technical Analyst, Administering Contracting Officer (ACO) or Contract Negotiator and contractor. All work items with unsubstantiated differences identified in the TAR are discussed to reach agreement on the scope of work and contractor's proposal. When all differences have been resolved, the conference 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 Project Team will minimize growth and overtime. Prior to definitization, growth items that cannot be settled by the Project Team shall be forwarded to the Technical Analyst to be settled in the TAR process. For Surface Force ships only, the NSA Chief Engineer will review requested growth and new work items for technical compliance.

31.4.3.3 Schedule Modification. Operational commitments, port loading or other reasons may require modification to availability schedules and milestones may need to be adjusted accordingly as discussed in further detail in Volume II, Part II, Chapter 2, paragraph 2.5 of this manual.

31.5 GUIDANCE FOR FIRM FIXED PRICE CONTRACTS.

31.5.1 Overall Process. Unless specifically noted otherwise, the following are common practices in both the MSMO 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.

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PROJECT SPOTLIGHT CHART													
SHIP/HULL	Scheduled CNO Avail Dates (Start/ Compl)	Controls \$M (TYCOM/ Program)	Issue HMP/ LOA incl AITs (Sched / Actual)	Task/Fund SID Developmt (Sched/ Actual)	Issue/ Deliver SIDs to NSA for Contractors and AITs (Sched/ Actual)	Provide Avail Funding for Modern. to RMC (Sched/ Actual)	MSMO 100% D-Lvl maint work pkg 2K's locked (Sched /Actual)	MSMO Contractor Publish pkg in NMD (Sched/ Actual)	MSMO Definitize Work Package (Sched/ Actual)	Actual CNO Avail Dates (Start/ Compl)	Churn Percent (TYCOM / Program)	Growth & New Work \$K (TYCOM/ Program)	Premium Percent (TYCOM/ Program)
			SPM/ NAVSEA/ TYCOM	SPM/NSA/ AIT/TYCOM RMC Mgr	Planning Yard	SYSCOM/ PEO/ TYCOM	MT	MSMO Contractor	RMC				
			A-360	A-330	A-180	A-75	A-75	A-60	A-45				
LEGEND													
	MILESTONE MET ON SCHEDULE												
	MILESTONE 1-7 DAYS LATE												
	MILESTONE >7 DAYS LATE												
	NEXT MILESTONE WILL BE MET												
	MODERATE RISK FOR NEXT MILESTONE												
	HIGH RISK FOR NEXT MILESTONE												

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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 force ships, the TYCOM will provide 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 TYCOM for review and approval.

33.4.6 TYCOM Approves MMBPs (July).

- a. The TYCOM approves MMBPs and promulgates final approved CNO availability and CM controls.
- b. The TYCOM/RMC 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.
- 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 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 the TYCOM 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), Command, Control, Communications, Computers and Combat Systems Readiness Assessment (C5RA), Board of Inspection and Survey (INSURV), etc.).
- i. Ship's event schedules (Change of Command, etc.).
- j. Long-term ship's CNO Availability and decommissioning schedule.
- k. CNO Availability and CMAV Planning Milestones.
- l. Departures from Specifications.

- m. Habitability Project Plan/Schedule (TYCOM provide).
- n. Other Availability Programs (TYCOM provide).
 - (1) Underwater Hull Cleaning.
 - (2) Calibration.
 - (3) Other miscellaneous.

VOLUME VI
CHAPTER 35

REGIONAL MAINTENANCE CENTER I-LEVEL MAINTENANCE CAPABILITIES

LISTING OF APPENDICES.

A Regional Maintenance Center I-Level Maintenance Capability Matrix

35.1 PURPOSE. This chapter provides a listing of Regional Maintenance Centers (RMC) I-Level maintenance capabilities for Surface Force ships and defines related reporting requirements.

35.2 BACKGROUND. The primary mission of an RMC is to promote surface ship readiness via assessment, troubleshooting, and repair of systems and equipment which are beyond the technical capability or capacity of Fleet units. A secondary mission of an RMC is to provide enough production work experience and on-the-job training to sailors for them to improve their technical knowledge and, where appropriate, earn a Navy Enlisted Classification (NEC) code used to fill Navy Afloat Maintenance Training Strategy (NAMTS) billets when returning to sea duty. An RMC accomplishes both of these missions, in part, with the sustainment and utilization of their I-Level maintenance capability.

35.2.1 Onboard Support. In addition to ship-to-shop and standard shipboard repair and maintenance work, the RMC I-Level capability is utilized to provide onboard Maintenance Assist Team (MAT) I-Level support to ships in port. The MAT concept was designed to bring RMC repair and maintenance training capability to bear on shipboard systems to improve Ship's Force repair, self-assessment, maintenance and equipment operations capability.

35.2.2 Applicable Regional Maintenance Centers. There are five RMCs with existing surface ship I-Level workforce: three of which are stand alone Activities and two that are incorporated within Naval Shipyards. Southwest Regional Maintenance Center (SWRMC) is located in San Diego, CA. Hawaii Regional Maintenance Center (HRMC) is a function incorporated within Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY&IMF). Northwest Regional Maintenance Center (NWRMC) is a function incorporated within Puget Sound Naval Shipyard and IMF (PSNS&IMF). NWRMC also includes Everett, WA maintenance operations. Mid Atlantic Regional Maintenance Center (MARMC) is located in Norfolk, VA. Southeast Regional Maintenance Center (SERMC) is located in Mayport, FL.

35.3 RESPONSIBILITIES.

35.3.1 Fleet Commanders. (individually or jointly, as appropriate).

- a. Approve changes, additions and deletions to the I-Level Capabilities Matrix (Appendix A) as recommended by the Type Commanders (TYCOM).
- b. Approve recommended changes to the NAMTS NEC At-Sea Requirements Matrix as provided by the TYCOMs.
- c. Approve and forward, with endorsement, NAMTS NEC modifications as developed and recommended by Commander, Navy Regional Maintenance Center (CNRMC) with TYCOM concurrence, to the Navy Enlisted Occupational Classification System Board.
- d. Review, approve and submit Billet Change Requests (BCR) developed by CNRMC, to support the sea/shore rotation requirements.
- e. Request additions and deletions to the I-Level capabilities listed in Appendix A and/or corresponding capacities at each RMC based on utilization metrics and written Business Case Analysis to the cognizant Fleet Commander.
- f. Ensure full utilization of the full range of organic RMC I-Level capability identified in Appendix A.
- g. Establish and communicate work priorities to CNRMC and cognizant RMCs. Resolve work priority conflicts as necessary.
- h. Regularly assess NAMTS maintenance skills required on respective afloat units.

- i. Approve CNRMC recommended, or recommend additional changes to specific NAMTS maintenance skills and required training for billets on respective afloat units.
- j. In collaboration with CNRMC, review and recommend NAMTS NEC At-Sea Requirements Matrix revisions to the cognizant Fleet Commander(s).
- k. Review and approve establishment and disestablishment of MATs, as recommended by CNRMC. Optimize utilization of MATs capacity within existing total I-Level workload in each cognizant RMC.

35.3.2 Commander, Navy Regional Maintenance Center. CNRMC will:

- a. Provide the capabilities identified in Appendix A in accordance with all applicable policy, regulations and technical requirements. Ensure detailed capability manuals are issued by each RMC to expound on and clarify the exact capabilities identified in Appendix A.
- b. Coordinate with the TYCOMs to ensure full utilization of the funded capacity, adjusting capacity as necessary. Include utilization analysis and NAMTS Program inspections in Fleet Maintenance Activity Assessments of RMCs.
- c. Provide cost estimates and implementation plans to the Fleet Commanders for proposed additions and deletions to capabilities in Appendix A, as well as increases or decreases to capacity at any/all RMCs.
- d. Establish policy, requirements and direction for NAMTS program management and execution at RMCs.
 - (1) Provide oversight of NAMTS program execution and qualifications to ensure:
 - (a) Compliance with NAMTS roles, responsibilities and program execution in accordance with the NAMTS desk guide, CNRMC M-4700.12.
 - (b) NAMTS enrollment and qualification is maximized.
 - (c) “Hands-on” journeyman-level skills training is an integral part of Job Qualification Requirement (JQR) qualification.
 - (d) The number of experienced JQR journeyman qualified personnel produced, is adequate to fill NAMTS NEC-coded afloat billet requirements established by the cognizant Fleet Commander(s).
 - (2) Provide NAMTS JQR Life Cycle Management including the following:
 - (a) Coordinate with TYCOMs, Surface Warfare Officer’s School - Fleet Enlisted Engineering Training and RMCs to ensure JQRs meet NAMTS NEC requirements. Changes to NAMTS NEC requirements may result from ship system modifications, upgrades or new acquisitions.
 - (b) Develop, review, coordinate feedback or revise JQRs as required. At a minimum, coordinate JQR reviews every three years.
 - (c) Approve new/changes to JQRs. Determine/approve which JQRs are executed at RMCs.
 - (d) For new JQRs, coordinate the development and submission of Course Identification Number packages to support NEC management and training accomplishment.
 - (e) Maintain Master JQR Library.
 - (3) Maintain and monitor a master test question data bank to support pre- and post-JQR examinations and JQR qualification oral boards.
 - (4) Promote NAMTS program awareness among Fleet activities and sailors, to include:
 - (a) Host and maintain an information website that supports NAMTS program management and awareness, training materials, and metrics.
 - (b) Publish newsletters and other media to enhance program awareness.

- (c) Establish and maintain a system of metrics to reflect NAMTS program performance including eligibility, enrollment and qualification trends.
- (5) Establish a manpower and NAMTS NEC At-Sea Requirements Matrix and coordinate periodic reviews with TYCOMs.
 - (a) Develop quarterly review schedules to ensure Ship Manning Documents for all afloat units are reviewed annually at a minimum.
 - (b) In conjunction with manpower reviews, the NAMTS NEC At-Sea Requirements Matrix shall be reviewed annually.
 - (c) Review sea/shore rotation impacts resulting from recommended NEC changes.
 - (d) Submit review results and recommendations to United States Fleet Forces/Commander, Pacific Fleet via TYCOMs prior to BCR submissions.
 - 1 NAMTS NEC At-Sea Requirements Matrix changes.
 - 2 NAMTS NEC modifications through the Navy Enlisted Occupational Classification System Board process.
 - 3 Navy Manpower Analysis Center NEC changes.
- (6) Conduct Quarterly NAMTS Program Reviews with RMC representatives. Reviews shall include at a minimum:
 - (a) Eligibility, enrollment, qualification and NECs award trends.
 - (b) Status of manpower/NAMTS NEC At-Sea Requirements Matrix reviews, BCRs, NEC modifications, feedback reports or other pending actions.
- (7) Develop a series of metrics to measure and monitor the performance and overall health of the NAMTS program. In particular, eligibility, enrollment, qualification and NEC award trends, accounting for all Sailors in NAMTS NEC source ratings, shall be measured and analyzed. Metrics shall be developed to support both program monitoring within the NAMTS organization and up line reporting as required.
- e. As MAT Program Manager, establish requirements and guidance for the execution of MATs at the RMCs, including reporting requirements.
- f. Coordinate with the cognizant TYCOM on the establishment, disestablishment and utilization of MATs.

35.3.3 Regional Maintenance Center.

- a. RMC areas of responsibility are the same as those identified in Volume II, Part I, Chapter 2, paragraph 2.1.1, Table 2.1 of this manual. The RMC shall exercise all I-Level functions and responsibilities when services are required or requested by fleet activities within these areas unless assigned to another RMC by the Fleet Maintenance Officer. This includes utilization of the I-Level capability as appropriate.
- b. Include details of I-Level capabilities in RMC capability manuals.
- c. Identify and communicate shop loading to applicable Forces Afloat and TYCOMs to ensure full utilization of the funded capacity. This includes the use of this capacity to establish MATs.
- d. These requirements apply to Naval Shipyards when they are assigned RMC functions.

35.4 REGIONAL MAINTENANCE CENTER PERFORMANCE MEASURES.

35.4.1 Reporting. RMC I-Level capability performance will be reported monthly to CNRMC in accordance with guidelines in Volume II, Part I, Chapter 4, paragraph 4.6.5.1 of this manual for continuous evaluation.

- a. MAT utilization and performance measures shall be included in the RMC monthly I-Level Reports.
- b. CNRMC will provide quarterly summary reports of I-Level performance, including MATs, to the cognizant TYCOM and Fleet Maintenance Officer.

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APPENDIX A

REGIONAL MAINTENANCE CENTER I-LEVEL MAINTENANCE CAPABILITY MATRIX

CATEGORY	CAPABILITY	MARMC	SERMIC	SWRMC	MWRMC	HRMC
I	EXECUTION OF ASSIGNED SHIP REPAIR AND MAINTENANCE	X	X	X	X	X
I-A	Perform structural repairs (Shipfitter)	X	X	X	X	X
I-B	Perform pipe repairs (Pipefitter)	X	X	X	X	X
I-C	Perform insulation and lagging services	X	X	X	X	X
I-D	Perform repair and maintenance of ship's RHIBs	X	X	X	X	X
I-E	Perform (Inside Machinist) machining services	X	X	X	X	X
I-F	Perform diesel engine governor and injector repairs and maintenance	X	X	X	X	X
I-G	Perform valve repair and maintenance	X	X	X	X	X
I-H	Perform diesel engine repair and maintenance	X	X	X	X	X
I-I	Perform hydraulics system repair and maintenance	X	X	X	X	X
I-J	Perform pump repairs and maintenance	X	X	X	X	X
I-K	Perform gas turbine repairs and maintenance	X	X	X	X	X
I-L	Perform (Outside Machinist) machinery repairs and maintenance	X	X	X	X	X
I-M	Perform air conditioning and refrigeration repair and maintenance	X	X	X	X	X
I-N	Perform flex hose fabrication and testing	X	X	X	X	X
I-O	Provide mechanical and/or photo engraving services	X	X	X	X	X
I-P	Provide key and lock repair services	X	X	X	X	X
I-Q	Perform repairs and maintenance to heat exchangers	X	X	X	X	X
I-R	Perform inside electrical repair and maintenance, including motor troubleshooting	X	X	X	X	X
I-S	Provide sound vibration analysis of rotating equipment (both in place and in shop)	X	X	X	X	X
I-T	Perform outside electrical repair and maintenance	X	X	X	X	X
I-U	Perform cableway inspections	X	X	X	X	X
I-V	Perform repair and maintenance of interior communication systems	X	X	X	X	X
I-W	Perform test, repair and maintenance of electronic modules (2M)	X	X	X	X	X
I-X	Perform repair and maintenance of electronics systems	X	X	X	X	X
I-Y	Perform repair and maintenance of sonar systems	X	X	X	X	X
I-Z	Perform repair and maintenance of fire control and weapons systems	X	X	X	X	X
I-AA	Perform repair and maintenance of antennas	X	X	X	X	X
I-AB	Provide corrosion control services (also as part of all NAMTS NECs)	X	X	X	X	X

CATEGORY	CAPABILITY	MARMC	SERMC	SWRMC	MWRMC	HRMC
I-AC	Perform repair and maintenance of HLS/RAST systems	X	X	X	X	X
I-AD	Perform repair and maintenance of life rafts	X	X	X	X	X
I-AE	Repair and overhaul CIWS and 25mm chain guns	X	X	X	X	X
I-AF	Perform repair and maintenance of mine warfare specific systems		X	X		
I-AG	Provide diving services, including hyperbaric chamber	X	X	X	X	X
I-AH	Perform rigging, weight testing and manufacture of weight handling devices	X	X	X	X	X
I-AI	Provide oil analysis, spectral analysis, fluid contamination and particle contamination services	X	X	X	X	X
I-AJ	Perform non-destructive testing	X	X	X	X	X
I-AK	Provide weld qualification services	X	X	X	X	X
I-AL	Provide the services of a certified Marine Gas Turbine Inspector	X	X	X	X	X
I-AM	Provide various calibration services not provided by regional calibration centers	X	X	X	X	X
I-AN	Provide SISCAL Level II services	X	X	X	X	X
I-AO	Provide shipboard welding and brazing services	X	X	X	X	X
I-AP	Provide SCBA Cylinder testing and mask flow testing	X	X	X	X	
I-AQ	Provide Maintenance Assist Teams (MAT)	X	X	X	X	
I-AR	Provide test, repair and maintenance of fiber optics	X	X	X	X	X

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CHAPTER 36

SURFACE FORCE SHIP/AIRCRAFT CARRIER MODERNIZATION PROGRAM

REFERENCES.

- (a) NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and Operations Manual (NMP-MOM)
- (b) COMUSFLTFORCOMINST/COMPACFLTINST 4720.3 - Commander United States Fleet Forces Command (COMUSFLTFORCOM)/Commander Pacific Fleet (COMPACFLT) C5ISR Modernization Policy
- (c) DODINST 5000.2 - Operation of the Defense Acquisition System

LISTING OF APPENDICES.

- A Modernization Plan Flowchart
- B Ship Change Document Template
- C Technical Assessment Flowchart
- D Cost Benefit Analysis Flowchart
- E Alteration Figure of Merit Flowchart
- F Voting Database Flowchart

36.1 **SCOPE.** This chapter is applicable to all Surface Force/Aircraft Carrier ships and shore activities involved in ship modernization. The provisions of this chapter have been developed in collaboration with Naval Operations (OPNAV). Where there are conflicts with reference (a), this chapter shall take precedence until such time as OPNAV implementing directives can be modified/issued. References (b) and (c) govern the management of afloat Combat Systems and Command, Control, Communications, Computers, Collaboration and Intelligence installations and improvements, and Initial Adversary Vulnerability Assessment policies and remain in effect as written. Type Commander (TYCOM) Maintenance Directorates shall be the lead for ensuring implementation. Ships will continue the current practice of forwarding change requests to the Immediate Superior In Command (ISIC), who will forward the change request to the respective TYCOM for entry into the Navy Data Environment (NDE). Only alterations entered in NDE will be considered for inclusion in Modernization Programs. This chapter is not applicable to submarines. Submarines will continue to utilize existing instructions.

36.2 **PURPOSE.** The purpose of this chapter is to document the Surface Force Ship/Aircraft Carrier Modernization Program, which emphasizes early decisions under the control of United States Fleet Forces Command (USFFC), Pacific Fleet, and Navy Cyber Forces (CYBERFOR), and expands on the decision process for deciding which alterations and modifications will be developed, procured, certified and installed on all surface force ships and aircraft carriers. The objective is to assure that fleet modernization investments address the fleet's greatest concerns and are integrated and prioritized across Strike Groups, ships, systems and warfare areas. The process directly involves Navy leadership at all levels (Fleet, OPNAV, Force TYCOMs, Systems Commands (SYSCOM) and Program Executive Offices (PEO)) in the programming, planning and installation of modernization in a consistent and disciplined manner.

36.3 **BACKGROUND.** The End to End Ship Maintenance and Modernization (previously Ship Maintenance (SHIPMAIN)) was developed to concentrate on the early decision process regarding which alterations are to be accomplished. This process provides timely Fleet involvement and the assurance that changes are driven by current fleet requirements. The Modernization Program itself was implemented to modify the Entitled Process (formerly the Fleet Modernization Program (FMP)) due to Fleet concerns which included alterations developed and hardware procured but never installed. It was to also alleviate concerns over significant changes to availability work packages after authorization letter issuance, and alteration installation problems caused by failure to satisfy planning milestones. While these issues are often times driven by overall funding instability in Navy budgets and changing priorities, the associated costs consume modernization funding minimizing the ability to modernize. The Navy Modernization Process (NMP) has replaced the FMP, and is documented in reference (a). The NMP provides a structure for the orderly identification, approval, design, planning, programming, budgeting, installation, life cycle

support and configuration control of technical and survivability improvements to all ships of the active and reserve fleets. This chapter also provides overall prioritization in the alterations to be accomplished and discipline and accountability in the adherence to NMP processes.

36.4 **PROCESS.** Appendix A provides a flowchart of the entitled modernization process decision and prioritization.

36.4.1 **Key Elements.** Key elements of the **Surface Force Ship/Aircraft Carrier Modernization Program** are:

- a. A single process to identify, evaluate and approve all hardware and computer software modifications to all ships and ship's systems. **The Entitled Modernization Process is owned by the Fleet and executed through SYSCOM/TYCOMs. The Commander, Naval Sea Systems Command (COMNAVSEASYSKOM) acts as the executive agent for the Chief of Naval Operations (CNO) in the execution of Navy Modernization. In accordance with "Virtual SYSCOM Engineering and Technical Authority Policy", the SYSCOMs execute technical authority within their areas of responsibility, technical integrity and expertise.** The process operates in concert with Acquisition Program processes of reference (b).
- b. Consolidation of all alterations into two types:
 - (1) Fleet alterations funded by the Fleet.
 - (2) Program alterations funded by the SYSCOMs/PEOs.
- c. **The Entitled Process is comprised of five distinct phases and three Decision Points to take a proposed change from conception to completion. This process is executed using the Ship Change Document (SCD).** Senior Fleet/OPNAV personnel comprise the Decision Boards identified in paragraph 36.6 of this chapter. Provisions exist to combine Phases II and III for less complex changes as delineated in paragraph 36.4.8 of this chapter. Any major changes encountered during Ship Integration will require reporting back to Decision Point 3 for approval to continue the Ship Change.
- d. A single database, maintained by Naval Sea Systems Command (NAVSEA) 04 (**currently NDE for Surface Force and Aircraft Carrier Modernization**).
- e. **The Fleet/TYCOMs collaborate with** OPNAV, SYSCOMS and PEOs in the decision making process, utilizing three boards of stakeholders at the O-6, one and two star Admiral, and three star Admiral level. Voting members of the boards represent appropriate Fleet and OPNAV organizations. SYSCOM and PEO representation is included to validate the readiness of the alteration to proceed to the next step. Paragraph 36.5.2 of this chapter addresses the business rules associated with the voting process. Depending on cost and impact thresholds, decisions are made by one of the three boards. An electronic voting capability (eVote), embedded in NDE, will be used on a continuing basis to facilitate timely action by the boards, and minimize the need for boards to formally convene. NAVSEA 04 will ensure data is available to voting members 10 to 14 days prior to required voting. As noted on the **Modernization Plan** Flowchart, Appendix A of this chapter, Technical Assessments are conducted at three points in the process, and in conjunction with the Alteration Figure of Merit (AFOM) and Cost Benefit Analysis (CBA) blocks, are assembled in a Recommended Change Package (RCP) which provide the basis for decisions made by the O-6, 1/2 Star and 3 Star Boards.
 - (1) The O-6 level board approves Fleet alterations except in cases where the scope and complexity dictate referral to a higher level board, makes the majority of decisions involving the lower cost and lesser impact Program alterations, and provides recommendations for the higher level boards.
 - (2) The one and two star board validates the O-6 board decisions and provides Fleet/OPNAV/claimant recommendations to Acquisition Category (ACAT) III and ACAT IV and below program milestone decision authorities.

- (3) The three star board sets overall priorities, makes the decisions involving the higher cost and higher impact alterations, validates one and two star board decisions, provides Fleet/OPNAV/claimant recommendations to ACAT I and ACAT II program milestone decision authorities, and approves the Surface Force Ship/Aircraft Carrier Modernization Pre-Overseas Movement (POM) Submission (Capability Plan).
- f. The Modernization process is designed to accommodate initial submission of an SCD early in the life of requirements definition for a ship or system capability/program. This is accomplished by submitting an SCD for the system/program across the Five Year Defense Program (this includes all software support programs). As changes are more definitively identified, separate SCDs will be developed as supportive to the capability/program SCD (examples of supportive SCDs can include hardware updates, software upgrades, Hull, Mechanical and Electrical (HM&E) changes, etc.).

36.4.2 Decision Points. There are three main decision points exercised by the review boards (Steps 60, 140 and 220 of Appendix A); and all three are supported by technical assessments, cost benefit analyses and figure of merit assessment reviews.

- a. Decision Point 1: The purpose of Decision Point 1 is to approve the entry of the concept design and to include the proposed change in the Modernization Plan. Approval at this point constitutes Resource Sponsor commitment to fully fund the change in the POM. It is recognized that follow-on budget decisions beyond the control of the Resource Sponsor may require relief from that commitment, however, the Resource Sponsor will then advise the Voting Boards for consideration of the change in future budgets. Some programs/capabilities may not be defined to the alteration level based on the need for further technical definition. In those cases, the program/capability will be submitted as a single SCD for consideration at Decision Point 1. In Phases II and III, the program/capability will be defined in multiple alterations as required.
- b. Decision Point 2: The purpose of Decision Point 2 is to validate/update the Modernization Plan and to proceed with design development, with Resource Sponsor confirmation that funds exist in the budget to fully execute the Ship Change.
- c. Decision Point 3: The purpose of Decision Point 3 is to validate/update the Modernization Plan and to proceed with material procurement and scheduling installations with Resource Sponsor confirmation that funds exist in the budget to fully execute the Ship Change.

36.4.3 Ship Change Document. The principal document used in the Technical Assessments is the SCD, illustrated in Appendix B, which remains with an alteration throughout its development. The SCD replaces the Justification Cost Form, In-service Engineering Change Proposal, the Ship Alteration Record and all other alteration documents (e.g., Field Change, Ordnance Alteration) which were used in the former FMP. The SCD is prepared by any activity and must meet specific minimum requirements addressed in paragraph 36.5 of this chapter, in order to proceed beyond Block 10. After the SCD is prepared it is forwarded to an authorized submitting activity for entry into NDE. For SCDs submitted as described in paragraph 36.4.1 of this chapter, all cost information shall be complete and cover the entire program. A submitted supportive SCD's costs will be decremented from the capability/program SCD. Authorized submitting activities are:

- a. TYCOMs.
- b. OPNAV.
- c. PEOs.
- d. Participating Acquisition Resource Managers (PARM).
- e. Life Cycle Managers.
- f. Fleet Commanders.

36.4.3.1 Phase I. The Phase I steps consist of:

- a. The initiator shall provide data for all SCD Phase I fields at a minimum prior to submission to the submitter.
- b. A preliminary tracking number shall be automatically assigned by the system (NDE).

- c. The initiator and the submitter shall have the ability to review the draft SCD at any time in the preparation process.
- d. This form shall be able to be viewed at any point in the process once submitted.
- e. Minimum header data required uniquely defining the Configuration Change (functional definition, class affectivity, functional areas).
- f. Fleet requirement, description of change, and impact to the Fleet if not accomplished.
- g. The submitter will either approve the change and put into NDE officially or kill the change. Entering an SCD at this point establishes that the SCD has officially entered the Entitled Process.
- h. The submitter will ensure there are no duplicate SCDs.
- i. The submitter shall be able to expedite Alterations that are considered to be critical by Fleet by setting an "Expedite" flag in SCD. Expedited SCDs are considered first in any process work queue.
- j. The submitter shall be able to identify previously shelved alterations and resubmit to the process using previously assigned SCD identification via TYCOM or OPNAV Sponsor.
- k. The expedite alert box should be checked "yes" when operational readiness (i.e., correction of a C4 Casualty Report) or safety to personnel is effected.
- l. All authorized SCDs shall be assigned a sequential Ship Change Number by the system (NDE).

NOTE: THE PROCESS ENABLES LESS COMPLEX CHANGES TO COMBINE PHASES II AND III, AS DETERMINED IN THE INITIAL TECHNICAL ASSESSMENT.

36.4.3.2 Phase II. The Phase II steps consist of:

- a. The Submitter receives approval of SCD Phase I and notification to complete SCD Phase II or IIa, if approved by Voting Board, form.
- b. The submitter will utilize internal processes to complete preliminary engineering and provide a draft SCD Phase II to the Change Manager in the respective Ship Program Manager Office.

36.4.3.3 Phase III. The Phase III steps consist of:

- a. Submitter receives approved SCD Phase II.
- b. The submitter will utilize internal processes to complete engineering and design development and provide a draft SCD Phase II (a) or III.

36.4.4 Technical Assessment Teams. Technical Assessment Teams (TAT) are assigned at NAVSEA and will be made up of subject matter technical experts related to the scope of the SCD.

36.4.4.1 Technical Assessments. Technical Assessments are performed at three separate stages in the process to support decisions to complete preliminary engineering, design development and detail specifications.

36.4.4.2 Technical Assessment Business Rules. Appendix C reflects the Technical Assessment flowchart.

36.4.4.3 Phase I Technical Assessment Rules. The following Phase I Technical Assessment Business Rules apply:

- a. Ship's Program Manager (SPM) cannot send a change idea to history.
- b. TAT review process will take no longer than 5 days.
- c. Any negative recommendation must include a justification.
- d. Due to limited engineering requirements and limited impacts to existing equipment and the ships, some changes may be permitted to have Phase II and Phase III combined. In order to determine if there is sufficient reason to combine these two phases for a particular change, the TAT must consider the Scope (SCD Phase I, Item 3.a) of the change.

36.4.4.4 Technical Assessment Teams. TATs will be allowed to change fields to correct data. If any information is changed a record of the change will be kept and the submitting Point of Contact notified for concurrence.

36.4.4.5 Changes. Identify changes that may supersede or be redundant with an existing change. Should the SPM require additional clarification, endorsement will not be forwarded prior to attempting issue resolution via TAT Lead. Unresolved issues will be noted in the Technical review comments and forwarded.

36.4.4.6 Phase II Technical Assessment Rules. Should the SPM require additional clarification, endorsement will not be forwarded prior to attempting issue resolution via TAT Lead. Unresolved issues will be noted in the Technical Assessment comments and forwarded. TAT will take no longer than 45 days to complete.

36.4.4.7 Phase II(a) Update Technical Assessment. In this phase, complete technical data will be available for review in the draft Phase II(a) SCD. Phase II(a) will combine Phases II and III in order to streamline the process. The same basic tenets of the process described for Phases II and III will apply. The TAT will complete their review within 60 days.

36.4.4.8 Phase III Technical Assessment Rules. In this phase, complete technical data will be available for review in the draft Phase III SCD, but the basic tenets of the process described for Phases I and II will apply. TAT will complete their review in this phase in no more than 60 days.

36.4.5 Cost Benefit Analysis. A CBA is conducted at step 40 of the process, and then updated at steps 120 and 200, to support Modernization Plan decisions by the three established review boards. Appendix D reflects the Cost Benefit Analysis Flowchart. It is imperative that sound cost estimates be developed to make these analyses valid. The CBAs, the Technical Assessments and AFOM assignments together form the RCP which are provided to the respective review boards to support board decisions on proposed shipboard changes. These analyses are accomplished by Independent Cost Review (ICR) Teams under the direction of NAVSEA 017. All cost data to support the CBA process is derived from the SCD, initially submitted by the activity proposing the change, and then updated throughout the process.

36.4.5.1 Phase I Preliminary Analysis Business Rules. In this phase, the purpose of the ICR Team is to review cost data entered in the SCD for completeness and reasonableness to support Decision Point I. The input to the CBA process is an affirmative designation by the Technical Analysis Team. In this phase, the ICR Team is expecting high-level cost information (e.g. Concept Development Cost, Preliminary Engineering Cost, Design Development Cost, Procurement Cost and Installation Cost). This cost data will be provided by responsible PARMs and SPMs as direct inputs into the SCD resident in NDE. NDE maps this data into a Cost Reduction and Effectiveness Improvement (CREI) document designated as the CREI Template which automatically calculates cost metrics such as Return on Investment, Net Present Value (NPV) and Payback Period. When the calculations have been made by the CREI Template, a notification is electronically forwarded to Subject Matter Expert (SME) members of the ICR Team. The cost data fields in NDE will be locked precluding uncontrolled changes and can only be unlocked by a member of the ICR Team. If the ICR Team has questions about the data, they will be provided back to the data source through a "feedback" loop managed by NAVSEA 017. The feedback process will only be exercised one time (if necessary), and will then be forwarded to the Decision Board for their review and decision. The ICR Team will not alter cost data; but will use the feedback loop as the conduit for questioning submitted cost data. Should the source of the cost data determine a change to submitted cost information is warranted based on ICR Team questions, he/she will enter the corrected data in NDE after consultation with the NAVSEA 017 Area Coordinator. The Area Coordinator will obtain concurrence from respective ICR Team members and unlock applicable cost data fields. The source of the cost data will have two (2) working days to make the change to appropriate fields, at which time the fields will again lock and the data passed to the RCP and review by the appropriate board. In those instances where the source of the cost data does not agree with changes proposed by the ICR Team, the unaltered data will be forwarded for inclusion in the RCP as well as the ICR Team comments.

36.4.5.2 Phase II Concept Design Cost Benefit Analysis Update. In this phase, the ICR Team is looking for more fidelity in the cost data provided to support Decision Point 2. The basic CBA Process in this phase mirrors Phase I, with the following exceptions/additions:

- a. If the Program Manager (PM) experiences cost growth of greater than 10% in the total program budget, the PM shall notify the appropriate Sponsor (Fleet or OPNAV). The Sponsor may decide to address this issue with the Decision Board.
- b. The Sponsor shall be notified if, in the year of execution, a cost shortfall identified that is within the Program Managers ability to cover, or adjustments are made to the Modernization Plan.

- c. If the total cost estimate of an alteration exceeds the appropriate threshold for the respective phase (i.e. 40% Phase I, 25% Phase II, 15% Phase III), the PM shall notify the appropriate Sponsor (Fleet or OPNAV). At that point, the Sponsor may decide to address the issue with the Decision Board.

36.4.5.3 Phase III Design Development Cost Benefit Analysis Update. In this phase, the ICR Team is expecting detailed cost data to be available to support Decision Point 3, however, the basic CBA Process mirrors that conducted in Phases I and II.

36.4.6 Alteration Figure of Merit. The AFOM is used in concert with the Technical Assessment and the CBA to form the RCP, which is provided to and forms the basis for the Board Decisions. The AFOM is initially calculated prior to Decision Point 1, and then updated to support Decision Points 2 and 3. The AFOM is defined as the quantitative “War Fighting or Readiness Benefit” assigned to each proposed alteration. Appendix E reflects the AFOM Flowchart. Fleet and OPNAV members of the 3-Star Board weight this structure annually, on or about October of the fiscal year, using United States Fleet Forces Command guidance which is based on numbered Fleet and TYCOM Integrated War Fighting and Readiness priorities and additional inputs from the CNO Campaign Analysis and Sea Trials processes. There are two components to the process of assigning AFOMs to each SCD:

- a. The annual establishing of weights based on Fleet priorities.
- b. The continuous action by respective TYCOMs to assign index values to standardized rating scales that address:
 - (1) Suitability (Reliability, Maintainability, Operational Availability, Supportability, Safety).
 - (2) Quality of Service/Quality of Life (QOS/QOL).
 - (3) Capability.

Separate from this annual event, TYCOMs continue to review and assign index values to the previously noted standard rating scales for each change as part of the throughput of SCDs. **Commander, Naval Surface Forces/Commander, Naval Air Forces (COMNAVSURFOR/COMNAVAIRFOR)** will rate each proposed alteration using established rating scales and Fleet Staff SME recommendations to calculate the AFOM through a Flag-weighted algorithm that resides in NDE. The TYCOM Rating Scale Index Value assignments are entered in NDE and calculated to provide an overall AFOM and nested AFOMs that articulate the change benefits of Capability, Suitability and QOS/QOL to the Entitled Process Decision Board members.

36.4.7 Annual Assignment of Weights. The annual assignment of weights is a key component of the AFOM assignment and ensures the AFOM process remains current with Fleet/Navy priorities. The weights are the foundation of the algorithm in NDE which calculates the AFOM assignment for each alteration.

- a. The Entitled Process 3 Star Board shall annually determine the numerical weights of the Naval Power 21-based AFOM Benefit Structure using the Merit Assessment Questionnaire. The determination of AFOM Benefit weights will be executed using a pair-wise mathematical analysis tool. Each Entitled Process Fleet 3 Star Board member indicates his/her preferences using the formatted pair-wise questionnaire provided in the Merit Assessment Questionnaire.
- b. Respective TYCOMs will continue to review and assign initial AFOMs as dictated by the throughput of SCDs, using SMEs from activities in the area associated with each SCD. Each SCD that successfully completes the Technical Assessment block in each phase is mapped by the submitter in NDE by Naval Capability and routed to cognizant TYCOMs. The TYCOMs will canvass appropriate SMEs for input, providing relevant TYCOM-generated questions to the SME to assist in their review. Using these questions, the TYCOM SME representative will review the information listed in the SCD and will provide inputs back to the TYCOM by recommending the Index values associated with the AFOM Benefit Structure Rating Scales discussed earlier. The TYCOM will review inputs and enter the final Index value in NDE. NDE will aggregate TYCOM inputs and automatically calculate or recalculate the AFOM based on the algorithm which reflects the weights described above. This process is replicated in each of the first three phases (Preliminary Analysis, Concept Design, Design Development) to support the three decision points. An overall AFOM score and a breakout of AFOM by Capability, Suitability, QOS/QOL and each of the four Naval Power 21 Capabilities (Sea Base, Sea Strike, Sea Shield, ForceNet) will be included on the RCP.

- (1) Certify personnel, facilities, and activities in PCMS handling, Quality Assurance, application, and destruction, maintaining records for each certification.
 - (2) Provide Equipment Guide List (EGL) packages for AP-1, AP-2 and S-1 assessments.
 - (3) Incorporate and distribute ship configuration revisions submitted following AP-1 and AP-2 assessments.
 - (4) Conduct analysis of all 18M-1R measurements and provide Forces Afloat reports of results and recommendations.
 - (5) Adjudicate all PCMS related requests for Departures from Specifications.
 - (6) Designate a PCMS ISEA to function as the first line technical resource for Forces Afloat.
 - (7) Coordinate PCMS in service activities with the broader Surface Maintenance Engineering Planning Program (SURFMEPP) organization and other activities, such as corrosion control programs.
- b. Navy Regional Maintenance Command:
- (1) Ensure that RMCs have adequate PCMS SMEs/technicians to support PCMS core activities. Provide stewardship of RMC SMEs to ensure a seamless transition when personnel are scheduled for transfer or retirement. If qualified PCMS Technicians are not available at local RMC, the RMC should contact the following (in order of contact) for assistance:
 - (a) Other RMCs.
 - (b) PCMS ISEA (NSWC PHD). This request shall include funding for the performance of the activity.
 - (2) Ensure integration of PCMS SME support to all former SUPSHIP planning and execution of shipboard repairs and other upkeep performed under the auspices of the RMC organization.
 - (3) Establish I-Level PCMS tiling support shops at RMCs with PCMS responsibilities.
 - (4) Ensure the integration of PCMS restoration on all RMC conducted repairs and corrosion control projects where PCMS coverage is required. This is to be focused on ship-shop level projects which are most efficiently accomplished inside of a production shop prior to return aboard ship.
- c. Type Commanders shall:
- (1) Coordinate with the System Commands in identifying, solving and correcting PCMS deficiencies.
 - (2) Refer all PCMS related Departures from Specifications to NAVSEA for adjudication..
 - (3) Prior to promulgation, review and authorize all documents prepared by technical agencies that contain procedures relative to PCMS and the fleet PCMS program.
 - (4) Evaluate comments and recommendations regarding the fleet PCMS program. If necessary, promulgate changes to existing policy and procedures.
 - (5) Fund PCMS RIPs to provide for the additional RMC labor and material required to conduct these events at least bi-annually.
 - (6) Ensure that proper corrosion control procedures are employed in the planning and execution of I and D Level maintenance affecting PCMS areas. Reference (e) provides detailed guidance.
- d. Immediate Superiors in the Chain of Command (ISIC) shall:
- (1) Submit requests to schedule PCMS core activities for each unit to maintain unit currency in trained personnel and 18M-1R assessments. PCMS RIPs shall be conducted at an interval not to exceed 24 months.

- (2) Review and take the appropriate action to correct PCMS discrepancies for subordinate units.
- e. RMCs shall:
- (1) Maintain qualified PCMS personnel and ensure assets are available to perform PCMS core activities in accordance with reference (b).
 - (2) Provide Technical Assistance via distance support/on site visit as appropriate.
 - (3) Conduct PCMS core activities. Provide the following to the PCMS ISEA within four weeks following AP-1 events:
 - (a) Redlined updates to key plans and detailed drawings.
 - (b) Completed EGL inspection checklist, including revised items.
 - (c) Completed digital photo survey.
 - (4) Ensure all personnel assigned to PCMS responsibilities meet the requirements of reference (b).
 - (5) Ensure that RMC PCMS SMEs are involved in planning of all PCMS equipped ship topside maintenance where PCMS is affected.
 - (6) Ensure that RMC Quality Assurance personnel, certified by the PCMS ISEA, are actively involved in the Quality Assurance of all I and D level PCMS related repairs and installations.
 - (7) Ensure that contracted or I-Level jobs activities, facilities and personnel selected to conduct PCMS work are certified for the work being conducted.
 - (8) Include in contracted I and D-Level jobs the provision of PCMS tiles for planned PCMS repairs and interference areas. Ships shall not be tasked to provide tiles or other PCMS Allowance Parts List/Allowance Equipage List items to support work undertaken by other than Ship's Force, except with the specific concurrence of the TYCOM.
- f. Surface Force Ship Commanding Officers shall ensure:
- (1) Scheduling of PCMS activities within periodicity.
 - (2) Obtaining RMC SME assistance in reviewing work packages to ensure identification of all topside signature related issues.
 - (3) Establishment and maintaining of the following shipboard organization:
 - (a) PCMS Department Head: in accordance with reference (a), the Commanding Officer shall appoint a Department Head responsible for coordinating operation and maintenance of PCMS. Their responsibilities include:
 - 1 Providing the Commanding Officer monthly PCMS effectiveness summaries including major PCMS deficiencies, the compliance of the ship with personnel certification requirements, an abbreviated Plan of Action and Milestones for correction of Category 1/2/3 deficiencies and corrosion items, and the due date for the next 18M-1R.
 - 2 Coordinating shipboard PCMS indoctrination for newly reported personnel.
 - 3 Coordinating ship-wide PCMS preventive and corrective maintenance schedule.
 - 4 Coordinating distribution and update of Planned Maintenance System (PMS) materials including ship specific PCMS keyplan drawings and EGLs required for PMS inspections.
 - 5 Serving as single point of contact for Quality Assurance of PCMS related Current Ship's Maintenance Project entries, review of all topside configuration changes (including program alterations, fleet alterations, field changes, etc.) to ensure Radar Cross Section reduction has been considered.

VOLUME VI
CHAPTER 39

**MAINTENANCE AND MODERNIZATION PERFORMANCE REVIEW
AND LESSONS LEARNED CONFERENCE
FOR SURFACE FORCE SHIPS**

LISTING OF APPENDICES.

A Access to Lessons Learned Conference and MMPR Sites on the ST1 Portal

39.1 PURPOSE.

- a. The Maintenance and Modernization Performance Review (MMPR) is a semi-annual forum for maintenance and modernization professionals to share, identify issues and focus on continuous process improvement opportunities within the Surface Maintenance and Modernization Community. The MMPR provides a path for communication between the individual Project/Ship Lessons Learned Conferences (LLC) and the top-level maintenance and modernization leadership.
- b. The primary purpose of the LLC is to facilitate communication between Project Teams of all Surface Force ship classes across all Regional Maintenance Centers (RMC) and supporting activities at various stages in their availability to assist in improving cost, schedule and performance. The LLCs provide a singled-up approach to evaluate and capture critical lessons learned and barriers brought forward by Project Teams to facilitate process improvements in the Surface Navy.
- c. The LLC process encompasses the established milestones and/or meetings within the planning and execution of availabilities in accordance with Volume II, Part II, Chapter 2 of this manual. Appendix D of Volume II, Part II, Chapter 2 of this manual includes a detailed table of milestones. Meetings that already exist to reinforce process improvements may include the Advance Planning Meeting, Work Package Integration Conference, Work Package Execution Review, Arrival Conference, 50% Conference and Completion Conference. While these events occur at various times, the feedback process exists to continually collect information to improve processes.

39.2 MAINTENANCE AND MODERNIZATION PERFORMANCE REVIEW OVERVIEW.

39.2.1 MMPR Objective. The MMPR topics will be relevant to process improvements for future availabilities and may include ship class or port specific process issues, best practices, success stories, industry feedback, technical issues, Surface Team One (ST1) initiatives and new developments and Fiscal Year Availabilities.

39.2.2 MMPR Key Membership.

- a. Commander, Naval Surface Forces Atlantic N43 is the Process Master and responsible for managing and coordinating the MMPR.
- b. Nearly all commands linked to the Surface Ship Maintenance and Modernization Community participate in the MMPR. These commands include Commander, Navy Regional Maintenance Center, RMCs, Naval Sea Systems Command (NAVSEA) 21, Type Commanders (TYCOM), Surface Maintenance Engineering Planning Program (SURFMEPP), Planning Yards, Multi-Ship Multi-Option Contracting Partners, Ship's Force (Commanding Officers through Department Heads), Fleet, SEA04, SEA05, Space and Naval Warfare Systems Command, Program Executive Officer Integrated Work Schedule and Office of the Chief of Naval Operations N43. At a minimum, the following organizations will be invited to attend all MMPRs:
 - (1) Commander, Navy Regional Maintenance Center.
 - (2) RMCs Southeast Regional Maintenance Center (SERMC), Southwest Regional Maintenance Center (SWRMC), Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF), Northwest Regional Maintenance Center (NWRMC), Pearl Harbor Naval Shipyard

and Intermediate Maintenance Facility (PHNSY & IMF), Hawaii Regional Maintenance Center (HRMC), Norfolk Ship Support Activity (NSSA), Forward Deployed Regional Maintenance Center (FDRMC), Ship Repair Facility (SRF)-Japan).

- (3) Commander, Naval Surface Forces Atlantic.
- (4) Commander, Naval Surface Forces Pacific.
- (5) NAVSEA21.
- (6) SURFMEPP.
- (7) Ship's Force.
- (8) United States Fleet Forces Command.
- (9) Commander, U.S. Pacific Fleet.
- (10) Industry Partners.
- (11) Space and Naval Warfare Systems Command.
- (12) Naval Surface Warfare Center (Philadelphia, Port Hueneme, Corona).
- (13) NAVSEA04.
- (14) NAVSEA05.
- (15) Program Executive Officer Integrated Work Schedule.

- c. MMPR Planning Team. The MMPR Planning Team will be chaired by the ST1 Executive Steering Committee (ESC). MMPR planning meetings will be conducted on a monthly basis preceding a scheduled MMPR. The objective of these meetings is to develop the agenda and ensure any information from ST1 priority topics is included.

39.2.3 MMPR Action Items. All action items resulting from an MMPR meeting will be tracked by ST1 and documented and tracked on the ST1 Portal with Lessons Learned Conference Action Items and/or barriers. Documents from the MMPR will be posted to the MMPR site under the ST1 Portal. Instructions on gaining access to the ST1 Portal are located in Appendix A.

39.2.4 Further Guidance. Further guidance regarding the MMPR process is outlined in the MMPR Business Rules.

39.3 LESSONS LEARNED CONFERENCE OVERVIEW.

39.3.1 Lessons Learned Conference Concept. The LLC is not a program review, an evaluation of the Maintenance Team (government or contractor) or a forum to acknowledge heroism or place blame. It is a process review, an evaluation of the execution of the availability from the advance planning to the completion of the availability. It is also a place to identify process issues that can further improve overall end to end maintenance and modernization process.

39.3.2 Lessons Learned Conference Objective. The objective of the LLC is to **increase in-depth cross-Project Team discussions of common issues and to include risk mitigation strategies and best practices**. Feedback will be shared locally and globally in the surface force ship community and will ultimately be embedded into the maintenance and modernization processes.

39.3.3 Lessons Learned Conference Key Membership.

- a. Process Owner. Commander, Naval Surface Forces Atlantic N43 and Commander, Naval Surface Forces Pacific N43 are the overall LLC process owners. As such, Commander, Naval Surface Forces Atlantic N43 and Commander, Naval Surface Forces Pacific N43 are responsible for the general management of implementing the LLC process to ensure process effectiveness. While the TYCOMs are the LLC Process Owners, the LLCs are part of the ST1 structure as a "Knowledge Sharing Network". Each Knowledge Sharing Network under ST1 is assigned a Process Master; the LLC Process Master will be identified by the Process Owners.

- b. RMC LLC Analysis Team. Each RMC must have a designated LLC Analysis Team Coordinator and a designated LLC Analysis Team Waterfront Operations Representative on the Analysis Team. Some RMCs may choose to have the Coordinator and Waterfront Operations Representative to be one and the same due to the time requirements demanded of an Analysis Team Member.
- (1) The LLC Analysis Team Coordinator is responsible for the coordination and facilitation of their local RMC's scheduled LLCs. This person serves as the liaison between the Project Teams and the global LLC Community. Further guidance regarding the RMC LLC Coordinator's responsibilities are outlined in the LLC Analysis Team Business Rules.
 - (2) The LLC Analysis Team RMC Waterfront Operations Representative is responsible for providing the Waterfront expertise and knowledge for their local RMC to the Analysis Team. This person serves as the liaison between his or her RMC's waterfront and the global LLC Community. Further guidance for the roles and responsibilities of the local RMC LLC Analysis Team Member in completing the LLC **Waterfront Perspectives Questionnaire** is contained in the LLC Analysis Team Business Rules.

NOTE: WHILE THE LLC ANALYSIS TEAM MEMBER POSSESSES MANY RESPONSIBILITIES AS THE LLC MEETING FACILITATOR, HE OR SHE SHOULD EXPECT TO RECEIVE ASSISTANCE FROM ALL STAKEHOLDERS.

- c. RMC Availability Project Manager (PM). The RMC PM is responsible for preparing and briefing their ship's Chief of Naval Operations Availability **based on the Waterfront Perspectives Questionnaire they provided answers/comments on**. The RMC PM will capture all lessons learned, action items and barriers deemed necessary to be communicated to the Surface Maintenance and Modernization Community.
- d. Maintenance Community. Other maintenance activities involved with ship availabilities (in addition to those highlighted in preceding paragraphs) will participate in the LLC. These representatives are active members of the LLC Community and are responsible for maintaining awareness of **availability** issues and participating in the **topic specific** LLCs. The following participants are mandatory:
- (1) TYCOM N43 Type Desk Office.
 - (2) TYCOM Project Engineer.
 - (3) Immediate Superior In Command.
 - (4) Ship's Force Representative.
 - (5) Multi-Ship Multi-Option/Firm Fixed Price Contractor.
 - (6) SURFMEPP Detachment Representative.
- e. Modernization Community. Representatives of any Alteration Installation Team or other non-repair activity involved with availabilities will participate in the availability LLC meetings as appropriate:
- (1) NAVSEA 21.
 - (2) Field Activities.
 - (3) Space and Naval Warfare Systems Command.
 - (4) Program Manager Representative.
 - (5) Planning Yard Representative.

39.4 PREPARING FOR THE LESSONS LEARNED CONFERENCE.

39.4.1 Preparation. To adequately prepare for an LLC, Project Teams should **review** any lessons learned and barriers that they feel will be beneficial to other Project Teams throughout their Planning and Execution phases **regarding the topic of the LLC**. All Project Teams will be first introduced to the LLC Process during their first scheduled Integrated Project Team Development Event in accordance with the milestones listed in Volume II, Part II, Chapter 2, Appendix D of this manual by their local RMC LLC Analysis Team Coordinator/Waterfront Operations Representative.

39.4.2 Lessons Learned Conference Presentation Overview. The LLC Availability Overview Presentation serves as the format for the Project Teams to articulate key lessons learned and barriers encountered during their Availability Cycle. The LLC **Waterfront Perspective Questionnaire** template is available through the RMC Analysis Team Member, **however it will be tailored to each LLC Topic**. Throughout the planning stages and execution of the availability, Maintenance Team members, including the RMC, Ship's Force, contractor, Alteration Installation Teams and other key availability stakeholders shall assist the RMC PM in submission of the LLC presentation. Input should also be gathered from:

- a. Ship's Commanding Officer's Weekly Situation Reports.
- b. Standard metrics identifying top cost drivers.
- c. Late add alteration risk assessment messages (including comparison of expected versus actual impact to the availability).
- d. Late add alteration risk acceptance.
- e. Waivers for work added after the late add impact assessment as dictated by the milestones listed in Volume II, Part II, Chapter 2, Appendix D of this manual (including impact to availability).
- f. Cost variance forms provided by contractor.
- g. A review of contract changes to the base work package.

39.5 CONDUCTING A LESSONS LEARNED CONFERENCE.

39.5.1 Lessons Learned Conference Schedule. LLCs are scheduled **as topics are identified for inclusion in the LLC process**. Required LLC Project Teams are determined based on their **applicability to the selected topic**.

39.5.2 Agenda. The primary focus of the meeting is to discuss lessons learned, best practices and barriers pertaining to the **specific topic**. An agenda for all scheduled LLCs will be forwarded to all participants by the ST1 LLC Process Master, RMC LLC Analysis Team Coordinator. The agenda will also be available on the LLC site **on the ST1 Portal: <https://usff.portal.navy.mil/sites/surflant/st1/default.aspx>**.

39.5.3 Lessons Learned Conference Focus Areas. Surface Force Ships are required to participate in LLCs **to promote synergy toward the identification and resolution of common availability issues**. **Topics of a LLC can be identified by any member of the Surface Ship Maintenance and Modernization Team**. **The topic specific LLC will bring together people from around the enterprise to share lessons learned on issues that are affecting the ability of project teams to complete availabilities on time or are constant drivers of growth and new work**.

39.5.4 Invitees. Key membership and project team personnel involved with the availability, including the TYCOM, will be notified of the LLC meeting by the ST1 LLC Process Master, the RMC LLC Analysis Team Coordinator or the **Class Team Leader**. Key stakeholders involved with future availabilities will also be invited to attend the meeting.

39.5.5 Invites and Announcement. The RMC LLC Analysis Team Coordinator will review the scheduled LLCs on no less than a monthly basis. The schedule will include **an agenda of upcoming LLCs based on topic relevance**. **The RMC Analysis Team Coordinators will recommend and designate the specific ship Project Teams to present at upcoming LLCs**.

39.5.6 Lessons Learned Conference Documents. All LLC documentation will be in accordance with the LLC Analysis Team Communications Plan. **Requirements for documents will also be discussed during the weekly LLC Telecoms**.

39.5.7 Lessons Learned Conference Minutes. All participants, action items and barriers will be documented in minutes (**KMails**), following each LLC. The **KMails** will be forwarded no later than **five** business days to all invitees, ST1 ESC and RMC Commanders. The minutes will also be posted on the LLC site on the **ST1 Portal**.

39.5.8 Lessons Learned Conference Website. LLC process meeting documents and information shall be posted on the LLC site **on the ST1 Portal**. This site tracks all scheduled LLCs throughout the calendar year, all meeting preparation materials to include necessary read-ahead material for participants, Project Team Point of Contact Lists and **approved KMails**. The site should be used to aid in planning work packages and preparing for availabilities to ensure that any barriers and lessons learned identified by previous LLC Project Teams are applied to future availabilities. The site is located at **<https://usff.portal.navy.mil/sites/surflant/st1/default/asp>**. See Appendix A for instructions on obtaining access.

39.6 INTERACTION AMONG FEEDBACK PROCESSES.

39.6.1 Relationships. The LLC meeting is sensitive to the contractor-government relationship and the legal procedures that accompany it. The Department of the Navy Acquisition Reform strategy includes a goal to “build a continuous dialogue with industry to identify mutually beneficial opportunities and practices”. While the Department of the Navy encourages open communication between the contractor and the government, many legal issues arise from such information sharing. It is critical that the LLC meetings and general processes maintain awareness of the following legal procedures: Federal Advisory Committee Act, Procurement Integrity Act, Trade Secrets Act and Organizational Conflicts of Interest. Additionally, the LLC process is mindful of other feedback/review processes, such as the Award Fee Board and Contractor Performance Assessment Report.

39.6.2 Consistency. These business rules recognize the need for consistency between other feedback processes and the need for all to exist. As the LLCs will most likely occur prior to the Award Fee Board and the Contractor Performance Assessment Reports issuance, sensitive issues may arise. The LLCs intend to remain focused on process improvement, lessons learned and barrier identification. The LLC will allow for sensitive issues to remain in closed sessions or within the scope of their existing feedback and review processes.

39.7 LESSONS LEARNED CONFERENCE APPLICATION AND KNOWLEDGE SHARING.

39.7.1 Communication of Lessons Learned, Barriers and Action Items. Lessons Learned, Barriers and Action Items and their associated resolutions are only useful when they are communicated between maintenance and modernization professionals. The following are the required methods for sharing information in a timely manner, but are not the only means to share this information:

- a. Maintenance and Modernization Performance Review. Status of LLC Action Items and Barriers will be provided during each Maintenance and Modernization Performance Review.
- b. Surface Team One Executive Steering Committee Meetings. When requested, the LLC Process Master will brief the ST1 ESC. As a minimum, each ESC meeting will include a status brief of all open action items and barriers. When barriers are briefed to the ESC, the barrier will be assigned to the correct point of contact for action and closure.
- c. Surface Team One Monthly Process Master Meetings. Monthly meetings will be conducted with each **Knowledge Sharing Network** Process Master and designated support personal. These meetings will serve as a venue to provide a critical review of assigned action items from each LLC.

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APPENDIX A

ACCESS TO LESSONS LEARNED CONFERENCE AND MMPR SITES ON THE ST1 PORTAL

In order for users to be granted access, they must have a .mil or .gov address and have a CAC.

1. Go to: <https://inavy.accessrequest.portal.navy.mil> **Error! Hyperlink reference not valid.**
2. Fill in the information requested and submit.
3. Your command approvers will create the account, usually within 48 hours.
4. If you already have an account for a different site within iNavy, you will see the User Registration Dashboard that will indicate your status.

WELCOME
iNAVY is the Navy-wide portal for all Commands to collaborate and manage their information and data.

Your Name
There is no record of registration for you in our system. Continued access to iNavy requires user registration. To start, provide your work information then click the next button.

Association: CTR - Contractor Business Phone: United States of America 443

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NEXT

Search:

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- b. Responses to technical assistance (SUBS) messages shall be answered as soon as the troubleshooting efforts have results. If requested troubleshooting efforts are not accomplished due to ship's operations or lack of test equipment, generate a (SUBS) message containing efforts taken, results, effect on ship and any further assistance needed.
- c. When requesting onboard technical assistance, Chapter 2 of this volume, Fleet Technical Assistance, shall be used as guidance.
- d. Issue a (SUBS) message to identify the installation and removal of TEMPALTs and SHIPALTs.

40.6 MESSAGE REQUIREMENTS.

- a. All (SUBS) messages requesting technical assistance will contain, as a minimum, the following requirements:
 - (1) EXECUTIVE SUMMARY - faulted equipment, when the fault occurred, functions lost and equipment effected.
 - (2) BACKGROUND (if any) - previous related equipment problems, when experienced, corrective action taken, last completed system certification.
 - (3) DESCRIPTION OF THE PROBLEM - affected equipment, type of fault, fault indications, system indications.
 - (4) TROUBLESHOOTING EFFORTS - procedures used, documentation held onboard, Ship's Force training and experience with the equipment, troubleshooting limitations, special equipment held, any possible fault identified during Ship's Force troubleshooting.
 - (5) ASSISTANCE DESIRED - repair parts needed, distance support or onboard technical assistance needed, if known identify the technical authority and the next available ship operation where a technician could board the ship. Identify the problem as corrected, no further assistance required and justify it as a FINAL REPORT with no additional action required. When answering an information request (SUBS) message a closeout message is not required and should be identified as such in Paragraph 5 of the message. (i.e., no additional action required by this message)
 - (6) COMMANDING OFFICER'S ASSESSMENT - level of impact assessment of ship's capabilities to complete operational commitments, any additional backup or redundant systems and its operational status.
 - (7) REQUIRED RESPONSE DATE - Specify the calendar date response is due by to support ship operations.
- b. All (SUBS) messages reporting TEMPALT and SHIPALT completion will contain, in accordance with references (b) and (c), the following requirements:
 - (1) ACTIVITIES: Unit and installing activity identified.
 - (2) BACKGROUND: TEMPALT number, TEMPALT name, installation period dates, installation completion date, Ship's Force operational testing completion acceptance date.
 - (3) PROVIDED INFORMATION:
 - (a) Type of installation: New equipment, Upgrade, Design change, etc.
 - (b) TEMPALT number: XXXX K/D.
 - (c) Certifying Statement: "all work was accomplished in full compliance with applicable contractual standards, specifications and installation drawings as outlined in reference ()". System Operation Verification Testing (SOVT) was completed on XX NOV XXXX, results were provided to Ship's Force.

- (d) TEMPALT installation issues resolved: Ship's Installation Drawings require revision. All Liaison Action Requests submitted to the planning yard were resolved. Ship's Force has been provided copies of all Liaison Action Requests and red line drawings. Red line drawing forwarded to planning yard.
 - (e) TEMPALT Completion Report completed and forwarded XX Dec XXXX, results provided to Ship's Force.
 - (f) Equipment installed: example AN-BLQ-10 ES SYSTEM.
 - (g) Integrated Logistics Support provided: Tech manuals, Maintenance Requirement Cards library data, On Board Repair Parts.
 - (h) Training Provided: identify by name all personnel trained.
 - (i) Summary: installation schedule issues, delays, support required, etc.
 - (j) Anticipated TEMPALT removal date.
- (4) POC: Point of Contact (POC) at installing activity.
- (5) COMMANDING OFFICER COMMENTS: Describe any issues of concern, provide positive and negative comments and identify any other pertinent information.
- c. All (SUBS) messages reporting TEMPALT removal will contain, in accordance with reference (b), the following requirements:
- (1) ACTIVITIES: Ship's name and Hull number.
 - (2) BACKGROUND: TEMPALT Number and Title.
 - (3) PROVIDED INFORMATION:
 - (a) Date of removal.
 - (b) Certifying statement the ship was restored to original configuration.
 - (c) Removal Issues; any outstanding item preventing restoration.
 - (4) POC: Removal Activity POC.
- d. To ensure the appropriate Technical Agencies are informed of the material problems or request for technical assistance the addressee guidance provided for Casualty Reporting located at <https://www.donhq.navy.mil/n3n5/ncc/casrep.htm> (use all lower case) should be used for (SUBS) messages.
- e. Appendices A through E provide samples of the message format to be used for (SUBS) messages.

VOLUME VI
CHAPTER 41
MAINTENANCE AND PROJECT TEAM

REFERENCES.

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

41.1 PURPOSE. The purpose of this chapter is to define and establish the membership and responsibilities of the Maintenance Team and Project Team (PT) and those supplemental members of both that support the maintenance and modernization process. The Maintenance Team, PT and those that supplement under the Planning Process are integral members of a complex evolution that requires communication, coordination and collaboration in order to accomplish availability planning, execution and close out efficiently and effectively. The contents of this chapter complement Volume II, Part II, Chapter 1, Volume VI, Chapter 31, Volume VI, Chapter 33, and Volume VII, Chapter 7 of this manual.

41.2 MAINTENANCE TEAM. Each ship shall have a formally structured Maintenance Team. The team is led by the Ashore Ship Maintenance Manager and consists of representatives from the ship and the supporting shore maintenance infrastructure. The responsibility of the Maintenance Team is to manage the advanced planning and planning of maintenance, the routine maintenance of the ship and modernization in accordance with the maintenance policies, directives and business rules of the Fleet Commander, Type Commander (TYCOM) and the Naval Supervisory Authority (NSA).

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

41.2.2 Maintenance Team Members. While there are many who contribute to the planning of ship maintenance and modernization, some key personnel have a continuing involvement in and responsibility for management of the overall advanced planning and planning of the ship's maintenance and modernization. The Maintenance Team forms the core of the PT. The Maintenance Team shall be permanently assigned to the ship and shall consist of the following members:

- a. Ashore Ship Maintenance Manager. Validates, screens and brokers all maintenance and modernization, including assessments, requiring off ship assistance. Ensures the Project Manager (PM) has visibility of all assigned work. For all combat systems related maintenance and modernization the Ashore Ship's Maintenance Manager will coordinate with the Combat Systems Port Engineer. Assignments are:
 - (1) Surface Force Port Engineer
 - (2) Naval Air Force TYCOM Maintenance Program Manager
 - (3) Submarine Force Maintenance Coordinator
- b. Ship's Commanding Officer. Primary representative for the ship. (The Commanding Officer may delegate to a representative.)
- c. I-Level Ship Superintendent. Manages Regional Maintenance Center (RMC)/Fleet Maintenance Activity (FMA) Government production work for Continuous Maintenance (CM), Continuous Maintenance Availability (CMAV) and Chief of Naval Operations (CNO) availabilities. Manages I-Level production work planning, integration, execution and close out, reporting progress/status to the Project Manager and Ashore Ship's Maintenance Manager.
- d. Project Manager. NSA support to the Ashore Ship's Maintenance Manager in the advanced planning and close out phases of the maintenance availability (not applicable for Submarine Fleet Availabilities).
- e. Ship Material Maintenance Officer. Coordinates Maintenance Team activities with Ship's Force personnel. Assignments are:
 - (1) Surface Force Ship Material Maintenance Officer

- (2) Naval Air Force Ship Maintenance Manager*
- (3) Submarine Force 3M Coordinator

* The Reactor Maintenance Officer fills this role for Nuclear Propulsion issues.

- f. Contractor Program Manager (when required). Manages authorized contractor/company work. Assignments are:

- (1) Surface Force Prime Contractor Program Manager
- (2) Naval Air Force Prime Contractor for RMC contracted (non Naval Shipyard (NSY)) work
- (3) Submarine Force Prime Contractor for RMC contracted (non NSY) work

- g. Maintenance Support Team (LCS class ships only).

41.2.3 The Principal Roles of the Maintenance Team.

- a. Management of Ship Maintenance. The Maintenance Team ensures the ship's Current Ship's Maintenance Project (CSMP) and Availability Work Package (AWP) are validated and accurately reflect the ship's material condition and current maintenance status. The Maintenance Team ensures there is an initial cost estimate in man-days and material dollars for all work candidates, including assessments and technical assistance. The estimates 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, as they are refined in order to provide the Maintenance Team with adequate data to plan maintenance actions. For Aircraft Carriers, these estimates will be entered in the Proposed AWP and finalized in the Authorized AWP. The Maintenance Team coordinates inspections, certifications, assessments and assist visits in support of the class maintenance plan. Additionally, the Maintenance Team may provide on-scene assessment of equipment condition to develop valid and accurate work candidates.
- b. Budgeting for Ship Maintenance. The Ashore Ship's Maintenance Manager is responsible for the ship's Maintenance and Modernization Business Plan (MMBP). The Maintenance Team develops the budget recommendation for funding maintenance requirements for the fiscal year. The Maintenance Team assesses the ship's anticipated material condition for budget consideration including the validated CSMP, Class Maintenance Plan, planned fleet alterations, outstanding Departures From Specification (DFS), Temporary Standing Orders and Casualty Reports. This MMBP shall address the funding required for execution year maintenance. Ashore Ship's Maintenance Manager and the Maintenance Team members will maintain their ship within the fiscal guidance defined by the approved MMBP. Chapter 33 of this volume describes the development and maintenance of the MMBP.
- c. Logistics and Technical Expertise. The Maintenance Team members maintain a current, valid CSMP and AWP that serve as the authoritative source for all information on maintenance requirements. All technical guidance and advice provided by the members of the Maintenance Team must be in compliance with Systems Command approved technical guidance and policy. In instances where action by a Technical Authority is needed, the Project Manager shall ensure this authorization is obtained. The effective logistics support for maintenance depends on the accuracy of the ship's configuration records. The Maintenance Team oversees prompt submission of change documentation pursuant to maintenance or modernization, validates change entries and ensures configuration records (e.g., Configuration Data Managers Database - Open Architecture) are updated.
- d. Availability Coordination. The Ashore Ship's Maintenance Manager works for the TYCOM to develop, plan and coordinate scheduled availabilities, CM opportunities and emergent repairs of assigned ships within the resources provided. The Ashore Ship's Maintenance Manager shall enter CNO availabilities, assessments, associated routine tasks and authorized Fleet and Programmed Alterations into the appropriate Maintenance Automated Information System in accordance with standard availability planning milestones. The Maintenance Team serves as the point of contact for the NSA/Lead Maintenance Activity (LMA) in coordinating maintenance and planning activities. The Maintenance Team facilitates the orderly conduct of work candidate identification, validation, screening and brokering.

NOTE: RESPONSIBILITIES FOR EACH MEMBER HAVE BEEN BROKEN DOWN INTO TWO CATEGORIES, ACCOUNTABLE AND RESPONSIBLE.

- e. **Accountable:** Owns the work, the person who makes the final decision on a task and has the ultimate ownership over that task.
- f. **Responsible:** A contributor, this will be the person or people assigned to do the work.

41.2.4 Specific Duties of Maintenance Team Members.

41.2.4.1 Ashore Ship's Maintenance Manager.

- a. For Aircraft Carriers, receives the Baseline Availability Work Package (BAWP) from the Carrier Planning Activity. Builds and refines the Proposed and Authorized AWP's.
- b. **Accountable:**
 - (1) Leads the Maintenance Team and maintains frequent contact with the Commanding Officer and conducts personal observations of shipboard conditions. Establishes and maintains an effective communications plan with the ship during deployment. More information can be located in Volume II, Part II, Chapter 1, paragraph 1.2.2 of this manual.
 - (2) Maintains the CSMP shore file accuracy and provides recommended changes for the shipboard CSMP to the Ship Material Maintenance Officer and 3M Coordinator. (See Volume II, Part II, Chapter 1, paragraph 1.3.1 of this manual.)
 - (3) Validates all off ship maintenance for assigned ship(s), including off-ship assessments. (See Volume II, Part II, Chapter 1, paragraphs 1.3.2, 1.3.4 and 1.3.5 of this manual.)
 - (4) Develops initial planning estimates based on information such as return costs from similar jobs and Government prepared or approved estimates. (See Chapter 31, paragraph 31.4.2 of this volume.)
 - (5) Screens/schedules work candidates to the right time period and maintenance availability based on the MMBP, operational schedule, material readiness requirements and cost benefit analysis. (See Volume II, Part II, Chapter 1, paragraphs 1.4.1 and 1.4.4 of this manual.)
 - (6) Brokering as discussed in Volume II, Part II, Chapter 1, paragraph 1.4.2 of this manual.
 - (7) Schedules, and assists the ship's Commanding Officer in conducting the Planning Board for Maintenance meetings, including agenda development. (See Volume II, Part I, Chapter 4, paragraph 4.2.5 of this manual.)
 - (8) Coordinates all off-ship maintenance and modernization requirements.
 - (9) Screens Automated Work Requests in support of 100%, 80% and 50% package lock, including CSMP, Class Maintenance Plan (CMP) and TYCOM routines.
 - (10) Initiates work candidates (OPNAV 4790/2K) for "service" work.
 - (11) Develops Business Case Analysis and generates applicable Engineering Services Request, provides advice and serves as the ship's point of contact for access to technical expertise for all ship maintenance and modernization requirements, including the development of Ship Changes.
- c. **Responsibilities:**
 - (1) Communicates, coordinates and tracks ship and applicable class problems.
 - (2) Ensures configuration change requests are promptly submitted.
 - (3) Ensures completion work candidates (OPNAV 4790/2K) are entered into the CSMP and the appropriate IT system. (See Chapter 2, paragraph 2.6.2 of this volume.)
 - (4) Executes the approved MMBP to best utilize windows of opportunity. (See Volume II, Part II, Chapter 2, paragraph 2.1.2 of this manual.)

- (5) Makes recommendations to the ship's Commanding Officer and management on any deferred work items. (See Volume II, Part II, Chapter 1, paragraph 1.4.5 of this manual.)
- (6) Coordinates maintenance availability scheduling and execution. (See Volume II, Part II, Chapter 2, paragraph 2.6.5 of this manual.)
- (7) (Surface Force only) Supports the RMC in planning assigned ship maintenance/modernization availabilities. (See Volume VII, Chapter 1, paragraph 1.3.8 of this manual.)
 - (a) Develops and schedules work packages. Recommends resolutions to CNO scheduling issues.
 - (b) Recommends CM opportunities to the ship's Commanding Officer and the NSA management. Creates CM availabilities.
 - (c) Screens work candidates (OPNAV 4790/2K) to appropriate level of maintenance (Organizational, Intermediate, Depot (O, I, D)). Reviews assessment results for inclusion in work packages.
 - (d) Assists Project Manager with work package analysis for Multi-Ship Multi-Option (MSMO) contracts.
 - (e) Provides availability evaluation input documentation during availabilities supporting Contractors Performance Appraisal Reporting System (CPARS).
- (8) Supports Fast Cruise, Dock Trials, Sea Trials, Propulsion Plant Light Off Assessment (LOA) and Production Completion Date (PCD), Combat Systems or AEGIS Light Off and TYCOM validation of PCD.
- (9) Attends Integrated Project Team Development (IPTD), Work Package Integration Conference (WPIC), Work Package Execution Review (WPER), Lessons Learned Conference (LLC) Life Cycle Planning, Docking, Arrival, 25%/50%/75% reviews, Undocking, and Departure conferences,
- (10) Plans, coordinates and executes mid-deployment shipcheck.
- (11) Supports Ship's Force for AWP collection and management of Objective Quality Evidence (OQE).
- (12) Performs AWP risk assessments and verifies deliverables to contractor (O, I, D work items and Alteration Installation Team (AIT) schedule requirements).
- (13) Assists the NSA with technical close out and availability work certification. Assists ship in achieving maintenance phase exit criteria.
- (14) Supports the 100% Package Lock Letter.
- (15) Validates growth and new work, assists with the Regional Calibration Center process.
- (16) Supports and participates in work specification review.
- (17) Provides incremental funds for ordering Long Lead Time Material (LLTM) for both repair and alteration/modification work to meet required dates.
- (18) Submits change deferral request to appropriate platform planning activity.

41.2.4.2 Ship's Commanding Officer. Primary representative for the ship. Works with the Ashore Ship's Maintenance Manager on the development and prioritization of the ship's maintenance and modernization including the MMBP.

a. Accountable:

- (1) Reports progress weekly to the TYCOM. Recommends urgent and compelling decisions to the TYCOM.

- (2) Works with the Ashore Ship's Maintenance Manager to develop the final work package submission for the ship.
- (3) Directs efforts to identify all shipboard maintenance requirements and ensures accurate and timely entry into the CSMP. Reviews, plans and monitors accomplishment of organizational level work.
- (4) Initiates requests for technical assistance, including distance support.
- (5) Determines the affect of material deficiencies on mission capability and releases Casualty Reports.
- (6) Integrates maintenance planning in the ship's operational schedule.
- (7) Ensures the ship is prepared for and ready to conduct: propulsion plant PCD/LOA, combat systems PCD, combat systems light off events.
- (8) Chairs the Planning Board for Maintenance meeting.

b. Responsibilities:

- (1) Verifies technical assistance final resolution satisfies ship's maintenance issue.
- (2) Ensures Ship's Force assists with the management and oversight of work execution by maintenance activities and AITs.
- (3) Executes shipboard DFS process.
- (4) Ensures ship properly supports 25%/50%/75% reviews; Arrival, Docking, Undocking, Fast Cruise, Dock Trials, Sea Trials, Departure, and Completion key events and conferences; IPTD, WPIC, WPER events; and CSMP, DFS, BAWP Mid-Cycle reviews.
- (5) Ensures Integrated Logistics Support (ILS) is provided.
- (6) Assists in scheduling and execution of mid-deployment shipcheck.
- (7) Collaborates in the authorization of growth/new work.
- (8) Supports the Integrated Test Plan execution and work certification.
- (9) Assists in achieving maintenance phase exit criteria. Ensures proper space turnover, Ship's Force AWP collection and management of OQE, and availability technical closeout.

41.2.4.3 I-Level Ship Superintendent.

a. Accountable:

- (1) Manages the collection of I-Level OQE.
- (2) Manages RMC/FMA work planning, scheduling, integration, and work execution. Resolves conflicts with other Executing Activities. Ship checks work candidates (2K) as applicable and provides estimates on all I-Level work candidates. Recommends cancellation of invalid work candidates, if applicable.
- (3) Represents the RMC/FMA to Ship's Force for RMC/FMA production maintenance work. Coordinates the performance of I-Level work including all scheduling and availability coordination, ensuring the I-Level work package is fully accepted in accordance with milestones.

b. Responsibilities:

- (1) Ensures completion of I-Level production work supporting LOA, propulsion plant PCD, AEGIS and Combat Systems Lightoff, Docking, Undocking, Fast Cruise, Dock Trials, Sea Trials, and Availability Completion.
- (2) Assists ship in achieving maintenance phase exit criteria. Ensures I-Level work is complete in support of availability certification, completion, and technical close out.
- (3) Attends availability production meetings; Arrival, Docking, Undocking, Departure, WPIC and WPER conferences.

- (4) Coordinates work planned and performed by RMC production department. FMA repair division, submits I-Level schedule to NSA/LMA for integration, coordination of I-Level open and inspects, coordination of oversight for I-Level work (Product Verification Inspection (PVI), Procedure Evaluation (PE), Procedure Review (PR)).
- (5) Provides recommendations regarding assignment of work candidates to RMC production department/FMA repair division based on the capabilities and capacities of the RMC/FMA. Works closely with the Ashore Ship's Maintenance Manager on the validation and screening of all work candidates to the I-Level.
- (6) Ensures completed maintenance action (OPNAV 4790/2K) for completed work.

41.2.4.4 Project Manager.

a. Accountable:

- (1) Supports the Ashore Ship's Maintenance Manager in the performance of maintenance and modernization.
- (2) Accepts or rejects work candidates to scheduled availability periods and performing activities in accordance with guidance in Volume II, Part II, Chapter 1 of this manual. Integrates work candidates to form optimized work packages.
- (3) Establishes the availability in the appropriate maintenance execution IT system.
- (4) Ensures LLTM for Firm Fixed Price and MSMO contracts is ordered to support availabilities.
- (5) Conducts Work Specifications Review with Ashore Ship's Maintenance Manager.
- (6) Serves as the advanced planning manager for contracted maintenance during CNO availabilities and scheduled CMAVs conducted at contractor or Government depots. Coordinates the continuous cost estimate review process.
- (7) Provides timely financial accounting information during the execution of maintenance to customers.

b. Responsibilities:

- (1) Supports CSMP/DFS/BAWP mid-cycle review.
- (2) Attends IPTD events, scoping conferences (see Volume VII, Chapter 2, paragraph 2.12.1 of this manual), WPIC and WPER.
- (3) Assists in coordinating mid-deployment shipchecks.
- (4) Provides incremental funds for ordering LLTM for both repair and alteration/modification work to meet required dates.

41.2.4.5 Ship's Material Maintenance Officer. (The Reactor Maintenance Officer fills this role for Nuclear Propulsion issues.) Coordinates Maintenance Team activities with Ship's Force personnel.

a. Accountable:

- (1) Provides the Ship's Force work package to the Project Manager and executing activity. Assists in coordinating the integration of Ship's Force work for CNO and/or CMAV availabilities. Provides shipboard schedule inputs (see Volume II, Part II, Chapter 1, paragraph 1.2.2 of this manual). Interfaces with the Project Manager and the executing activity to resolve maintenance issues.
- (2) Commanding Officer's principal assistant for management of ship maintenance. Prepares the ship input to the Planning Board for Maintenance agenda in support of the Ashore Ship's Maintenance Manager. Works with the Maintenance and Material Management Coordinator to maintain an accurate shipboard CSMP. Approves, validates and ensures submittal of accurate work candidates (OPNAV 4790/2K).

- (3) Works with the Quality Assurance Officer and department representatives to submit and track DFSs.
- (4) Ensures initiation of work candidates (OPNAV 4790/2K) to request distance support and technical assists. Works with Subject Matter Experts (SME) to coordinate tech assist visits.
- (5) Monitors timely submission of configuration change requests.
- (6) Ensures Ship's Force verification of completed work and returns Completed Maintenance Action (OPNAV 4790/2K) to the Ashore Ship's Maintenance Manager.
- (7) Ensures valid deferred work is incorporated into the CSMP.

b. Responsibilities:

- (1) Ensures repair work candidates are submitted supporting 50%/80%/100% D-Level lock milestones.
- (2) Ensures Ship's Force I-Level work package 100% brokered and locked.
- (3) Ensures ship's initial conditions are set for work to begin by outside activities and Work Authorization Forms are properly executed. Ensures systems and equipment are properly tagged out, drained and depressurized.
- (4) Generates any new work requests along with supporting urgency information.
- (5) Ensures Ship's Force has planned and prepared for propulsion plant PCD, LOA, and AEGIS/combat systems PCD and light off, Fast Cruise, Dock Trials and Sea Trials mid-deployment shipchecks.
- (6) Attends the Docking, Arrival, 25%/50%/75%, Undocking and Departure conferences, WPIC, WPER, IPTD, LLC events, and CSMP/DFS/BAWP Mid-Cycle review.
- (7) Provides oversight and management to ensure AIT controls are in place, Regional Maintenance and Modernization Coordination Office requirements are met prior to starting work onboard ship, and assignment of SMEs to support AITs.
- (8) Ensures Ship's Force work is complete to support end of availability, space turnover, and availability work certification.
- (9) Supports Ship's Force ILS and consolidates software delivery.
- (10) Coordinates with Ship's Force the execution of the Integrated Test Plan.
- (11) Ensures Ship's Force, RMC, LMA, AWP collection and management of OQE.
- (12) Ensures AWP risk assessments are performed and deliverables to **contractor** verified.
- (13) Collaborates in the authorization of growth/new work.
- (14) Assists ship in achieving maintenance phase exit criteria.

41.2.4.6 Contractor Program Manager. Manages and supervises authorized contractor work (see Volume II, Part II, Chapter 1, paragraph 1.2.2 of this manual).

a. Accountable:

- (1) Schedules and oversees **contractor** required open and inspects.
- (2) Provides information and advice to the Government on matters of mutual concern to include contractor cost and time estimates, future work planning, contractor capability and capacity for varied work accomplishment (i.e., port loading), production management, integration of work from multiple activities and production problems for assigned availabilities.

- (3) Establishes and recommends availability milestones. Provides schedule for: Integrated Test Plan (ITP), Expanded Process Control Procedures (EPCP), Universal Process Control Procedure (UPCP), Process Control Procedures (PCP), availability planning and assessments.
- (4) Reviews and submits condition reports, initiates completion reports for authorized work completed.
- (5) Ensures progressing Cost/Schedule Status Reports.

b. Responsibilities:

- (1) Recommends scheduling of work to best take advantage of port work loading conditions, provides recommendations for reduction of premiums in the accomplishment of work.
- (2) Ensures completion of 50%, 80% and 100% D-Level maintenance work package 2Ks are planned and estimated. Publishes work package in the appropriate IT system. Conducts work specification reviews in support of each milestone, final package submission and cost proposal. Ensures work package is Technical Analysis Reported, negotiated and definitized.
- (3) Attends 25%/50%/75% reviews; Arrival, Docking, Undocking and Departure conferences; WPIC, WPER and LLC events.
- (4) Ensures completion of the ITP, propulsion plant PCD and LOA, Combat Systems\AEGIS PCD and Light Off, Fast Cruise, Dock Trials, Sea Trials, and Availability work certification.
- (5) Ensures consolidated software delivery and ILS support is provided.
- (6) Supports the PM to ensure the availability business and technical close requirements are met.
- (7) Supports the DFS process.
- (8) Ensures requirements are met to support the EPCP, UPCP, PCP, cleanliness processes.
- (9) Provides contractor oversight of LMA checkpoint execution (V, G, I points) as well as PVI, PE, PR.
- (10) Provides personnel to coordinate with AIT, Fleet Maintenance Activity and Ship's Force to update production schedule (NSI 009-060).
- (11) Provides Integrated Total Ship Test Plan (NSI 009-067).
- (12) Ensures contractor work is complete to support space turnover.
- (13) Supports the authorization of growth/new work.
- (14) Ensures habitability items are complete.
- (15) Provides incremental funds for ordering LLTM for both repair and alteration/modification work to meet required dates, ensures delivery of material (LLTM and kitted materials) to executing activity.
- (16) Ensures work and support services are in place to support dock and undock.

41.3 **PROJECT TEAM.** (Augmentation to manage RMC-contracted maintenance in availabilities between A-120 and C+60). The PT shall be assigned to the ship availability and shall consist of those persons listed below and all members of the Maintenance Team. The Project Manager leads the PT and has the responsibility to ensure overall integration, execution and close out of a ship's availability. The PM is responsible for quality, schedule and cost. Some PT members may be assigned responsibilities for more than one ship.

- a. Project Manager
 - (1) RMC Project Manager. When a RMC is the NSA, the PM is responsible for integration, execution, and close out of the Work Package. When the NSY is the NSA the RMC PM is responsible for planning, integrating, coordinating, and executing the MSMO contracted maintenance work items, in support of the NSY Project Manager.
 - (2) NSY Project Manager (Superintendent). When a NSY is the NSA. Leads the PT. Manages Government production work for CNO availabilities. The Project Superintendent is the senior NSA representative and has the overall responsibility to plan, integrate and execute availabilities.
- b. Contract Specialist.
- c. Quality Assurance Specialist.
- d. NSA Logistical Representative.
- e. SEA 21 Hull, Mechanical and Electrical and AEGIS Combat Systems On-Site Logistician (where applicable).
- f. Project Support Engineer.
- g. Integrated Test Engineer.
- h. Assessment Director.
- i. Technical Matter Expert (Surface Force Ship critical work only).
- j. Shipbuilding Specialist.
- k. AIT On-Site Installation Coordinator.
- l. AIT Manager.
- m. Combat Systems Project Engineer (CSPE).
- n. SEA 21 Hull Manager (Surface Ship Program Office Modernization only).

41.3.1 Specific Duties of Project Team Members.

41.3.1.1 Project Manager.

- a. Accountable:
 - (1) Accepts and tracks all assigned maintenance work items through execution. Coordinates planning and cost estimating and design specification preparation and scheduling. Coordinates and manages shipchecks in accordance with Volume II, Part II, Chapter 2, paragraph 2.6.2.3 of this manual. Reviews specifications to ensure completeness and conformance with authorized work. Ensures all specifications for work are developed using approved technical guidelines ensuring maximum use of current NAVSEA approved Standard Items and Standard Work Item templates (Master Specification Catalogue).
 - (2) Analyzes feedback submissions in accordance with Chapter 39, Section 39.5 of this volume.
 - (3) Briefs Ship's Force on the status of all work, by work item (see Volume VII, Chapter 2, paragraph 2.8.8 of this manual).
 - (4) Acts as business agent with other activities on availabilities and contracts assigned that includes ensuring that TYCOM funds are utilized properly. Evaluates all Technical Analysis Reports (TAR) and supports the Contracting Officer in contract negotiations. Acts as assistant funds administrator (when designated in writing from the RMC Commanding Officer) for assigned availabilities and contracts.

- (5) (For Surface Force ships) Documents delay and disruption charges and lessons learned in accordance with Chapter 31, paragraph 31.5.3 of this volume.
- (6) Manages ship repair and modernization work items, job orders and contracts assigned by progressing and evaluating all work to anticipate, prevent and minimize delays, resolving all problems that affect the end cost, quality, schedule and performance of assigned availability or contract.
- (7) Evaluates and acts on the reports received from other members of the availability management team. Prepares reports on current status of assigned project or contract.
- (8) Maintains liaison with customers, the ships Maintenance Team, Ship's Force Representatives, and financial/accounting personnel.
- (9) (RMC PM only) Maintains liaison with RMC functional departments and the contractor.
- (10) Arranges and conducts the arrival conference (see Volume VII, Chapter 7, paragraph 7.7.1 of this manual), weekly progress conferences, weekly commanding officer's brief (see Volume VII, Chapter 7, paragraphs 7.7.2, 7.8.8, 7.12.1, 7.9.4 and Volume II, Part I, Chapter 3, paragraph 3.6.3.1 of this manual), Docking conference, and the Availability Completion conference. Attends weekly management meeting and on-site meetings to provide comprehensive information to all concerned and to remain current in all aspects of the project.
- (11) (RMC PM only) Arranges for RMC representation at all conferences pertaining to assigned availabilities and contracts. Coordinates the on-site work effort in observing the contractor's in process production performance and operational testing events for projects assigned to the team.
- (12) Reviews all work accomplished by assigned Shipbuilding Specialists to ensure compliance with regulations, directives, instructions, and policies as well as to ensure that intended work is practical and necessary.
- (13) (RMC PM only) Reviews contractors work schedules, manning curves, material ordering/receipt schedules and special tasking/equipment requirements. Evaluates contractors' proposals prior to and during contract execution. Takes corrective actions to eliminate conflicts and prevent work stoppages. Identifies and initiates action to correct, prevent, and minimize delays, resolving all problems that affect quality, schedule and contractor performance.
- (14) Provides written reports (CPARS) to the Contracting Officer for award fee evaluations on CNO availabilities.
- (15) Coordinates required action as a result of post overhaul/repair inspections with the NSA Technical Authority and Maintenance Team in accordance with Volume IV, Chapter 4, paragraph 4.3.2 of this manual.
- (16) Maintains records for the Contracting Officer to include but not limited to the following:
 - (a) Maintains a Significant Event Log (see Volume VII, Chapter 7, paragraphs 7.3.2 and 7.2.4 of this manual). All significant event logs from the shipbuilding specialist.
 - (b) Maintains correspondence files containing copies of all correspondence to the contracts office both internal and external.
 - (c) Obtains work authorizations for growth and new work. Work authorizations may be in the form of naval messages, speed letters, letters, other transmittals or documents. In the case of growth work, the authorization may be verbal, a memo at a meeting or a telephone call. Verbal authorizations should be documented with a memorandum for the record.

- (d) Maintains a ledger notebook or spreadsheet to assist in funds administration. For each contract modification initiated in the work package, the Project Manager shall show the title of the item, cite the proper funding authorization and account and show the Government estimate. The ledger shall show funds committed and obligated for each contract modification and other financial transactions and provide an indication of funds available for future use. When changes occur during the negotiation process, the funds reserved or obligated shall be changed to reflect the current funding status. Periodically, at least monthly, the Project Manager shall reconcile ledger accounts with the Contracting Officer and Comptrollers' accounts to ensure that funds are not over obligated or expended.
 - (e) Maintains material requisitions for Government Furnished Material (GFM) with prices.
 - (f) Maintains project orders and economy act orders issued to other Government activities.
 - (g) Maintains completion reports.
 - (h) Maintains departure reports including summary costs of individual work items.
- (17) (RMC PM only) Reviews contractor condition reports (see Volume VII, Chapter 7, paragraphs 7.10.2, 7.12.2 and 7.10.3 of this manual), exceptions list, and contract modifications for approval.
 - (18) Maintains contact with the ship through the guarantee period (see Volume VII, Chapter 7, paragraph 7.12.4 of this manual).
 - (19) Prepares a "Readiness to Start" report (see Volume VII, Chapter 7, paragraph 7.6.3 of this manual).
 - (20) Assists Contracting Officers (see Volume VII, Chapter 2, paragraph 2.7 of this manual), participate in the contract awards phase (see Volume VII, Chapter 7, paragraphs 7.6.1, 7.6.2, and 7.6.7 and Chapter 3, paragraph 3.7.5 of this manual), manages funding for option items in accordance with Chapter 31, paragraph 31.5.3 of this volume, participates in the pre-award survey, verifies adequate funding for acceptable berthing and messing and performs contract administration.
 - (21) (RMC PM only) Provides appropriate clearance letters to the ship for RMC and contractor personnel (see Volume VII, Chapter 7, paragraph 7.6.9 of this manual).
 - (22) Conducts underwater hull inspection and drydock walkthrough (see Volume VII, Chapter 7, paragraph 7.8.9.c of this manual).
 - (23) Provides a list of expected prorated items with work numbers assigned (see Volume II, Part II, Chapter 2, paragraph 2.4.6.2 of this manual).
 - (24) (RMC PM only) Establishes a Ship Specification Package within Navy Maintenance Database (NMD) Planning for CMAVs and set up availability in NMD to receive Automated Work Requests from the appropriate IT system. (See Volume II, Part II, Chapter 2, paragraph 2.6.2.2 of this manual.)
 - (25) (RMC PM only) Reviews and validates Automated Work Requests received in NMD Strategic Systems Programs planning availability daily (see Volume II, Part II, Chapter 2, paragraph 2.6.2.3 of this manual).
 - (26) Prepares and schedules the LOA/propulsion plant light off (see Volume II, Part I, Chapter 3, paragraph 3.3.4 of this manual).
 - (27) (RMC PM only) Reports costs, schedules and maintains the status of all CNO and CMAV work conducted at contractor and Government facilities.
 - (28) Coordinates, schedules and administers advance planning functions. Analyzes work package to maintain available dates and minimize premiums.

- (29) Participates in availability final cost validation.
- (30) Participates in establishing controls to fund all repairs for an availability.
- (31) (RMC PM only) Analyzes work package to level load contractor.
- (32) Assures planning estimates are established for timely receipt of funds, requests funds and distributes relevant availability information.
- (33) (RMC PM only) Coordinates review of both Government and contractor estimates for “reasonableness and fairness”. Recommends alternate contracting vehicles if applicable.
- (34) (RMC PM only) Submits contract work packages to appropriate procurement activity for solicitation and monitors progress of contract award.
- (35) (RMC PM only) Responds to contract bidders’ questions during Fleet Fast Pay solicitation.
- (36) Provides inputs for funding requirements and serves as the Maintenance Team funds manager for CNO availability preparation and execution.
- (37) Chairs advance planning meetings, reviews and accepts or modifies recommended availability milestones.
- (38) Updates appropriate product and pricing databases.
- (39) Prepares advance planning status messages, fuel and ammunition offload, readiness to start, pre-availability agreement, monthly availability status messages and completion messages for scheduled CNO/CMAV availabilities.
- (40) Coordinates interface of outside activities during availability execution (i.e., Systems Commander, TYCOM, In-Service Engineering Agent, AITs and other customers).
- (41) Oversees contractor and/or NSY work during availability execution. Progresses and monitors other integrated availability work.
- (42) Assists with business case analysis preparation.
- (43) Verifies that controls are sufficient to fund all repairs required to support operational commitments.
- (44) Reviews cost reports for cost performance.
- (45) Executes availability planning milestones. Enforces depot availability “lock”, planning and estimating dates.
- (46) Prepares the business case analysis for growth and new work recommendations and recommends resolutions to the Ashore Ship’s Maintenance Manager. Reviews the authorization and funding, and submits information to the contracting officer for negotiation on growth and new work.
- (47) Coordinates urgent and compelling requests.
- (48) Chairs weekly production progress meetings and provides regular status reports to Ashore Ship’s Maintenance Manager.
- (49) Reviews condition reports and evaluates submitted time and cost estimates for accomplishment or deferral in concert with the Ashore Ship’s Maintenance Manager's concurrence.
- (50) Oversees an independent Government review of brokered work candidates for obligation of Government funds and execution.
- (51) Ensures work candidate 2K documentation is complete and completion reports are initiated by the executing activity.
- (52) Verifies funds availability and maintains funds tracking reports.

- (53) (RMC PM only) Submits I-Level schedule to **contractor** for integration.
- (54) Ensures work is complete to support PCD, LOA, combat systems light off, propulsion plant light off, Dock Trials, Fast Cruise, Sea Trials (contractual milestone).
- (55) Provides oversight of AIT management.
- (56) Attends 25%, 50%, 75% reviews; Arrival, Docking, Undocking, Departure, and Completion conferences; IPTD, LLC, WPIC and WPER events.
- (57) Ensures work is complete and closed out to support business close.
- (58) Coordinates condition report responses.
- (59) Coordinates consolidated software delivery and ILS support.
- (60) Ensures work is complete supporting habitability completion.
- (61) Provides oversight of (PVI, PE, PR) and LMA checkpoint execution (V, G, I).
- (62) Ensures LMA coordinates with AIT, Fleet Maintenance Activity and Ship's Force to update production schedule (NSI 009-060).
- (63) Ensures LMA provides Integrated Total Ship Test Plan (NSI 009-067).
- (64) Requests funds for repair and modification work LLTM, orders LLTM Firm Fixed Price/MSMO.
- (65) (RMC PM only) Ensures contracted maintenance is complete supporting space turnover.
- (66) (RMC PM only) Performs risk assessments and verify deliverables to **contractor** (O, I, D work items and AIT schedule requirements).
- (67) **Provides funds administration for all depot level funding on assigned ship(s) as designated in writing by the RMC Commanding Officer.**

b. Responsibilities:

- (1) Provides supporting information for Business Case Analysis for new work.
- (2) Participates in CSMP/DFS/BAWP mid-cycle reviews, coordinates mid-deployment shipchecks, and participates in scoping conference (see Volume VII, Chapter 2, paragraph 2.12.1 of this manual).
- (3) Reviews and provides feedback on Engineering Service Request.
- (4) Ensures LMA and I-Level collection and management of AWP OQE.
- (5) Provides oversight of the Integrated Test Plan Execution.
- (6) (RMC PM only) Ensures contractor coordination of open and inspects with participating activities.
- (7) Progresses Cost/Schedule Status Reports.
- (8) Participates in risk letter development and signed out.
- (9) Assists with the authorization of growth and new work.
- (10) Assists ship in achieving maintenance phase exit criteria.

41.3.1.2 Contract Specialist. The Contract Specialist who acts as the Administering Contracting Officer (ACO) and whose duties parallel the responsibilities of the Contracting Officer. Their authority is limited as specified by the level of their Defense Acquisition Workplace Improvement Act qualifications level of authority, specific limitations of their warrant and specific assignments made by the Contracting Officer. The ACO is assisted by additional warranted, Defense Acquisition Workplace Improvement Act qualified personnel, who are assigned specific responsibilities for processing contractual issues and to assist with the management and administration of a contract. The contract specialist is a contributor and this will be the person or people assigned to do the work. The contract specialist's responsibilities are listed below in sub-paragraphs a. through d.

- a. Participates in negotiations. TAR, advance planning funding administration and definitization. Prepares for and participates in the award fee board/CPARS.
- b. Ensures financial and contractual requirements are met for availability completion and business close.
- c. Assists in developing pre business clearance, progressing Cost/Schedule Status Reports and participates in the Regional Calibration Center process.
- d. Provides incremental funds for ordering LLTM for both repair and alteration/modification work to meet required dates.

41.3.1.3 Quality Assurance Specialist. Supports the administration of the Contract Administration Quality Assurance Program to evaluate the effectiveness of the Contractor's Quality Management System on work being performed both shipboard and in the contractor's/subcontractor's plant.

- a. Accountable:
 - (1) Develops a Quality Management Plan for each CNO availability in accordance with Commander, Navy Regional Maintenance Center (CNRMC) Standard Operating Procedure (appropriate local instruction for SRF-JRMC).
 - (2) Reviews contract specification items to determine inspections/tests required, and PCPs for review (PR/PE/Program Quality Assurance).
 - (3) Verifies all critical tests and inspections associated with Level I work, Nondestructive Testing and critical welding such as P-1 piping.
 - (4) Reviews past contractor quality data (Quality Data Evaluation/PVI/Government and contractor generated corrective action reports) to support planned surveillance actions.
 - (5) Reviews submitted list of sub-contractors to be utilized to support identification of Defense Contract Management Agency notification requirements.
 - (6) Promulgates the Quality Assurance (QA) plan to the PT for use via the Project Manager.
 - (7) Participates in bid specification and work specification review with the PT supporting quality and technical requirements in accordance with invoked milestones. Provides feedback for incorporation into work specification requirements.
 - (8) Attends scheduled meetings, assesses contractor capabilities, monitors contract performance, provides technical support to the ACO, and participates in claims avoidance.
 - (9) Maintains a Significant Events Log. Provide a copy of the log to the contracting officer and PM at the completion of the availability.
 - (10) Completes Past Performance Information Surveys within 14 days of completing each availability and provides written reports to Contracts Department in support of Award Fee Evaluations and CPARS. Conducts Procedure Reviews for PCPs submitted by contractors.
 - (11) Maintains a copy of all Corrective Action Requests (CAR) generated by the Government, as well as those written by the contractor (when requested by the Government in accordance with NSI 009-04). Maintains a status of all CARs generated by the Government and updates the Project Manager.
 - (12) Informs Project Managers of quality problems that are, or have the potential to, affect their ship.
 - (13) Accomplishes Ship's Force QA Interface training prior to each CNO availability.
 - (14) Assists Shipbuilding Specialist, as functional responsibilities permit, in the coverage of G-Points.
 - (15) If, in the course of evaluating the prime contractor, AIT non-conformities are discovered, they are to be addressed to the Project Manager. If it is determined that the non-conformity warrants the issuance of a Government CAR, and the AIT manager/On-Site Installation Coordinator does not issue the CAR to the AIT, the RMC QA department shall notify NAVSEA 04XQ detailing the Government sponsor information.

- (16) Performs 100% final preservation record review to support work certification at the end of the availability.
- (17) Accomplishes in-process reviews of contractor's test and inspection plan to ensure compliance with NAVSEA Standard Item requirements.
- (18) Reviews and oversight of PCP, EPCP, UPCP.

b. Responsibilities:

- (1) Provides quality assurance, quality control support of AEGIS Light Off, combat systems light off, propulsion plant light off, production completion date, Fast Cruise, Dock Trials and Sea Trials.
- (2) Provides quality oversight of AIT and AIT management
- (3) Provides quality oversight and input of business close, technical close.
- (4) Provides quality oversight and review and condition report submission.
- (5) Provides quality review of services request.
- (6) Provides quality oversight of AWP, LMA, I-Level collection and management of OQE.
- (7) Provides quality oversight of the Integrated Test Plan Execution.
- (8) Provides quality oversight of LMA Checkpoint Execution (V, G, I), and (PVI, PE, PR).
- (9) Provides quality control oversight of work certification.
- (10) Provides quality oversight of all work specifications Face to Face reviews.

41.3.1.4 NSA Logistical Representative. Responsible for supporting the configuration management of a ship and validating configuration of the ship following modernization efforts.

- a. Monitors the configuration management process.
- b. Ensures timely action on submittal of configuration change requests and follows up to update configuration records and associated logistics support.

41.3.1.5 SEA 21 Hull, Mechanical and Electrical and AEGIS Combat Systems On-Site Logistician (Surface Force Ships only). Accountable to ensure that all equipment has proper logistics support completed and available for delivery at the time of installation.

- a. Researches, documents and coordinates delivery of all ILS in support of combat system material readiness to the ship.
- b. Arranges storage and transportation of parts and equipment. Performs inventory audits of installation kits. Assists in the expediting of parts throughout the availability.
- c. Provides applicable logistics data to project engineers end of availability report.
- d. Provides assessment data, near real time, into ship's CSMP.

41.3.1.6 Project Support Engineer. The Project Support Engineer is a critical part of availability certification and will work closely with the Project Manager and Chief Engineer to help certify the availability.

- a. Accountable: Provides engineering/technical services during availability planning. The services include:
 - (1) Reviews of contractor work specifications ensuring the requirements of tasking documents are met, naval standards are invoked, and final acceptance testing will validate work performed.
 - (2) Attends all pre-availability planning meetings, assuming a leading role in addressing technical issues and coordinating resolution of technical authority issues.
 - (3) Maintains a records system of tasking documents, 2-Kilos, temporary DFS, a listing of specifications reviewed and documented comments forwarded for correction.

- (4) Coordinates resolution of technical issues during availability execution (i.e., DFS, Condition Reports, Liaison Action Requests).
- b. Provides engineering/technical services in support of ongoing waterfront production work at private contractor facilities. Serves as the principal point of contact for all engineering related technical issues between the Fleet Technical Support Divisions, the PT and other outside commands. These services include:
 - (1) Provides oversight of the contractor's technical performance of shipboard work for compliance to contract specifications.
 - (2) Provides oversight of contractor's quality assurance management program for technical documents and data.
 - (3) Provides oversight of contracted Original Equipment Manufacturer technical representatives.
 - (4) Provides technical evaluation and recommendations for contractor change proposals, growth and new work.
 - (5) Serves as the PT's technical authority point of contact. Assigned to resolve all technical issues, adjudicate non-conformances, DFS, waivers and deviations and provides for technical responses to contractor condition reports.
 - (6) Provides oversight of assigned planning yard on-site field personnel responsiveness and technical adequacy.
 - (7) Reviews and approves or disapproves contractor prepared PCP used to provide contractor mechanics guidance for accomplishment of critical repair processes.
 - (8) Initiates Liaison Action Request to document changes or questions to NAVSEA installation drawings.
 - (9) Technical point of contact for analyses during final acceptance testing, certifications and technical inspections.
 - (10) Attends all production meetings to assist and advise the PT in all matters concerning the repair and modernization of shipboard systems and equipment.
 - (11) Provides coordination for the ship availability technical closeout documents to ensure all technical related documents have been properly answered and/or adjudicated.
- c. Participates as a member of the Maintenance Control Team.

41.3.1.7 Integrated Test Engineer. The Integrated Test Engineer is a critical part of availability certification and will work closely with the Project Manager and Chief Engineer to help certify the availability.

- a. Approves and provides oversight of the contractor's development and management of the ITP. Ensures the ITP is functionally linked to the Integrated Production Schedule. Ensures the ITP is responsive to changes in production schedule such that when production items completion dates change, their associated test dates change as well. Ensures the ITP includes all testing for all maintenance activities.
- b. Reviews work specification to ensure appropriate work to test relationships have been developed.
- c. Reviews AWP to identify testing key events and milestones that may be required in addition to production key events and milestones (i.e., Aviation Certification and Combat Systems Command, Control, Communications and Computer Readiness Assessment).
- d. Coordinates with Project Manager to ensure the ITP accurately reflects the AWP and the integrated production schedule.
- e. Coordinates with the Program Executive Office in accordance with CSPE and Test Coordinator (if assigned) to provide information and status as required.

- f. Acts as the Governments primary point of contact to collect scheduling and testing information from all non-LMA maintenance activities including AITs, Fleet Maintenance Activity, In Service Engineering Agent (ISEA) and NSY. Provides this information as Government Furnished Information to LMA for inclusion into the Integrated Schedule and ITP.
- g. Acts as Government point of contact to coordinate Ship's Force testing schedule and major training evolution schedule information. Provides this information as Government Furnished Information to LMA for inclusion into the Integrated Schedule and ITP.
- h. Evaluates Test Sequence Networks provided by each maintenance activity prior to submitting to the LMA. Evaluates Integrated Test Sequence Networks provided by LMA.
- i. Ensures the Integrated Testing Schedule is updated at least weekly or as milestones and growth work changes dictate.
- j. Receives OQE for completed test procedures from all maintenance activities and evaluates results for completeness and accuracy. Ensures non-conformances are documented and action is taken to resolve or technically adjudicate.
- k. Serves as Government representative on Total Ship Testing Task Group as outlined in NAVSEA Standard Item 009-67.
- l. Provides a final report at the completion of the availability showing completion of all testing, or tests that remain unexecuted with exception reasons and plan for completion.
- m. Ensures the availability of special instrumentation, recording devices, support services, test ranges and data collection requirements to support Sea Trials events. Approves the LMA input to the Sea Trials agenda for submission to Ship's Force, ensuring all test procedures with underway requirements are properly scheduled.
- n. Participates as a member of the Maintenance Control Team.

41.3.1.8 Assessment Director. Leader of assessment execution. Provides management of military personnel, Government engineers and technicians, contractors, data entry personnel and logisticians in support of assessment program visits and events. Plans, schedules, organizes, directs and manages the execution of Total Ships Readiness Assessment visits and CMP assessment events.

- a. Accountable:
 - (1) Attends the AWP turnover with SURFMEPP and TYCOM managers to ensure visibility, resource allocation and scheduling of all CMP assessment tasks.
 - (2) Augments/assists the PT in CMP assessment accomplishment.
 - (3) Updates the PT on progress in meeting established milestones and deadlines for completion of assignments, projects and tasks, and ensures all team members are aware of and participate in planning for achievement of team goals and objectives.
 - (4) Manages dedicated Visit Support Team performing logistics validation, data entry and data collection support functions.
 - (5) Utilizes data provided by the Fleet Technical Assist (typically RMC Code 200) personnel to assist the Maintenance Team in documenting, completing and closing CMP assessment requirements.
 - (6) Assists Ship in achieving Maintenance Phase Exit Criteria through execution of Assessments.
- b. Responsibilities: Participates in CSMP/DFS/BAWP mid-cycle review and life cycle planning conference. Provides open and inspect oversight for screening potential repair.

41.3.1.9 Technical Matter Expert. The Technical Matter Expert is the Maintenance Control Team leader and acts as the principle assistant to the NSA for non-nuclear propulsion plant work. Accountable as owner of the work and the person who makes the final decision on a task and has the ultimate ownership over that task.

- a. Provides technical guidance in the execution of EPCPs and Controlled Work Packages.

- b. Reviews EPCPs and any revisions for technical adequacy. Verifies and provides recommendations in support of administrative changes to EPCPs. Conducts on-site surveillances and PVIs during execution of EPCPs. Communicates concerns and problems in support of EPCP execution to all levels, including Ship's Force/NSA/**contractor**. Represents the Government during selective check-points, to include testing in the EPCP, and acts as the RMC Chief Engineer's representative for EPCP certification.
- c. Participates as a member of the Maintenance Control Team.

41.3.1.10 Shipbuilding Specialist. Shipbuilding Specialists are individuals that possess a primary trade background but effectively perform across trade lines in two or more trade skill disciplines. Team assignments are made to balance trade expertise appropriately with the type of work in the project. A wide variety of comprehensive duties and responsibilities are assigned to these individuals who are expected to act as decision makers with comprehensive knowledge of each work item assigned. Typical assignments include the following duties and responsibilities (as with Project Managers, this may vary depending on the supporting organization):

- a. Accountable:
 - (1) Provides current information relating to assigned work items to the Project Manager (see Volume VII, Chapter 7, paragraph 7.3.4a. of this manual).
 - (2) Attends meetings, resolves production problems, develops scope of work requirements, assists in the development of Government TARs and negotiation positions, assesses contractor capabilities, work progress and performance, provides technical support to the ACO, and participates in claims avoidance and provides other technical support as required (see Volume VII, Chapter 7, paragraph 7.3.4b. of this manual).
 - (3) Interfaces with members of the Ship's Force to provide current project information, notifies responsible personnel of scheduled evolutions and solicits required or desirable Ship's Force (see Volume VII, Chapter 7, paragraph 7.3.4c. of this manual).
 - (4) Receives and investigates contractor reports, assists with the development of the Government's technical response, requests engineering support, prepares necessary contract modifications, develops the Government cost estimates, estimates the delay and disruption that may occur because of a contract modification, assists with negotiation preparation relative to TARs and contract modifications (as authorized by the ACO), provides the ACO support in negotiations and maintains records of actions taken (see Volume VII, Chapter 7, paragraph 7.3.4d. of this manual).
 - (5) Performs and witnesses Government "G" notification points, identified in the work specifications, when the contractor calls them out. Accomplishes random PVIs utilizing checklists or an attribute system to determine contractor compliance with the quality and technical requirements of the work specifications/contract. Writes a Corrective Action Request when nonconformities are detected in accordance with Chapter 11 of this volume (see Volume VII, Chapter 7, paragraph 7.3.4e. of this manual).
 - (6) Determines the physical progress, as a percentage of work completed, of each work item and each contract modification assigned. Updates this information weekly in a comprehensive progress report that is used in calculating the contractor's entitlement to progress payments as well as in evaluating the contractor's schedule performance (see Volume VII, Chapter 7, paragraph 7.3.4g. of this manual).
 - (7) Monitors the GFM and Contractor Furnished Material report to anticipate actions that may be necessary to preclude schedule impact by unsatisfactory material delivery dates. Initiates material orders to replace unsatisfactory GFM or to provide items with unique Government control and confirms the necessity for the contractor to make cash purchases from the Naval Supply system when it is in the best interest of the Government (see Volume VII, Chapter 7, paragraph 7.3.4h. of this manual).

- (8) Monitors the contract guarantee period to help determine whether failure of equipment or systems covered by the guarantee clause is the responsibility of the Government or the contractor, ensures that the work determined by the ACO to be the responsibility of the contractor, whether it is covered by guarantee or was an exception to the completion of the contract, is repaired in accordance with the specification requirements and provides cost estimates for incomplete work so that the ACO can ensure that appropriate contract funds are retained in the event that the work must be deleted from the contract requirements or be procured from another contractor (see Volume VII, Chapter 7, paragraph 7.3.4i. of this manual).
 - (9) Provides positive lessons learned along with feedback related to deficient or inefficient work specifications or work authorizations to the appropriate planning group for use in improving future procurements (see Volume VII, Chapter 7, paragraph 7.3.4j. of this manual).
 - (10) Conducts oversight coordination and inspection of work-related environmental issues associated with Ship's Force and contractor's operations. This effort includes but is not limited to Hazardous Material and Hazardous Waste handling, removal, storage, transportation and disposal (see Volume VII, Chapter 7, paragraph 7.3.4k. of this manual).
 - (11) Provides input to the Project Manager to support Award Fee Evaluations and CPARS (see Volume VII, Chapter 7, paragraph 7.3.4n. of this manual).
 - (12) Maintains the following records: (see Volume VII, Chapter 7, paragraph 7.3.4o. of this manual)
 - (a) Significant Events Log.
 - (b) Work item specifications, references and estimates for the work package, updated to reflect all modifications.
 - (c) Contractor condition reports including Government replies.
 - (d) New work identified and not authorized.
 - (e) GFM delivery status.
 - (f) Records relating to the contractor's capabilities and capacity.
 - (g) Contractor performance evaluations.
 - (h) Supports LMA collection and management of AWP OQE.
 - (13) In the course of evaluating the prime contractor, report any AIT non-conformities to the Project Manager.
- b. Responsibilities:
- (1) Provides quality oversight to support propulsion plant, AEGIS and combat systems light off.
 - (2) Provides quality oversight of availability completion.
 - (3) Provides support of Business Case Analysis for new work.
 - (4) Reviews condition report submissions and responses.
 - (5) Coordinates consolidated software delivery.
 - (6) Provides quality oversight supporting Fast Cruise, Dock Trials, Sea Trials Docking and Undocking.
 - (7) Reviews Engineering Services Request.
 - (8) Provides quality oversight of Integrated Test Plan execution.
 - (9) Participates in quality check points supporting oversight of contracted work, PVI, PE and PR.
 - (10) Provides quality oversight of open and inspects.

- (11) Provides quality oversight of the Regional Calibration Center process.
- (12) Participates in work certification.
- (13) Conducts work specification review.

41.3.1.11 AIT On-Site Installation Coordinator. The AIT On-Site Installation Coordinator is the Government or military employee designated by, and acting with, the authority of the AIT Manager on-site.

- a. Provides the ship with: (see Chapter 3, paragraph 3.3.2 of this volume)
 - (1) All ILS equipment (including on-board spares) and documentation.
 - (2) Ship's Selected Records documentation.
 - (3) A complete set of installation drawings red-lined to indicate all variances.
 - (4) Hard copy Coordinated Shipboard Allowance List pages.
 - (5) A copy of the completion message.
- b. Performs additional duties as required by Appendix H of reference (a).

41.3.1.12 AIT Manager. The AIT Manager is the Government activity, ISEA, military person or Government civilian tasked and funded by the AIT Sponsor to initiate, fund, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration/ship change.

- a. Coordinates with the NSA to ensure satisfactory completion of alterations. (See Volume II, Part I, Chapter 2, paragraph 2.1.1 of this manual.)
- b. Identifies support, schedule, and impact requirements according to required milestones. (See Volume II, Part II, Chapter 2, Appendix D of this manual.)
- c. Tasks and funds SID Development according to milestones. (See Volume II, Part II, Chapter 2, Appendix D of this manual.)
- d. Develops and submits the Memorandum of Agreement. (See Volume II, Part II, Chapter 2, Appendix D of this manual.)
- e. Performs additional duties as required by Appendix H of reference (a).

41.3.1.13 Combat Systems Project Engineer (Surface Force Ships only). These specialists monitor the contractor's performance of work and testing in the combat systems work package. The CSPE provides expert advice in the anticipation, identification and resolution of problems that may occur during the maintenance, repair and alteration installation phases, as well as during the grooming and complex systems level testing phases. The CSPE takes a more active role by accomplishing duties similar to those of production controllers/ship surveyors/shipbuilding specialists in addition to those of electronics engineers or technicians for Combat Systems work items during an availability or project.

- a. Provides current information relating to assigned work items to the Project Manager. This may also include reports to the ship's assigned Port Engineer for Combat Systems (see Volume VII, Chapter 7, paragraph 7.5.4a. of this manual).
- b. Attends meetings to resolve production problems, develops scope of work requirements, assists in the development of TARs to support the Government negotiation positions, assesses contractor capabilities, work progress and performance, provides technical support to the ACO, participates in claims avoidance and provides other technical support as required.
- c. Interfaces with members of the Ship's Force to provide current project information, notifies cognizant personnel of scheduled evolutions, solicits required or desirable Ship's Force participation and provides technical advice.

- d. Receives and investigates contractor reports, writes and receives answers to Liaison Action Requests, provides interim answers to Test Problem Reports, assists in developing the Government's technical response to contractor requests, assists the TAR writer by providing engineering support and in developing the Government cost estimates, assists in preparing necessary contract modifications, estimates the delay and disruption that may occur because of a contract modification, and provides the ACO support in negotiations and maintains records of actions taken.
- e. Observes "G" POINTS for electronic systems and equipment identified in the work specifications when they are presented by the contractor, witnesses required equipment or system tests and accomplishes random in-process inspections (PVIs) at the work sites to determine contractor compliance with the requirements of the specification. Documents the contractor's failure to satisfy contractual responsibilities.
- f. Determines the physical progress, as a percentage of work completed, of each work item and each contract modification assigned. Updates this information weekly in a comprehensive progress report that is used in calculating the contractor's entitlement to progress payments as well as in evaluating the contractor's schedule performance.
- g. Monitors the GFM and Contractor Furnished Material report to anticipate actions that may be necessary to preclude schedule impact by unsatisfactory material delivery dates. Assist the Fleet and Industrial Supply Center or RMC Material Department in visually identifying and verifying receipt of GFM. Initiates material orders to replace unsatisfactory GFM or to provide items with unique Government control and authorizes the contractor to make cash purchases from the Naval Supply system when it is in the best interest of the Government.
- h. Monitors the contract guarantee period to help determine whether failure of equipment or systems covered by the guarantee clause is the responsibility of the Government or the contractor. Ensures that the work determined by the ACO to be the responsibility of the contractor, whether it is covered by guarantee or was an exception to the completion of the contract, is repaired in accordance with the specification requirements. Provides cost estimates for incomplete work so that the ACO can ensure that appropriate contract funds are retained in the event that the work must be deleted from the contract requirements or be re-procured.
- i. Provides lessons learned and feedback related to deficient or inefficient work specifications or work authorizations to the appropriate planning group for use in improving future procurements.
- j. Maintains a Significant Events Log.
- k. Coordinates the efforts of the Master Ship Repair Agreement/Agreement for Boat Repair and each combat systems related AIT.
- l. Participates in the Lessons Learned Conference as appropriate.
- m. Provides written reports to support Award Fee Evaluations and CPARS.
- n. Manages Combat System alteration package and AIT work and facilitates integration with the NSA.
- o. Submits work candidates (2K-MAF) for industrial assistance required for AIT efforts.
- p. Submits work candidates (2K-MAF) for Attack Weapons Systems Element Assessment CMP task accomplishment and uncovered deficiencies.
- q. Ensures that lessons learned identified during availability LLCs are applied across the ship class.
- r. Provides Combat System and Command, Control, Communications, Computers and Intelligence (C4I) test requirements and schedules.
- s. Coordinates C4I schedules and installations, and manages the AIT execution activities.
- t. Provides Combat Systems and C4I reach back to Participating Acquisition Resource Managers and ISEAs.

41.3.1.14 SEA 21 Hull Manager (Surface Force Ships only). Primary SEA-21 waterfront Surface Combatant Modernization and Integration Representative for execution, engineering, logistic and programmatic support. Primary interface between PT and program office funded activities for all program alterations.

- a. Accountable:
 - (1) Coordinates with ISEA/Participating Acquisition Resource Manager to identify, document and resolve issues of possible concern to the program office as they relate to Navy Modernization Process alteration development or installation.
 - (2) Delivers material (LLTM and Kitted Materials) to Executing Activity.
- b. Responsibilities:
 - (1) Participates in CSMP/DFS/BAWP mid-cycle review.
 - (2) Ensures work supports availability completion.
 - (3) Ensures consolidated software delivery and ILS support.
 - (4) Attends IPTD, Docking, Arrival, Undocking, Departure and 25%/50%/75% review events/conferences.
 - (5) Participates in work certification.
 - (6) Participates in work specification review.
 - (7) Performs risk assessments and verifies deliverables to **contractor** (O, I, D work items and AIT Schedule Requirements).

41.4 PLANNING PROCESS SUPPORT (Augmentation outside of maintenance availabilities). Supplements both the Maintenance and PTs in the planning and execution of engineered maintenance (CMP, Planned Maintenance System), modernization (Letter of Authorization) and corrective maintenance (CSMP) from advanced planning through close out. Consists of the following members and others as needed:

- a. TYCOM representatives.
- b. Program Executive Officer representatives.
- c. CNRMC representatives.
- d. Systems Command representatives.
- e. SUPSHIP representatives.
- f. Planning Yard representatives.
- g. Carrier Planning Activity representatives.
- h. Submarine Maintenance Engineering, Planning and Procurement representatives (SUBMEPP).
- i. SURFMEPP representatives.
- j. RMC Technical and Logistical SMEs.
- k. RMC Class Team Leaders.

41.5 PLANNING BOARD FOR MAINTENANCE. A regularly scheduled meeting between the ship's Maintenance Team members and stakeholders (e.g., TYCOM, Immediate Superior In Command, planning activity, Ship's Program Manager, etc.) to discuss ship-wide maintenance issues. This forum provides a routine and regularly scheduled management review of current planned off-ship and organizational maintenance, CSMP and AWP quality and accuracy, future maintenance and modernization planning, work prioritization, work integration and fiscal concerns. The objective is to ensure clarity of intent for both the ship's efforts and the shore infrastructure with respect to total ship maintenance, operational schedules and other concerns affecting ship material readiness. While the frequency of Planning Board for Maintenance meetings may vary due to a ship's schedule, a minimum of one meeting per quarter is expected. The Planning Board for Maintenance is the forum for discussing all maintenance issues, including metrics that are currently used to measure the maintenance effectiveness of the ship and the performance of the ship's assigned Maintenance Team.

41.5.1 Business Rules. Each maintenance team will incorporate the following business rules.

- a. Ashore Ship's Maintenance Manager will be responsible for all Planning Board for Maintenance decisions.
- b. The frequency of the Planning Board for Maintenance meetings may vary due to a ship's schedule; a minimum of one meeting per **quarter** is expected.
- c. The meeting will be chaired by the Commanding Officer.
- d. The core Maintenance Team 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 provides a list of topic areas to be reviewed during the Planning Board for Maintenance. It does not require an exhaustive examination of each topic during the meeting. Rather the meeting can be used to report the results of detailed reviews, updates, problem investigations and analyses conducted by assigned teams outside of the Planning Board for Maintenance meeting.

41.6 WORKFORCE DEVELOPMENT PROGRAM (RMC ONLY).

- a. The Work Force Development (WFD) Program is designed as a vehicle for professionalizing the Surface Force Ship workforce. That objective is accomplished through a formal training and certification process that is robust, standardized and repeatable at each RMC. The intent is to support the professional growth of RMC maintenance community personnel and promote career progression opportunities that enhance the long-term prospects for individual work force members, while maximizing overall effectiveness of the maintenance community as a whole. The net result of the WFD Program is a capability that maintenance and modernization work performed at one RMC is both repeatable and standardized with identical maintenance and modernization work performed at any other RMC.
- b. CNRMC serves as the WFD Program sponsor. CNRMC also serves as the Curriculum Control Authority for all WFD training courses and curricula. Each WFD course is delivered via a training team and WFD training covers the vital skills necessary to execute quality Surface Force Ship maintenance and modernization work.
- c. The WFD Program is a requirement for the Surface Force ship contracted maintenance management workforce (except at SRF-JRMC).
- d. All WFD Program courses include comprehensive classroom training, position-specific case-studies and practical exercises, and a detailed Job Qualification Requirement (JQR). While JQRs for a given position may be accomplished outside of the associated formal WFD course (i.e., either before or after completing the course), final certification of each course graduate is not granted by CNRMC until each JQR task is completed.

41.7 INTEGRATED PROJECT TEAM DEVELOPMENT (Surface Force Ships only). The PT develops a shared understanding of the assigned project and processes and works to build the rapport and trust required to meet their goals. New members, as well as experienced members, benefit from learning activities which focus on team building and teamwork.

- a. The IPTD curriculum focuses on development and integration of the PT; development of availability expectations and success criteria; advance planning; development, reviewing, refining, validating and communicating key strategies; aligning all members of the integrated PT; process improvement; availability execution processes; and knowledge sharing.
- b. In developing, executing and aligning training, there are many methods and curricula available, at both the corporate level and the individual organization level, to increase team member effectiveness. The IPTD staff works with the PT leadership to identify needs and offer solutions to schedule and logistic questions, topic selection, speaker selection and best learning techniques for each IPTD. From facilitation of arranged topics to customized training programs, the IPTD Staff will continually meet the needs of the PT.

41.7.1 Program Events. The IPTD program attendance requirements are listed in Figure 41-1. The program is notionally conducted in five events prior to the availability start date and one mid-availability. IPTD events are outlined below:

- a. A-360 IPTD - Planning
 - (1) Midlife Avails: A-360, Std Avails: A-270
 - (2) 1/2 day duration
 - (3) Focus: IPTD Overview and Tools
- b. A-270/195 IPTD – Strategic Alignment
 - (1) Midlife Avails: A-270, Std Avails: A-195
 - (2) 2-3 day duration
 - (3) Focus: Team Development and Alignment
- c. A-195 - Strategy Development
 - (1) Midlife Avails and Std Avails: A-195
 - (2) 2-3 day duration
 - (3) Focus: Team Development and Alignment through Strategies
- d. A-120 - Tactical Preparation
 - (1) Midlife and Std Avails: A-120
 - (2) Scheduled to coincide with the WPIC
 - (3) 2-3 day duration
 - (4) Focus: Work Integration & Execution Plan
- e. A-45/30 - Execution Readiness
 - (1) Midlife Avails: A-45, Std Avails: A-30
 - (2) Scheduled to coincide with the WPER
 - (3) 1-2 day duration
 - (4) Focus: Readiness-to-Start
- f. 50% Review – Regroup
 - (1) Midlife Avails: 50% Conference
 - (2) Std Avails: 50% Conference/TBD by PT

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CHAPTER 42

MATERIAL READINESS ASSESSMENT

REFERENCES.

- (a) NAVSEA S9081-AB-GIB-010 - Reliability Centered Maintenance Handbook
- (b) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
- (c) COMNAVSURFPACINST 4700.1A/COMNAVSURFLANTINST 4700.1/CNRMCIINST 4700.7 - Total Ship Readiness Assessment (TSRA)

LISTING OF APPENDICES.

- A Assessment Process
- B “Prerequisites and Test Requirements” Message (Example)
- C “Readiness to Commence” Message (Example)
- D “Completion Quicklook” Message (Example)
- E Job Originator Identification Table

42.1 PURPOSE. To maintain units in a material condition that supports the required degree of operational readiness and the ability to accomplish assigned missions using a process designed to assess the right things at the right time with the right people using the right standards at the right cost. This process applies to all activities (e.g., Type Commanders (TYCOM), Regional Maintenance Centers (RMC), shipyards, System Commands, etc.) executing periodic material assessments (scheduled event) and focused system assessments (not a scheduled event) of key systems, equipment and programs that follow an established framework and methodology. When evaluating material condition, either partially or in its entirety, the material assessment Common Assessment Procedures or approved technical documentation, shall be used and the results properly documented in accordance with this chapter via Automated Work Notifications (2-Kilo) to include material assessment tasks, (e.g., Condition-Directed Maintenance Tasks from the Class Maintenance Plan) and any discrepancies. The desired outcome of the assessment process is identification and documentation of required work to maintain adequate material condition. Appendix A provides an outline of the Assessment Process. In addition, this process applies and shall be followed for the material evaluation piece of inspections, certifications, and visits (e.g., Board of Inspection and Survey (INSURV), Afloat Training Group, Safety Center, etc.) as defined below:

- a. **Assessment:** A material assessment is part of the ship’s Reliability Centered Maintenance (RCM) plan conducted by Unit personnel or by an external agent (e.g., Command, Control, Communications, **Computers** and **Combat Systems Readiness** Assessment (C5RA)/Total Ship Readiness Assessment (TSRA)). Depending on the context, material assessments may be individual “tasks” or “events” that group together numerous individual material assessment tasks for accomplishment during a period of time in the ship’s operational schedule. Discrepancy documentation will be in accordance with this chapter.
- b. **Certification:** A certification is regulatory and is required at some periodicity to authorize operation of equipment or systems (e.g., Flight Deck Certification/Aircraft Launch and Recovery/Magazine Certification). Often, continued certification requires that some material assessments be accomplished or have been accomplished prior to certification. Results of a certification and their distribution will be in accordance with the associated certification’s instruction.
- c. **Inspection:** An inspection is an evaluation conducted by an internal or external activity with regards to the performance of equipment, systems, programs or functions to a recognized standard (e.g., Diesel/Boiler/INSURV/3-M). Depending on the evaluation plan, this may involve judging the material condition of equipment or systems. Results of an inspection and their distribution will be in accordance with the associated inspection’s instruction. Generally, results of the inspection will be provided to the unit’s superior and/or higher authority.

- d. Visit: A visit is the response to a request to provide technical assistance (e.g., NAVSAFECEN Visit). The technical assistance visit may or may not involve performing a material assessment. Required reports and their distribution from visits will be in accordance with the technical representative's organization's standard operating procedures.
- e. Reliability Centered Maintenance: A methodology to develop or revise a maintenance approach with the objective of maintaining the inherent reliability of the system or equipment, recognizing that changes in inherent reliability may be achieved only through design changes.
- f. Common Assessment Procedures: Common assessment procedures are assessments that, to the maximum extent possible, are common across platforms and serve all users for assessments, inspections and certifications. Common assessment procedures are RCM applicable and effective maintenance procedures that can be properly and consistently executed. They deliver accurate assessment and measurement of, determine and document discrepancies to, and specify repairs required to restore satisfactory material condition. Common assessment procedures satisfy the needs of work definition, inspections and certifications in a common document used both across ship classes and by all activities. The two types of commonality invoked are common across functional use and common across platforms with similar systems and equipment.

42.2 **APPLICABILITY.** This policy applies to all material condition assessments conducted on surface force ships, submarines, aircraft carriers, service craft and afloat/ashore activities under the cognizance of United States Fleet Forces Command and Commander, Pacific Fleet (e.g., Pre-Availability Testing, Point of Entry Testing, Common Assessment Procedures, TSRA, C5RA, Boiler Inspection, Diesel Inspection, etc.). This policy does not apply to the following special categories:

- a. Reactor and Primary support systems under Naval Sea Systems Command 08 cognizance.
- b. Fleet Ballistic Missile systems under the cognizance of Director, Strategic **Systems** Program.
- c. Naval aircraft and avionics equipment.
- d. Post repair testing (e.g., hydrostatic test, Non-Destructive Testing, etc.).
- e. Operational examinations (e.g., Tactical Readiness Examination, Pre-Overseas Movement certification, etc.).

42.3 **OBJECTIVES.** The principal objectives are:

- a. Identify and document system/equipment deficiencies.
- b. Improve unit's material readiness at the equipment/systems level.
- c. Identify and define work for upcoming maintenance availabilities.
- d. Standardize how the fleet conducts material assessments.
 - (1) Certifications, inspections and visits tasks shall use common assessment procedure standards and criteria in judging material condition.
 - (2) Assessments use standardized detailed procedures to determine material condition.
- e. Identify material assessment training deficiencies and document any deficiencies using a Work Notification (2-Kilo). Conduct over-the-shoulder training for unit personnel.
- f. Identify deficiencies with the Class Maintenance Plan (CMP) and document deficiencies using a Work Notification (2-Kilo).
- g. Identify deficiencies with configuration or configuration data using Maintenance Figure Of Merit (MFOM)/Mission Readiness Assessment System.

42.4 **PRINCIPLES.** The critical success factors for a single integrated, effective material assessment process are:

- a. Assessment procedures produced using a common assessment procedure development process based on RCM principles as discussed in reference (a).

specific component does not function properly and requests assistance to troubleshoot/diagnose system discrepancy. If the deficiency is clearly understood, the assessor is required to record what they know or understand the deficiency to be.

42.5.6 Assessment Reporting.

- a. The Executing Activity conducting the assessment should analyze assessment results and notify the Commanding Officer or his designated representative of any findings that could result in a Casualty Report, underway limiting or Repair Before Operate condition. The System Command (NAVSEA 05, SPAWAR 05 or NAVAIR) shall identify material improvement recommendations for new construction, future alterations or further analysis by the technical community.
- b. For Surface Force Ships, RMC shall send a Prerequisite and Test Requirements message per reference (c) at least three weeks prior to the start of the event.
- c. For Surface Force Ships, the ship shall send a Readiness to Commence message per reference (c) no later than five days prior to the scheduled event.
- d. Report assessment results using the standard assessment tool set:
 - (1) To include whether an assigned assessment procedure was completed, partially completed or not accomplished.
 - (2) To produce a maintenance ready work notifications (2-Kilo) for each discrepancy identified during the assessment. Determine with unit personnel their repair capability/capacity when recommending level of effort, (i.e., Organizational, Intermediate or Depot repair).
- e. To identify Integrated Logistic Support deficiencies and pass to TYCOM/Global Navy Distant Support to research and resolve, reporting any configuration discrepancies.
- f. To provide any procedure discrepancies, validation and periodicity feedback.
- g. To document man hours and costs.
- h. For Surface Force Ships, RMC shall send a TSRA Completion message per reference (c) no later than five business days after TSRA completion.

42.5.7 Standard Assessment Tool Kit.

- a. The standard assessment tool kit consists of:
 - (1) The catalog of approved assessments outlined in the ship's CMP. The procedure should be written in a format appropriate to the activity and experience of the personnel assessing (i.e., Maintenance Requirement Card for Unit personnel, Task Group Instruction for Naval shipyards, standard item for private shipyards, etc.).
 - (2) If an equipment or system assessment does not exist, one must be developed in accordance with the assessment technical guide and identified in the CMP.
 - (3) All assessments shall be planned, executed and reported using the Fleet approved assessment computer application(s) and the results recorded in the Fleet designated data warehouse.

42.5.8 Assessment Personnel.

- a. When assessments are conducted by the unit's personnel, they should be from a rating associated with the equipment being assessed (operationally knowledgeable) and should be experienced in conducting assessments.
- b. Outside activity personnel should be technically knowledgeable in the area they will be assessing and considered SMEs. Additionally, they should be trained on the assessment process, how to document the material condition of the equipment or system and basic RCM principles as discussed in reference (a).

42.6 RESPONSIBILITIES.

42.6.1 Fleet Commander. Fleet Commander shall:

- a. Maintain a common material assessment process and policy. Conduct periodic reviews of processes and procedures as recommended by TYCOMs and technical warrant holders.
- b. Be the Fleet's advocate and single point of contact for all material assessment issues to include:
 - (1) Policy.
 - (2) Training, assessment criteria.
 - (3) Procedures.
- c. Provide and support a standard material assessment tool set.
- d. Review the personnel and monetary resources required for the operation, improvement and support of the material assessment process and provide for these requirements in the budget effort.
- e. Establish minimum standards of continuous program improvements for the TYCOMs.

42.6.2 Type Commander. TYCOMs/Immediate Superior In Command shall:

- a. Schedule and authorize material assessments.
- b. Define the scope of material assessment.
- c. Provide funding for execution and support when not part of the mission funded executing activities Capabilities Plan.
- d. Conduct periodic reviews of the material assessment process.
- e. Establish standards of effectiveness to ensure continuous program improvement.
- f. Evaluate units ability to self assess and report training deficiencies to the appropriate activity.

42.6.3 Material Assessment Executing Activity. The Material Assessment Executing Activity shall:

- a. For RMC managed assessments, the RMC will send a Prerequisites and Test Requirements Message as directed by the TYCOM. Appendix B provides a sample message template. When requesting SMEs from another RMC for Assessment Events (TSRA, C5RA), the requesting RMC will fund travel and per diem expenses for government and military SMEs. For Surface Force Ships, use reference (c) sample message template and supplemental guidance for all TSRA events.
- b. Conduct unit pre-visit brief in order to affect maximum support for the visit.
- c. Assist the Assessment Team with access to the base and unit.
- d. Review documented system deficiencies. Determine system material condition using established test procedures and unit's input. Unit personnel shall be included in this process as a training effort.
- e. Task the Team Leader to provide daily progress reviews to unit assessment event coordinator.
- f. Determine, in concert with Unit personnel, the correct maintenance level (Operational, Intermediate, Depot) to correct deficiencies.
- g. Document man hours expended and assessment results using the standard assessment tool set and record the results of the "Go Assess" maintenance notification (GA2-K).
- h. Document assessment deficiencies via maintenance notification. **Document follow-on repair or technical assist 2-Kilos by always starting the Block 35 narrative with the words "Per Job Control Number (JCN)", where '(JCN)' is the Assessment JCN that generated the repair or technical assist 2-Kilo followed by the characters "XX" (e.g., "Per YYYYYEM01ZA56XX", where "YYYYY" is the ship's Unit Identification Code and "XX" signifies a break between the JCN and the beginning of the 2-Kilo's text description). This methodology allows maintenance personnel to connect each follow-on repair or technical assist 2-Kilo to its initiating assessment.**
- i. Establish configuration baseline (sight validation) of selected systems to upgrade logistics support documentation. Initiate configuration changes for direct input into the ship's maintenance management system.

- j. Assist unit personnel in repair and groom, as required, and as dictated by time/resource constraints and operational necessity.
- k. Assist unit personnel in identifying material requirements to effect repairs.
- l. Provide an out brief to the unit's Commanding Officer (or his representative), describing significant findings. Additionally, ensure all maintenance work notifications are loaded into the unit's CSMP and shore files complete and intact.
- m. For Surface Force Ships, RMC shall send a TSRA Completion message per reference (c) no later than five business days after TSRA completion.
- n. Support assessments as requested by the TYCOM.
- o. Initiate change recommendations for program improvement.
- p. Ensure all assigned personnel are experienced, knowledgeable and qualified as required.

42.6.4 Commanding Officer. Commanding Officers, as directed by the TYCOM, for scheduled assessments should:

- a. Prepare for assessments events in accordance with this instruction.
- b. Designate a senior management representative as the unit's assessment event coordinator.
- c. Send, as directed by the TYCOM, a Readiness to Commence assessment message no later than five working days prior to the scheduled start of the assessment event. Appendix C provides a sample message template. Reference (c) provides a sample message template for all TSRA events. Include contact information for the ship's coordinator and key unit personnel.
- d. Provide support for assessment team (e.g., ICAS data, access to specific spaces, electrical power and cooling water requirements, man aloft equipment tag-out and Radio Frequency radiation requirements, a secure space, Shipboard Nontactical Automated Data Processing Program/Legacy Organizational Maintenance Management System – Next Generation, Internet access and e-mail accounts).
- e. Prepare systems/equipment, tag outs, Work Authorization Form, request support services and generate Quality Assurance packages as required.
- f. Ensure there are no conflicting evolutions, training, drills, field days, major system overhauls or other events that would detract from the timely and efficient completion of the assessment event that have been planned or scheduled.
- g. Reschedule the preventive maintenance requirements that will be accomplished during the assessment event to eliminate redundant accomplishment if the assessment is scheduled to occur so that no greater than one-half (1/2) of the scheduled periodicity is exceeded.
- h. Host assessment event briefings.
- i. Ensure the 3-M Coordinator, Functional Area Supervisors and the Supply Officer (or representative) are available as needed during the Assessment.
- j. Ensure divisional personnel are assigned to work closely with the Assessment Team SMEs during testing and repair to maximize On the Job Training and awareness of identified equipment problems.
- k. Remove key maintenance personnel from the watch bill during normal working hours in order to improve efficiency of the assessment event.
- l. Correct material discrepancies as time permits.
- m. Send, as directed by the TYCOM, a Quicklook completion message within five working days following the completion of the assessment event. Appendix D provides a sample message template. Additionally, include in the Quicklook report feedback and recommendations to the TYCOM to support continuous improvement of the assessment event process.

NOTE: INDIVIDUAL MAINTENANCE ASSESSMENTS (NOT MORE THAN FIVE ASSESSMENT PROCEDURES) MAY BE SCHEDULED OUTSIDE OF A SCHEDULED ASSESSMENT EVENT OR AVAILABILITY. HOWEVER, THEY STILL NEED TO BE COORDINATED WITH THE SHIP'S SCHEDULE AND SHOULD NOT INTERFERE WITH OPERATIONAL REQUIREMENTS.

VOLUME VI

CHAPTER 44

**MAINTENANCE AND MODERNIZATION PERFORMANCE REVIEW MEETINGS
FOR SURFACE FORCE SHIPS**

THIS CHAPTER MOVED INTO CHAPTER 39 OF THIS VOLUME.

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