

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

Page Numbers	Change in Effect	Page Numbers	Change in Effect
i thru vi	Change 5	VI-2-7	Change 5
vii thru viii	Change 2	VI-2-8 thru VI-2-10	Change 3
ix thru x	Change 3	VI-2A-1 thru VI-2A-2	Change 3
xi	Change 4	VI-2A-3 thru VI-2A-4	REV C
xii	Change 5	VI-2B-1 thru VI-2B-2	Change 4
xiii thru xvi	Change 2	VI-2C-1	REV C
xvii	Change 5	VI-2C-2	Change 2
xviii thru xx	Change 2	VI-3-1 thru VI-3-4	Change 2
xxi	Change 4	VI-3-5 thru VI-3-7	Change 5
xxii thru xxvii	Change 2	VI-3-8	Change 2
xxviii thru xxxii	Change 5	VI-3A-1 thru VI-3A-2	Change 2
VI-FWD-1 thru VI-FWD-2	REV C	VI-3B-1 thru VI-3B-2	Change 2
VI-FWD-A-1 thru VI-FWD-A-2	Change 2	VI-3C-1	Change 5
VI-FWD-A-3	Change 5	VI-3C-2	Change 2
VI-FWD-A-4	Change 2	VI-3D-1 thru VI-3D-2	Change 2
VI-FWD-A-5	Change 4	VI-3E-1 thru VI-3E-4	Change 2
VI-FWD-A-6 thru VI-FWD-A-9	Change 3	VI-3F-1 thru VI-3F-2	Change 2
VI-FWD-A-10	Change 1	VI-3G-1 thru VI-3G-2	Change 2
VI-1-1	Change 1	VI-4-1	Change 2
VI-1-2	REV C	VI-4-2 thru VI-4-6	REV C
VI-2-1	Change 3	VI-5-1 thru VI-5-11	REV C
VI-2-2 thru VI-2-3	Change 4	VI-5-12	Change 2
VI-2-4	Change 3	VI-5-13 thru VI-5-14	REV C
VI-2-5	Change 4	VI-5A-1 thru VI-5A-8	REV C
VI-2-6	Change 3	VI-6-1	Change 1

Page Numbers	Change in Effect	Page Numbers	Change in Effect
VI-6-2 thru VI-6-4	REV C	VI-13A-1 thru VI-13A-14	REV C
VI-6A-1 thru VI-6A-6	REV C	VI-14-1 thru VI-14-2	Change 2
VI-7-1 thru VI-7-34	REV C	VI-14-3 thru VI-14-4	REV C
VI-7A-1 thru VI-7A-4	REV C	VI-14A-1 thru VI-14A-2	Change 2
VI-7B-1 thru VI-7B-2	REV C	VI-15-1 thru VI-15-2	REV C
VI-7C-1 thru VI-7C-2	REV C	VI-16-1 thru VI-16-3	REV C
VI-8-1	REV C	VI-16-4 thru VI-16-5	Change 1
VI-8-2	Change 2	VI-16-6 thru VI-16-8	REV C
VI-8-3	Change 3	VI-16A-1 thru VI-16A-2	REV C
VI-8-4	Change 2	VI-16B-1 thru VI-16B-2	REV C
VI-8-5	REV C	VI-16C-1	Change 1
VI-8-6	Change 2	VI-16C-2	REV C
VI-8A-1 thru VI-8A-2	REV C	VI-17-1 thru VI-17-2	REV C
VI-8B-1 thru VI-8B-2	REV C	VI-18-1	REV C
VI-8C-1 thru VI-8C-2	REV C	VI-18-2	Change 3
VI-8D-1 thru VI-8D-2	REV C	VI-18-3 thru VI-18-4	REV C
VI-8E-1 thru VI-8E-2	REV C	VI-19-1 thru VI-19-2	Change 2
VI-8F-1 thru VI-8F-2	REV C	VI-19-3 thru VI-19-8	Change 3
VI-8G-1 thru VI-8G-2	REV C	VI-19-9 thru VI-19-12	Change 4
VI-9-1 thru VI-9-17	Change 5	VI-19A-1 thru VI-19A-12	REV C
VI-9-18	Change 2	VI-19A-13	Change 2
VI-10-1 thru VI-10-4	REV C	VI-19A-14 thru VI-19A-29	REV C
VI-11-1 thru VI-11-6	REV C	VI-19A-30	Change 1
VI-12-1	Change 1	VI-19A-31 thru VI-19A-40	REV C
VI-12-2 thru VI-12-4	REV C	VI-19B-1 thru VI-19B-2	REV C
VI-13-1	Change 3	VI-19C-1	Change 2
VI-13-2	REV C	VI-19C-2	REV C
VI-13-3	Change 5	VI-19C-3 thru VI-19C-9	Change 2
VI-13-4	REV C	VI-19C-10	Change 4

Page Numbers	Change in Effect	Page Numbers	Change in Effect
VI-19C-11	Change 2	VI-22-1 thru VI-22-2	REV C
VI-19C-12	REV C	VI-22-3	Change 2
VI-19C-13 thru IV-19C-19	Change 2	VI-22-4	REV C
VI-19C-20	Change 4	VI-22A-1 thru VI-22A-2	REV C
VI-19C-21 thru VI-19C-50	Change 2	VI-23-1	Change 1
VI-19C-51	Change 5	VI-23-2	REV C
VI-19C-52 thru VI-19C-68	Change 2	VI-23-3	Change 1
VI-19C-69	Change 4	VI-23-4	REV C
VI-19C-70 thru VI-19C-81	Change 2	VI-23-5	Change 1
VI-19C-82	Change 3	VI-23-6	REV C
VI-19C-83 thru VI-19C-88	Change 2	VI-23A-1 thru VI-23A-2	REV C
VI-19D-1 thru VI-19D-2	REV C	VI-23B-1 thru VI-23B-2	REV C
VI-19E-1	Change 5	VI-23C-1 thru VI-23C-10	REV C
VI-19E-2	REV C	VI-23C-11	Change 1
VI-19F-1 thru VI-19F-2	REV C	VI-23C-12	REV C
VI-20-1 thru VI-20-4	REV C	VI-23C-13	Change 2
VI-20A-1 thru VI-20A-2	REV C	VI-23C-14 thru VI-23C-18	REV C
VI-20B-1 thru VI-20B-2	REV C	VI-23C-19	Change 3
VI-20C-1 thru VI-20C-2	REV C	VI-23C-20	REV C
VI-21-1 thru VI-21-2	REV C	VI-23C-21	Change 3
VI-21-3	Change 4	VI-23C-22 thru VI-23C-30	REV C
VI-21-4	REV C	VI-23D-1 thru VI-23D-2	REV C
VI-21A-1 thru VI-21A-2	REV C	VI-23E-1	REV C
VI-21B-1 thru VI-21B-2	REV C	VI-23E-2	Change 3
VI-21C-1 thru VI-21C-2	REV C	VI-23E-3 thru VI-23E-4	REV C
VI-21D-1 thru VI-21D-2	REV C	VI-23F-1 thru VI-23F-2	REV C
VI-21E-1 thru VI-21E-6	REV C	VI-24-1	Change 2
VI-21F-1 thru VI-21F-4	REV C	VI-24-2	Change 1
VI-21G-1 thru VI-21G-6	REV C	VI-24-3	Change 2

Page Numbers	Change in Effect	Page Numbers	Change in Effect
VI-24-4 thru VI-24-5	Change 1	VI-27A-1 thru VI-27A-2	REV C
VI-24-6	Change 5	VI-27B-1 thru VI-27B-2	REV C
VI-24-7	Change 1	VI-27C-1 thru VI-27C-2	REV C
VI-24-8 thru VI-24-9	Change 2	VI-28-1 thru VI-28-4	REV C
VI-24-10	Change 1	VI-28A-1 thru VI-28A-2	REV C
VI-24A-1	Change 1	VI-29-1 thru VI-29-2	REV C
VI-24A-2	REV C	VI-29A-1 thru VI-29A-2	REV C
VI-24B-1	Change 1	VI-30-1 thru VI-30-2	REV C
VI-24B-2	REV C	VI-31-1	REV C
VI-24C-1 thru VI-24C-2	Change 1	VI-31-2 thru VI-31-3	Change 3
VI-24D-1 thru VI-24D-2	REV C	VI-31-4	REV C
VI-24E-1 thru VI-24E-2	Change 1	VI-31-5	Change 5
VI-24F-1 thru VI-24F-2	REV C	VI-31-6 thru VI-31-7	Change 3
VI-25-1	Change 1	VI-31-8 thru VI-31-10	Change 2
VI-25-2	Change 4	VI-31A-1	Change 3
VI-25-3 thru VI-25-4	Change 1	VI-31A-2	REV C
VI-25-5 thru VI-25-9	Change 4	VI-31A-3	Change 2
VI-25-10	Change 2	VI-31A-4	Change 3
VI-25A-1	Change 1	VI-31A-5 thru VI-31A-8	REV C
VI-25A-2	REV C	VI-32-1	REV C
VI-25B-1	Change 1	VI-32-2	Change 1
VI-25B-2	REV C	VI-32-3 thru VI-32-16	REV C
VI-25C-1 thru VI-25C-2	REV C	VI-32A-1 thru VI-32A-2	REV C
VI-25D-1 thru VI-25D-2	REV C	VI-33-1	Change 1
VI-25E-1 thru VI-25E-2	REV C	VI-33-2 thru VI-33-3	REV C
VI-25F-1 thru VI-25F-2	REV C	VI-33-4	Change 1
VI-26-1 thru VI-26-2	REV C	VI-33-5	Change 2
VI-27-1	Change 1	VI-33-6	Change 1
VI-27-2 thru VI-27-4	REV C	VI-33A-1 thru VI-33A-5	REV C

Page Numbers	Change in Effect	Page Numbers	Change in Effect
VI-33A-6 thru VI-33A-7	Change 3	VI-39A-1 thru VI-39A-2	Change 2
VI-33A-8 thru VI-33A-12	REV C	VI-40-1	Change 4
VI-34-1 For Future Use	Change 5	VI-40-2	Change 5
VI-35-1 thru VI-35-4	Change 2	VI-40-3	REV C
VI-35A-1 thru VI-35A-2	Change 2	VI-40-4	Change 3
VI-36-1 thru VI-36-3	Change 2	VI-40A-1	Change 5
VI-36-4 thru VI-36-5	REV C	VI-40A-2	Rev C
VI-36-6	Change 2	VI-40B-1	Change 5
VI-36-7 thru VI-36-8	REV C	VI-40B-2	Rev C
VI-36-9	Change 1	VI-40C-1	Change 5
VI-36-10 thru VI-36-12	REV C	VI-40C-2	Rev C
VI-36A-1 thru VI-36A-4	REV C	VI-40D-1 thru VI-40D-2	REV C
VI-36B-1 thru VI-36B-22	REV C	VI-40E-1 thru VI-40E-2	REV C
VI-36C-1 thru VI-36C-6	REV C	VI-41-1	Change 1
VI-36D-1 thru VI-36D-4	REV C	VI-41-2 thru VI-41-3	Change 2
VI-36E-1 thru VI-36E-4	REV C	VI-41-4	Change 3
VI-36F-1 thru VI-36F-4	REV C	VI-41-5	Change 2
VI-37-1 thru VI-37-2	REV C	VI-41-6	Change 3
VI-37-3	Change 2	VI-41-7	Change 2
VI-37-4	Change 1	VI-41-8	Change 4
VI-37-5	Change 3	VI-41-9	Change 3
VI-37-6	REV C	VI-41-10 thru VI-41-12	Change 2
VI-38-1 thru VI-38-2	Change 1	VI-41-13	Change 3
VI-38-3 thru VI-38-8	REV C	VI-41-14	Change 2
VI-38A-1 thru VI-38A-8	REV C	VI-41-15	Change 4
VI-38B-1 thru VI-38B-2	REV C	VI-41-16	Change 2
VI-38C-1 thru VI-38C-2	REV C	VI-41-17 thru VI-41-18	Change 4
VI-39-1 thru VI-39-3	Change 3	VI-41-19 thru VI-41-23	Change 2
VI-39-4 thru VI-39-6	Change 2	VI-41-24	Change 5

Page Numbers	Change in Effect	Page Numbers	Change in Effect
VI-42-1	Change 3		
VI-42-2	Change 2		
VI-42-3	Change 5		
VI-42-4 thru VI-42-8	Change 3		
VI-42A-1 thru VI-42A-4	REV C		
VI-42B-1 thru VI-42B-2	REV C		
VI-42C-1 thru VI-42C-2	REV C		
VI-42D-1 thru VI-42D-2	REV C		
VI-42E-1 thru VI-42E-2	REV C		
VI-43-1	Change 1		
VI-43-2	REV C		
VI-44-1 thru VI-44-2	Change 2		

JOINT FLEET MAINTENANCE MANUAL
VOLUME VI
MAINTENANCE PROGRAMS
TABLE OF CONTENTS

	Page No.
LIST OF EFFECTIVE PAGES	i
RECORD OF CHANGES	vii
JOINT FLEET MAINTENANCE MANUAL CHANGE REQUEST FORM.....	ix
FOREWORD - INTRODUCTION	
1.1 Purpose	VI-FWD-1
1.2 Scope	VI-FWD-1
1.3 Changes and Corrections	VI-FWD-2
1.4 Request for Copies of the Manual	VI-FWD-2
Appendices	
A List of Acronyms	VI-FWD-A-1
CHAPTER 1 - WATERBORNE UNDERWATER HULL CLEANING	
1.1 Purpose	VI-1-1
1.2 Scope	VI-1-1
1.3 Policy	VI-1-1
1.4 Responsibilities	VI-1-1
1.5 Reports	VI-1-1
CHAPTER 2 - FLEET TECHNICAL ASSISTANCE	
2.1 Purpose	VI-2-1
2.2 Fleet Technical Assistance Definition	VI-2-1
2.3 Fleet Technical Assistance Exclusion Areas	VI-2-1
2.4 Fleet Technical Assistance Policy	VI-2-2
2.4.1 Requesting Assistance	VI-2-2
2.4.2 Required Fleet Technical Assistance Request Information	VI-2-2
2.4.3 Chief of Naval Operations Availability Fleet Technical Assistance Procedures	VI-2-3
2.4.4 Initial Response	VI-2-3
2.4.5 On-Sight Support	VI-2-3
2.5 Completion	VI-2-3
2.5.1 Fleet Technical Assistance Completion	VI-2-3
2.5.2 Transition to Repair	VI-2-3
2.6 Responsibilities	VI-2-3
2.6.1 Ship's Commanding Officer	VI-2-3
2.6.2 Regional Maintenance Center Commanders.....	VI-2-4
2.6.3 Other Source of Support Providers	VI-2-5
2.6.4 Navy 311 Fleet Technical Assistance Request Processing Procedure.....	VI-2-5
2.7 Regional Maintenance Centers	VI-2-5

2.7.1	Regional Maintenance Centers	VI-2-5
2.7.2	Area Regional Maintenance Center Area of Responsibility Assignments.....	VI-2-5
2.7.3	Considerations for Providing Assistance	VI-2-8
2.7.3.1	Distance Support	VI-2-8
2.7.3.2	On-Site Support.....	VI-2-8
2.7.3.3	Fleet Technical Assistance Support Transfer and Acceptance.....	VI-2-8
2.7.3.4	Transferring Regional Maintenance Center	VI-2-8
2.7.3.5	Accepting Source of Support	VI-2-8
2.7.3.6	Support Coordination	VI-2-8
2.7.4	Funding.....	VI-2-8
2.7.4.1	On-Site Support.....	VI-2-9
2.8	Post-Fleet Technical Assistance Administrative Requirements.....	VI-2-10
Appendices		
A	Area Regional Maintenance Center Fleet Technical Assistance Contact Information	VI-2A-1
B	Sample Technical Assistance Visit Report (TAVR) Message.....	VI-2B-1
C	Sample E-Mail Technical Assistance Visit Report (E-TAVR).....	VI-2C-1

CHAPTER 3 - SUBMARINE MODERNIZATION

3.1	Purpose	VI-3-1
3.1.1	Scope	VI-3-1
3.1.2	Definition.....	VI-3-1
3.2	Responsibilities.....	VI-3-2
3.2.1	Immediate Superior In Command (Squadron/Naval Submarine Support Command).....	VI-3-2
3.2.2	Fleet Maintenance Activity.....	VI-3-3
3.2.3	Ship's Alteration Coordinator.....	VI-3-4
3.3	Alteration Programs	VI-3-5
3.3.1	Reactor Plant Ship Alteration Package Program (Nuclear Powered Ships only)	VI-3-5
3.3.2	Alteration Installation Team Program	VI-3-5
3.3.3	Type Commander Alteration Kit Program.....	VI-3-5
3.3.4	Alteration and Improvement Item Program.....	VI-3-6
3.3.4.1	Message Alterations and Improvements	VI-3-6
3.3.4.2	Alteration and Improvement Category Codes.....	VI-3-6
3.3.5	Command, Control, Communications, Computer, Combat Systems, Intelligence, Surveillance and Reconnaissance (C5ISR) Modernization Program (C5IMP)	VI-3-6
3.4	Monitoring of Alteration Status	VI-3-6
3.4.1	Type Commander Alteration Management System.....	VI-3-6
3.4.2	Navy Data Environment - Navy Modernization	VI-3-6
3.4.3	Navy Tool for Interoperability Risk Assessment, Submarine Modernization and Alteration Requirements Tool.....	VI-3-6
3.4.4	Nuclear Alteration Technical Documentation Compact Disk.....	VI-3-6
3.5	Liaison Action Request.....	VI-3-6
3.6	Alteration Feedback.....	VI-3-7
3.7	Alteration Requests.....	VI-3-7
3.8	TYCOM Modernization Websites	VI-3-7
3.9	Permanent Modifications to Tenders with Nuclear Support Facilities	VI-3-7
Appendices		
A	Major Ship Alteration Types Executive Summary	VI-3A-1
B	Submarine Alteration Request Format.....	VI-3B-1
C	Sample TEMPALT/OPALT Reporting Message	VI-3C-1
D	TYKIT Requisition Form	VI-3D-1
E	TYCOM Alteration Management System Interpretation Guide	VI-3E-1

CHAPTER 9 - METROLOGY AND CALIBRATION PROGRAM

9.1	Purpose	VI-9-1
9.1.1	Scope	VI-9-1
9.1.2	Policy	VI-9-1
9.2	Responsibilities	VI-9-1
9.2.1	Fleet Commanders	VI-9-1
9.2.2	Type Commander	VI-9-2
9.2.3	NAVSEA Technical Authority	VI-9-2
9.2.4	Immediate Superior In Command	VI-9-3
9.2.5	Commanding Officers All Forces	VI-9-3
9.2.6	Commanding Officers Surface Force	VI-9-4
9.2.7	Commanding Officers Naval Air Force	VI-9-4
9.2.8	Regional Maintenance Center Metrology and Calibration Coordinators	VI-9-5
9.2.9	Regional Maintenance Center/Regional Calibration Center	VI-9-5
9.3	Calibration Management	VI-9-5
9.3.1	Shipboard Gage Calibration Program Field Calibration Activity (Surface Force only)	VI-9-5
9.3.2	Calibration Accounting	VI-9-6
9.3.2.1	Shipboard Calibration Recall Inventories for MEASURE, TCR, and MCMS (Surface Forces)	VI-9-6
9.3.3	Submarine Forces Management Policy	VI-9-6
9.4	Regional Loan Pools	VI-9-7
9.5	Replacement of General Purpose Electronic Test Equipment/Calibration Standards	VI-9-7
9.5.1	Depot Level Repairables	VI-9-7
9.5.2	Navy Stock Funded	VI-9-7
9.6	Test Measurement Diagnostic Equipment Management	VI-9-8
9.6.1	Ship's Portable Electronic Test Equipment Requirements List	VI-9-8
9.6.2	Test Measurement Diagnostic Equipment Index	VI-9-8
9.6.3	Sub-Category Code	VI-9-8
9.6.4	Ship's Configuration and Logistics Support Information System Index	VI-9-8
9.6.5	Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment	VI-9-8
9.6.5.1	Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment Program	VI-9-8
9.6.5.2	Type Commander Metrology and Calibration Program Managers	VI-9-8
9.6.5.2.1	Consolidated Test, Measurement and Diagnostic Equipment Readiness Assessment Review Process	VI-9-8
9.6.5.2.2	Consolidated TMDE Readiness Assessment Test, Measurement and Diagnostic Equipment Redistribution	VI-9-9
9.6.5.2.3	Completion and Corrective Action Reporting (Submarines only)	VI-9-9
9.7	Shipboard Instrumentation and System Calibration	VI-9-9
9.7.1	Calibration Requirements List	VI-9-11
9.7.2	Calibration Interval	VI-9-11
9.7.2.1	Switch Settings	VI-9-12
9.7.3	Markings for Test, Measurement and Diagnostic Equipment	VI-9-12
9.7.4	SISCAL System Level Calibration Guidance for Ship Conversion Navy Platforms and Platforms in CNO or other Maintenance Availabilities	VI-9-12
9.8	LHA and LHD Class Ship Metrology and Calibration Program	VI-9-13
9.8.1	Purpose	VI-9-13
9.8.2	Background	VI-9-13
9.8.3	Discussion	VI-9-14
9.8.4	Scope	VI-9-14
9.8.5	Applicability	VI-9-14
9.8.6	Action	VI-9-14

9.9 Nuclear Propulsion Calibration Requirements VI-9-17

CHAPTER 10 - MOTOR GASOLINE HANDLING AND STORAGE

10.1 Purpose VI-10-1
 10.1.1 Discussion VI-10-1

10.2 Characteristics VI-10-1

10.3 Personnel Hazards VI-10-1

10.4 Storage and Handling VI-10-1
 10.4.1 Tank Conditions VI-10-1
 10.4.2 Loading and Off-loading VI-10-2
 10.4.3 Identification and Sampling Requirements VI-10-2
 10.4.4 Safe Handling of Motor Gasoline VI-10-3
 10.4.5 Containerized Motor Gasoline VI-10-3
 10.4.6 LPD 17 Class MOGAS System VI-10-3
 10.4.6.1 Storage and Handling VI-10-3
 10.4.6.2 Firefighting and Safety Requirements VI-10-3

10.5 Motor Gasoline Assessment Program VI-10-3

CHAPTER 11 - MAINTENANCE, REPAIR AND OVERHAUL OF SERVICE CRAFT, LANDING CRAFT AND SMALL BOATS

11.1 Purpose VI-11-1
 11.1.1 Policy VI-11-1

11.2 Material Readiness VI-11-1

11.3 Maintenance of Landing Craft and Small Boats Assigned to Afloat Units VI-11-2
 11.3.1 Landing Craft and Small Boat Repairs During Chief of Naval Operations Maintenance Availability VI-11-2

11.4 Maintenance of Service Craft, Landing Craft and Small Boats Assigned to Shore Activities, Group and Squadron Commanders VI-11-3
 11.4.1 Unit Level Maintenance VI-11-3
 11.4.2 Fleet Maintenance Activity Level/Contractor Assist Maintenance VI-11-3
 11.4.3 Overhaul of Service/Landing Craft and Small Boats VI-11-3

11.5 Responsibilities VI-11-4
 11.5.1 Type Commander VI-11-4
 11.5.2 Immediate Superior In Command VI-11-4
 11.5.3 Commanding Officers of Parent Commands VI-11-4

11.6 Repair and Overhaul of Small Boat Engines VI-11-5
 11.6.1 Boat Alterations VI-11-5

11.7 Operation of Small Boat Engines VI-11-5

CHAPTER 12 - DEGAUSSING

12.1 Purpose VI-12-1

12.2 Degaussing Definitions VI-12-1
 12.2.1 Deperming VI-12-1
 12.2.2 Installed Degaussing System VI-12-1
 12.2.3 Magnetic Compass Compensation VI-12-1
 12.2.4 Check Ranging VI-12-1
 12.2.5 Degaussing Folder VI-12-1

12.3 Ships and Submarines With Installed Degaussing Systems VI-12-1
 12.3.1 Check Ranging VI-12-2

CHAPTER 32 - TOP MANAGEMENT ATTENTION TOP MANAGEMENT ISSUES

32.1 Purpose VI-32-1

32.2 Background..... VI-32-1

32.3 Applicability and Scope..... VI-32-1

32.4 Responsibilities VI-32-2

32.4.1 Commander, United States Fleet Forces Command VI-32-2

32.4.1.1 Duties VI-32-2

32.4.2 Naval Sea Systems Command VI-32-2

32.4.2.1 Duties VI-32-2

32.4.2.1.1 Commander, Naval Sea Systems Command (05)..... VI-32-2

32.4.2.1.2 Naval Sea Systems Command 07/Program
Executive Officer Submarines VI-32-2

32.4.2.1.3 Commander, Naval Sea Systems Command Program Offices VI-32-3

32.4.2.1.4 Program Executive Officers and Direct Reporting
Program Managers..... VI-32-3

32.4.2.1.5 Top Management Attention/Top Management Issues Panels..... VI-32-3

32.4.2.1.5.1 Top Management Attention Panels..... VI-32-3

32.4.2.1.6 Top Management Attention/Top Management Issues
Working Groups..... VI-32-5

32.4.2.1.7 Review VI-32-5

32.4.3 Top Management Attention/Top Management Issues Analysis Center..... VI-32-5

32.4.3.1 Candidate Identification VI-32-5

32.4.3.2 Candidate Expanded Metrics VI-32-5

32.4.4 Type Commanders..... VI-32-5

32.5 Metrics VI-32-5

32.5.1 Top Management Attention/Top Management Issues Candidate Selection VI-32-5

32.5.1.1 Top Management Attention/Top Management Issues Ranking Matrix Method.... VI-32-6

32.5.1.1.1 Ranking Matrix Calculation..... VI-32-6

32.5.1.2 Impact Chart..... VI-32-9

32.5.1.3 Balanced Score Card VI-32-9

32.5.1.4 Time (problem free)..... VI-32-10

32.5.1.4.1 Time (problem free) Assessment VI-32-11

32.5.1.5 Failure Trend..... VI-32-12

32.5.1.6 Parts Ranking VI-32-13

32.5.1.7 Ship’s Logistics Indicator Computerized Report VI-32-13

32.5.1.8 Ranking Matrix VI-32-14

Appendices

A Top Management Attention and Top Management Issues Flowchart VI-32A-1

CHAPTER 33 - MAINTENANCE AND MODERNIZATION BUSINESS PLAN

33.1 Maintenance and Modernization Business Plan VI-33-1

33.2 MMBP Responsibilities VI-33-1

33.2.1 Maintenance Team Responsibilities VI-33-1

33.2.2 NSA Responsibilities..... VI-33-1

33.2.3 TYCOM Responsibilities (Surface Force Ships only)..... VI-33-2

33.2.4 TYCOM Responsibilities (Aircraft Carriers and Submarines only)..... VI-33-2

33.2.5 Ship Program Manager Responsibilities..... VI-33-2

33.3 The MMBP Submission..... VI-33-3

33.3.1 MMBP Spreadsheet VI-33-3

33.3.1.1 General Description VI-33-3

33.3.1.2 Executive Summary Sheet VI-33-3

33.3.1.3 Controls and Phasing Sheet..... VI-33-3

33.3.1.4	Unfunded Requirements Sheet	VI-33-3
33.3.2	Prioritization	VI-33-4
33.3.3	Maintenance Summary and Risk Assessment	VI-33-4
33.4	Budget Process and MMBP Development Timeline	VI-33-4
33.4.1	Guidance	VI-33-4
33.4.2	Initial Budget Guidance (March).....	VI-33-4
33.4.3	Provide Controls to Maintenance Team (April).....	VI-33-4
33.4.4	Execution Strategy Adjustments (May).....	VI-33-5
33.4.5	(Surface Ships only) Maintenance Team Submit MMBPs for Approval via NSA (June)	VI-33-5
33.4.6	TYCOM Approves MMBPs (July).....	VI-33-5
33.4.7	Submit Phasing Plans (August)	VI-33-5
33.5	Business Plan Resources.....	VI-33-5
33.5.1	Resources.....	VI-33-5
Appendices		
A	Executive Summary Sheet	VI-33A-1

CHAPTER 34 - SUBMARINE FLY-BY-WIRE SHIP CONTROL SYSTEM MAINTENANCE AND CERTIFICATION **CHAPTER DELETED - SAVE FOR FUTURE USE**

CHAPTER 35 - REGIONAL MAINTENANCE CENTER I-LEVEL MAINTENANCE CAPABILITIES

35.1	Purpose	VI-35-1
35.2	Background.....	VI-35-1
35.2.1	Onboard Support.....	VI-35-1
35.2.2	Applicable Regional Maintenance Centers.....	VI-35-1
35.3	Responsibilities	VI-35-1
35.3.1	Fleet Commanders	VI-35-1
35.3.2	Commander, Navy Regional Maintenance Center.....	VI-35-2
35.3.3	Regional Maintenance Center.....	VI-35-3
35.4	Regional Maintenance Center Performance Measures	VI-35-3
35.4.1	Reporting	VI-35-3
Appendices		
A	Regional Maintenance Center I-Level Maintenance Capability Matrix	VI-35A-1

CHAPTER 36 - SURFACE FORCE SHIP/AIRCRAFT CARRIER MODERNIZATION PROGRAM

36.1	Scope	VI-36-1
36.2	Purpose	VI-36-1
36.3	Background.....	VI-36-1
36.4	Process	VI-36-2
36.4.1	Key Elements.....	VI-36-2
36.4.2	Decision Points	VI-36-3
36.4.3	Ship Change Document	VI-36-3
36.4.3.1	Phase I.....	VI-36-3
36.4.3.2	Phase II.....	VI-36-4
36.4.3.3	Phase III	VI-36-4
36.4.4	Technical Assessment Teams	VI-36-4
36.4.4.1	Technical Assessments.....	VI-36-4
36.4.4.2	Technical Assessment Business Rules	VI-36-4
36.4.4.3	Phase I Technical Assessment Rules	VI-36-4
36.4.4.4	Technical Assessment Teams.....	VI-36-4
36.4.4.5	Changes.....	VI-36-5

36.4.4.6	Phase II Technical Assessment Rules	VI-36-5
36.4.4.7	Phase II (a) Update Technical Assessment	VI-36-5
36.4.4.8	Phase III Technical Assessment Rules	VI-36-5
36.4.5	Cost Benefit Analysis	VI-36-5
36.4.5.1	Phase I Preliminary Analysis Business Rules	VI-36-5
36.4.5.2	Phase II Concept Design Cost Benefit Analysis Update.....	VI-36-5
36.4.5.3	Phase III Design Development Cost Benefit Analysis Update	VI-36-6
36.4.6	Alteration Figure of Merit.....	VI-36-6
36.4.7	Annual Assignment of Weights	VI-36-6
36.4.8	Combining of Phases	VI-36-7
36.5	Voting Rules	VI-36-8
36.5.1	Voting Database Rules.....	VI-36-8
36.5.2	Initiate Ship Change Document Business Rules.....	VI-36-8
36.6	Decision Boards.....	VI-36-8
36.6.1	Board Specific Rules	VI-36-8
36.7	Approval for Fleet Alterations	VI-36-9
36.8	Execution Year Changes to Modernization Plans.....	VI-36-9
36.9	Metrics	VI-36-9
36.9.1	Evaluation.....	VI-36-10
36.9.1.1	Process Effectiveness	VI-36-10
36.9.1.2	Process Efficiency.....	VI-36-10
36.9.1.3	First Pass Yield	VI-36-11
36.9.1.4	Productivity.....	VI-36-11
36.9.1.5	Sunk Cost	VI-36-12
36.10	Milestones.....	VI-36-12
Appendices		
A	Modernization Plan Flowchart.....	VI-36A-1
B	Ship Change Document Template	VI-36B-1
C	Technical Assessment Flowchart.....	VI-36C-1
D	Cost Benefit Analysis Flowchart	VI-36D-1
E	Alteration Figure of Merit Flowchart	VI-36E-1
F	Voting Database Flowchart	VI-36F-1

CHAPTER 37 - REGIONAL MAINTENANCE CENTER PASSIVE COUNTERMEASURE SYSTEM SUPPORT REQUIREMENTS

37.1	Purpose	VI-37-1
37.1.1	Background.....	VI-37-1
37.2	Passive Countermeasure System Event Description.....	VI-37-1
37.3	Passive Countermeasure System Personnel Certification.....	VI-37-2
37.3.1	Passive Countermeasure System In-Service Engineering Activity.....	VI-37-2
37.3.2	Training Requirements	VI-37-2
37.3.3	Support Personnel.....	VI-37-2
37.3.4	Japan Regional Maintenance Center and Pearl Harbor Naval Shipyard.....	VI-37-2
37.3.5	Ship's Force Personnel	VI-37-2
37.4	Passive Countermeasure System Technical Assistance	VI-37-2
37.4.1	Technical Assistance	VI-37-2
37.5	Responsibilities.....	VI-37-2

CHAPTER 38 - DEEP SUBMERGENCE SYSTEMS HULL INTEGRITY PROCEDURES

38.1	Purpose	VI-38-1
------	---------------	---------

38.2	Hull Integrity Procedures Maintenance Scheduling, Planning and Reporting.....	VI-38-1
38.2.1	Maintenance Requirements for Continued Certification	VI-38-1
38.2.2	Scheduling and Reporting.....	VI-38-1
38.2.2.1	Dry Deck Shelter.....	VI-38-1
38.2.2.2	Submarine Maintenance Engineering, Planning and Procurement Activity Inventories and Schedules	VI-38-1
38.2.3	Baseline and Due Dates	VI-38-1
38.2.3.1	Last Maintenance Action Date	VI-38-2
38.2.3.2	Calculating Due Dates.....	VI-38-2
38.2.4	Periodicity Extensions	VI-38-2
38.2.5	Scheduling, Planning and Reporting Hull Integrity Procedure Accomplishment at Sustaining Activity/Fleet Maintenance Activity Level.....	VI-38-2
38.2.5.1	Scheduling.....	VI-38-2
38.2.5.2	Planning	VI-38-2
38.2.5.3	Reporting to the Maintenance and Material Management (3-M) System	VI-38-2
38.2.6	Deep Submergence System Hull Integrity Procedures Accomplishment During Maintenance Availabilities	VI-38-3
38.2.7	Deep Submergence System Hull Integrity Procedures Completion Reporting.....	VI-38-3
38.2.8	Operating Cycle/Interval Extensions	VI-38-3
38.3	Responsibilities.....	VI-38-3
38.3.1	Type Commander	VI-38-3
38.3.2	Submarine Maintenance Engineering, Planning and Procurement Activity	VI-38-4
38.3.3	Immediate Superior In Command.....	VI-38-4
38.3.4	Deep Submergence System Commanding Officer	VI-38-6
Appendices		
A	SUBMEPP DSS HIP Inventory	VI-38A-1
B	SUBMEPP DSS HIP Schedule.....	VI-38B-1
C	Request for DSS HIP Periodicity Extension Format	VI-38C-1

CHAPTER 39 - MAINTENANCE AND MODERNIZATION PERFORMANCE REVIEW AND LESSONS LEARNED CONFERENCE FOR SURFACE FORCE SHIPS

39.1	Purpose	VI-39-1
39.2	Maintenance and Modernization Performance Review Overview.....	VI-39-1
39.2.1	MMPR Objective.....	VI-39-1
39.2.2	MMPR Key Membership.....	VI-39-1
39.2.3	MMPR Action Items.....	VI-39-2
39.2.4	Further Guidance	VI-39-2
39.3	Lessons Learned Conference Overview.....	VI-39-2
39.3.1	Lessons Learned Conference Concept.....	VI-39-2
39.3.2	Lessons Learned Conference Objective.....	VI-39-2
39.3.3	Lessons Learned Conference Key Membership	VI-39-2
39.4	Preparing for the Lessons Learned Conference	VI-39-3
39.4.1	Preparation.....	VI-39-3
39.4.2	Lessons Learned Conference Presentation Overview.....	VI-39-4
39.5	Conducting a Lessons Learned Conference.....	VI-39-4
39.5.1	Lessons Learned Conference Schedule.....	VI-39-4
39.5.2	Agenda.....	VI-39-4
39.5.3	Lessons Learned Conference Focus Areas	VI-39-4
39.5.4	Invitees.....	VI-39-4
39.5.5	Invites and Announcement	VI-39-4
39.5.6	Lessons Learned Conference Documents	VI-39-4
39.5.7	Lessons Learned Conference Minutes	VI-39-4
39.5.8	Lessons Learned Conference Website.....	VI-39-4

39.6 Interaction Among Feedback Processes..... VI-39-5
 39.6.1 Relationships VI-39-5
 39.6.2 Consistency..... VI-39-5
 39.7 Lessons Learned Conference Application and Knowledge Sharing VI-39-5
 39.7.1 Communication of Lessons Learned , Barriers and Action Items VI-39-5

Appendices

A Access to Lessons Learned Conference and MMPR Sites on the ST1 Portal..... VI-39A-1

CHAPTER 40 - SUBMARINE MESSAGE REPORTING

40.1 Purpose VI-40-1
 40.2 Background..... VI-40-1
 40.3 Scope VI-40-1
 40.4 Policy VI-40-1
 40.5 Responsibilities VI-40-2
 40.5.1 Type Commanders..... VI-40-2
 40.5.2 Immediate Superior In Command..... VI-40-2
 40.5.3 Ship’s Commanding Officer..... VI-40-2
 40.6 Message Requirements VI-40-3

Appendices

A Sample (SUBS) Initial Message VI-40A-1
 B Sample (SUBS) Update Message VI-40B-1
 C Sample (SUBS) Final/Closeout Message VI-40C-1
 D Sample (SUBS) Shipalt/Tempalt Installation Message VI-40D-1
 E Sample (SUBS) Shipalt/Tempalt Removal Message..... VI-40E-1

CHAPTER 41 - MAINTENANCE AND PROJECT TEAM

41.1 Purpose VI-41-1
 41.2 Maintenance Team..... VI-41-1
 41.2.1 Crew Swap..... VI-41-1
 41.2.2 Maintenance Team Members..... VI-41-1
 41.2.3. The Principal Roles of the Maintenance Team VI-41-2
 41.2.4 Specific Duties of Maintenance Team Members VI-41-3
 41.2.4.1 Ashore Ship’s Maintenance Manager..... VI-41-3
 41.2.4.2 Ship’s Commanding Officer..... VI-41-4
 41.2.4.3 I-Level Ship Superintendent..... VI-41-5
 41.2.4.4 Project Manager..... VI-41-6
 41.2.4.5 Ship’s Material Maintenance Officer VI-41-6
 41.2.4.6 Contractor Program Manager VI-41-7
 41.3 Project Team..... VI-41-8
 41.3.1 Specific Duties of Project Team Members VI-41-9
 41.3.1.1 Project Manager..... VI-41-9
 41.3.1.2 Contract Specialist..... VI-41-13
 41.3.1.3 Quality Assurance Specialist VI-41-14
 41.3.1.4 NSA Logistical Representative VI-41-15
 41.3.1.5 SEA 21 Hull, Mechanical and Electrical and AEGIS Combat Systems On Site Logistician (Surface Force Ships only) VI-41-15
 41.3.1.6 Project Support Engineer..... VI-41-15
 41.3.1.7 Integrated Test Engineer..... VI-41-16
 41.3.1.8 Assessment Director VI-41-17
 41.3.1.9 Technical Matter Expert..... VI-41-17
 41.3.1.10 Shipbuilding Specialist..... VI-41-18
 41.3.1.11 AIT On-Site Installation Coordinator..... VI-41-20

41.3.1.12	AIT Manager	VI-41-20
41.3.1.13	Combat Systems Project Engineer (Surface Force Ships only)	VI-41-20
41.3.1.14	SEA 21 Hull Manager (Surface Force Ships only).....	VI-41-22
41.4	Planning Process Support	VI-41-22
41.5	Planning Board for Maintenance	VI-41-23
41.5.1	Business Rules	VI-41-23
41.6	Work Force Development Program (RMC only).....	VI-41-23
41.7	Integrated Project Team Development (Surface Force Ships only).....	VI-41-24
41.7.1	Program Events.....	VI-41-24

CHAPTER 42 - MATERIAL READINESS ASSESSMENT

42.1	Purpose.....	VI-42-1
42.2	Applicability.....	VI-42-2
42.3	Objectives.....	VI-42-2
42.4	Principles.....	VI-42-2
42.5	Material Assessment Process	VI-42-3
42.5.1	Discussion	VI-42-3
42.5.2	Material Assessments	VI-42-3
42.5.2.1	Submarine TSRA Material Assessments	VI-42-3
42.5.2.2	Surface Force TSRA Material Assessments	VI-42-3
42.5.3	Assessment Authorizing	VI-42-3
42.5.4	Assessment Planning	VI-42-4
42.5.5	Assessment Execution	VI-42-4
42.5.6	Assessment Reporting	VI-42-5
42.5.7	Standard Assessment Tool Kit.....	VI-42-5
42.5.8	Assessment Personnel.....	VI-42-5
42.6	Responsibilities.....	VI-42-6
42.6.1	Fleet Commander.....	VI-42-6
42.6.2	Type Commander	VI-42-6
42.6.3	Material Assessment Executing Activity.....	VI-42-6
42.6.4	Commanding Officer	VI-42-7

Appendices

A	Assessment Process	VI-42A-1
B	“Prerequisites and Test Requirements” Message (Example).....	VI-42B-1
C	“Readiness to Commence” Message (Example).....	VI-42C-1
D	“Completion Quicklook” Message (Example)	VI-42D-1
E	Job Originator Identification Table.....	VI-42E-1

CHAPTER 43 - GUIDANCE FOR ENHANCED MODERNIZATION AND ALTERATION INSTALLATION TEAM INTEGRATION DURING AVAILABILITIES

43.1	Concept.....	VI-43-1
43.2	Availability Planning Business Rules	VI-43-1
43.3	Availability Execution Business Rules	VI-43-2

CHAPTER 44 - MAINTENANCE AND MODERNIZATION PERFORMANCE REVIEW MEETINGS FOR SURFACE FORCE SHIPS

THIS CHAPTER MOVED INTO CHAPTER 39 OF THIS VOLUME

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
Det/DET	Detachment
DFS	Departure From Specification
DIRSSP	Director, Strategic Systems Programs
DLR	Depot Level Repairable
DMP	Depot Modernization Period
DO	Duty Officer
DoD	Department of Defense
DPP	Deployment Preparation Period
DRRS	Defense Readiness Reporting System
DS	Dry Deck Shelter
DSN	Defense Switched Network
DSRA	Dry-Docking Selected Restricted Availability
DSS	Deep Submergence System
EDO	Engineering Duty Officer
EGL	Equipment Guide List
EIC	Equipment Identification Code
EM	Electronic Module
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EMO	Electronics Material Officer
EOC	Equipment Operational Capability
EPCP	Electric Plant Control Panel
EPY	Expanded Planning Yard
EQOL	Enhanced Quality Of Life
ERR	Engineering Readiness Review
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
LCSRON	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

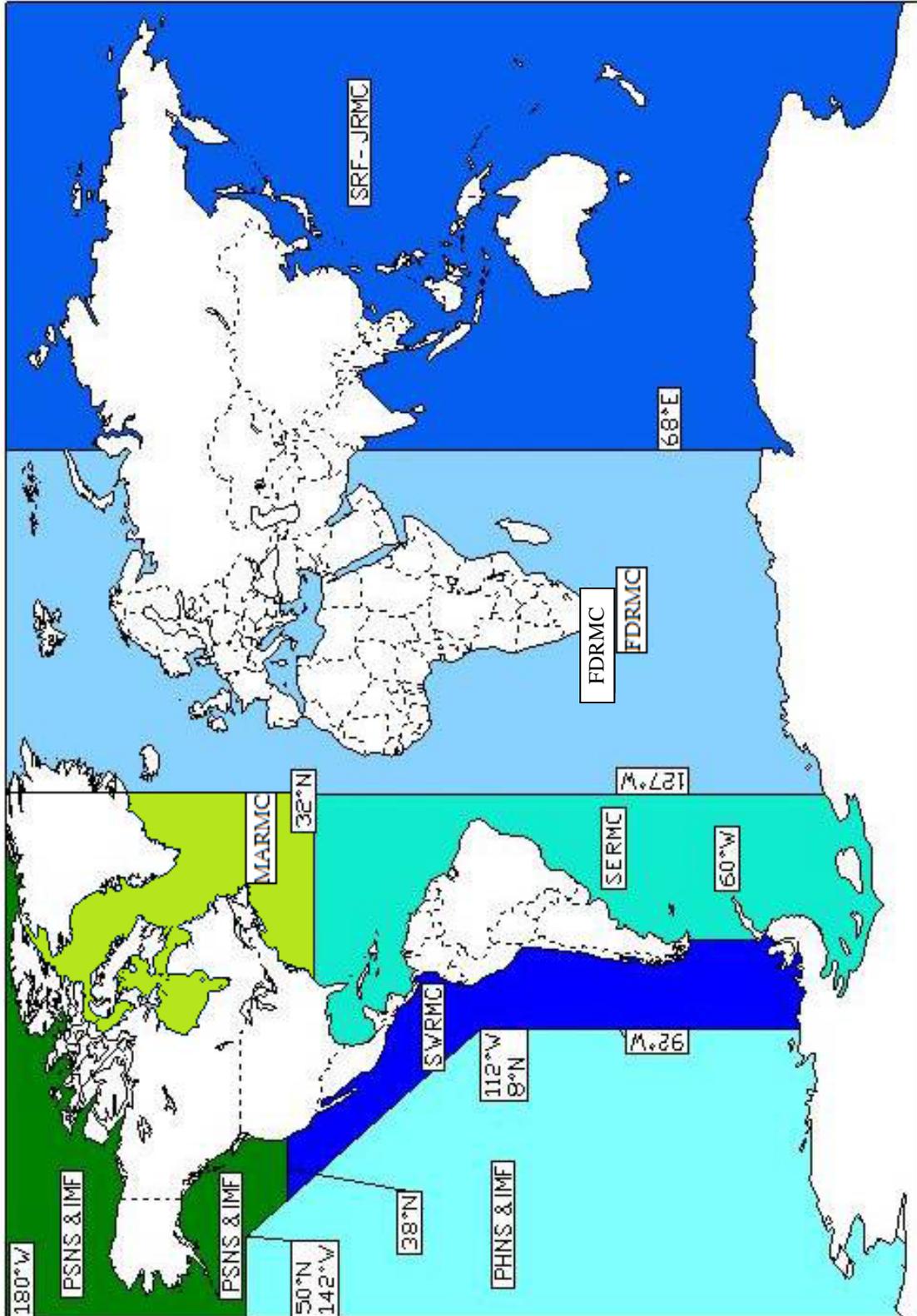


Figure 2-1 RMC Area of Responsibility

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. When a ship transits from one AOR to another, the cognizant area RMC will validate the need for on-site support before transitioning from Distance Support provided by the homeport. 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.

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

3.3 ALTERATION PROGRAMS.

3.3.1 Reactor Plant Ship Alteration Package Program (Nuclear Powered Ships only). A NAVSEA 08 program to package and position reactor plant alteration material at the 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 (1).

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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)//
 RMKS/2. URO-29 WAS OR WAS NOT ACCOMPLISHED//
 BT

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

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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).

NOTE: TMDE IS GENERAL PURPOSE ELECTRONIC TEST EQUIPMENT (GPETE), SPECIAL PURPOSE ELECTRONIC TEST EQUIPMENT (SPETE), SUPPORT EQUIPMENT, CALIBRATION STANDARDS AND INSTALLED INSTRUMENTATION THAT SUPPORT HULL, MECHANICAL AND ELECTRICAL (HM&E), WEAPONS SYSTEMS, ETC.

9.2 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). **Coordinate with the appropriate SYSCOM during pre-commissioning to verify if Establishment of Field Calibration Activity Request has been submitted and approved in accordance with reference (a).**
- e. Perform Quality Assurance reviews of laboratories and ensure compliance with this instruction and appropriate SYSCOM instructions.
- f. Budget and manage funds to support calibration overflow for calibration support beyond the capability of RMC/RCC, TYCOM and shipboard calibration activities.
- g. Ensure that Regional Loan Pools (RLP) are established in RMC/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. **Naval Air Warfare Center, China Lake** is the TWH EA for TMDE, prepares specifications for new TMDE and makes technical recommendations to the TMDE Program Manager on what instruments are listed in the TMDE Index. Seal Beach Detachment may be contacted by telephone or message for resolution of urgent technical problems related to all Navy TMDE.

9.2.4 Immediate Superior In Command.

- a. Monitor calibration readiness status within their respective organizations, especially ships in a pre-deployment status. Forward requests for assistance to the TYCOM METCAL Manager.
- b. Monitor the effectiveness of Shipboard Gage Calibration Program (SGCP) FCAs.
- c. Ensure that ships with FCAs extend their service to other ships in company, as appropriate, to reduce cost and turn-around time of calibration.
- d. Ensure that each ship with an FCA has all the necessary standards, documentation and trained personnel to maintain current certification.
- e. Coordinate resolution of calibration problems found by the TYCOM designated support activity for assigned ships.
- f. (Submarine Force only) 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. 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 **METBENCH Calibration Management System (MCMS)**, 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 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 **MCMS** and MEASURE systems as directed by the appropriate TYCOM. All assigned MIPs/MRCs are to be maintained in accordance with the requirements of reference (l).
- 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. These teams will be augmented by RMC I-Level Production.
 - (b) Landing Craft Air Cushion (LCAC) - certified SISCAL teams at Assault Craft Units.
 - (3) Calibration Activity 3 (Level 3). RCC calibrates those instruments which require the use of unique calibration standards or facilities.
- b. SISCAL Team Scheduling. (Not applicable to Sub platforms) SISCAL scheduling begins approximately six months before expiration date and is coordinated between the Port Engineer/CVN Maintenance Manager/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). NSWCSSES 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. **For Calibration Recall and Inventory Systems other than MCMS**, Ship's Force should match CRL data to the METCAL Automated Information System or Calibration Recall **and Inventory System inventory** and submit changes to the MEASURE Operational Control Center if the CRL and METCAL Automated Information System do not have matching data elements. **Refer to the CRL CD-ROM Users Guide.**
- d. The CRL is the technical authority document for all shipboard instrumentation calibration requirements. To preclude continuous and duplicative review of 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 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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- c. Perform tank, void and general structural inspections as tasked by the Port Engineers and MPMs. Inspections on surface ships and aircraft carriers will use references (a) and (c). Inspector/surveyor will ensure all inspection data is entered into the CCIMS database within three working days upon completion of inspection.

13.4.3 Surface Force Ships and Aircraft Carriers.

- a. Set up an ongoing corrosion prevention and control program, including all topside structure, equipment, machinery, fixtures, combat and weapons systems, and components.
 - (1) For Commander, Naval Surface Force, use reference (d) as guidance.
 - (2) For Commander, Naval Air Force, use reference (e) Chapter 8 as guidance.
 - (3) Additional guidance can be found in references (a), (b), Maintenance Index Page (MIP) 1500, MIP 6300 and MIP 6641.
- b. Take planned and/or corrective action on all potential discrepancies, and enter all significant discrepancies into the Current Ship's Maintenance Project.
- c. Ensure scheduled AWRs requesting tank, void and general structural inspections are conducted by RMC or Type Commander assigned inspectors and surveyors as required by work center Planned Maintenance System. Ensure the AWR includes requirements for cleaning and gas free services as required.
- d. (Aircraft Carriers only) Aircraft carrier Type Commanders (TYCOM) shall employ **Level 1 Surveyors (Coatings Inspectors) certified in accordance with the requirements of reference (c). These Certified TYCOM Level 1 Surveyors shall** train and assist Ship's Force with **performance of Level 1 Surveys** and documentation of **survey findings** in support of the availability planning process **in accordance with reference (c)**. These **certified TYCOM Level 1 Surveyors** will also provide **additional Shipboard Corrosion Assessment and Reporting (SCAR) training to designated Ship's Force personnel who can assist other Ship's Force personnel** in areas of surface preparation, coating selection and application and Quality Control process for the preservation of spaces and equipment. The overall collection, input and management of the CCIMS database by **certified Level 1 Surveyors** at the TYCOM is required throughout the 32 month availability cycle to fully support Maintenance Program Managers in the life cycle management of shipboard preservation.
- e. (Aircraft Carriers only) The Repair Officer is designated as the Ship's Corrosion Control Officer and is responsible to ensure divisions outlined in reference (e) (or series) Chapter 8 **have sufficient numbers of Ship's Force personnel certified as Level 1 Surveyors in accordance with reference (c) to conduct Level 1 Structural and Coating Condition Surveys**. All inspection results will be entered into the CCIMS database. Departures From Specifications (DFS) shall be submitted in accordance with this manual and as defined in reference (c). The Repair Office will accomplish a joint inspection with the Supervisor and the Commanding Officer's designated representative (i.e., either **a qualified Ship's Force Level 1 Surveyor** or **TYCOM Level 1 Surveyor**) upon completion, inspection and acceptance, by the contractor, of work within each compartment.
- f. (Aircraft Carriers only) For any tanks and/or voids which are not normally filled with seawater and/or not designed to be exposed to seawater, Ship's Force will ensure the following:
 - (1) Only fresh water may be used in any tanks and/or voids which are not normally exposed to seawater (e.g., water transferred to peak tanks and/or dry voids for use in controlling list and/or ballasting the ship must be fresh water).
 - (2) Report to the TYCOM those tanks and/or voids in which fresh water is being used for controlling list and/or ballasting the ship.

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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
Nuclear Alteration Administration	All	RXFC
<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 E
JOB ORIGINATOR VALUES

JOB ORIGINATOR			OBS	BRKR	JOB ORIGINATOR TEXT	SHORT TEXT
SEQ	SORT	CODE	FG	FG		
25	1	A	0	0	ACCCIT (AIR)/DC (SURF) TSRA HM&E (SUBS)	LOCAL TYCOM
26	7	B	0	0	C5RA (AIR) CSAT/MAPAI (SUBS); CBR INSPECTION (SURF)	LOCAL TYCOM
27	2	C	0	0	LCS/DDG 1000 (SURF) TSRA COMBAT SYSTEMS (SUBS)	LOCAL TYCOM
28	8	D	0	0	CABLEWAY (AIR) I-LVL DEPARTURE (SUBS)	LOCAL TYCOM
42	42	E	0	0	ELEVATOR SUPPORT UNIT (AIR)	LOCAL TYCOM
29	9	G	0	0	ERAT, IRAT, TMIT (SURF)	LOCAL TYCOM
30	10	H	0	0	EQOL/FSL (AIR); 2K-FTA (SURF)	LOCAL TYCOM
43	43	I	0	0	NSLC RESERVED	NSLC
37	17	J	0	0	POET'S (AIR); ICAS (SURF)	LOCAL TYCOM
31	11	K	0	0	TSRA/CSC C5RA (SURF)	LOCAL TYCOM
40	40	L	0	0	PORT ENGINEER WRITTEN JSNs	NATIONAL
39	39	M	0	0	MicroPMR (MPMR)/MSWP (SUB)	LOCAL TYCOM
41	41	N	0	0	CORROSION CONTROL (SURF)	LOCAL TYCOM
32	12	P	0	0	PEPSI (AIR)/SECAP (SURF); PMT OSAR (SUBS)	LOCAL TYCOM
15	15	Q	0	1	CREATED BY RMAIS (NATIONAL)	RMAIS-N
16	16	R	0	0	INSURV (NATIONAL)	INSURV-N
33	13	S	0	0	CEMAT (AIR) SHIP SEMAT (SURF); SAIL DEFICIENCIES (SUBS)	LOCAL TYCOM
45	45	T	0	0	TYCOM (AIR, SURF, SUBS)	LOCAL TYCOM
38	18	U	0	0	TOOLSET FOR INSPECTIONS (BOILERS, DIESELS, ETC.)	OPNAVINST 9220.3
44	6	V	0	0	ALRE ICAV (AIR)	LOCAL TYCOM
					UNSCHEDULED INSPECTION/ASSESSMENT TASKS (SURF)	
34	14	W	0	0	BAWP (AIR)/ICMP; IMF TSRA; ICAS; RMC TSRA (SURF)	LOCAL TYCOM
35	15	X	0	0	BAWP (AIR)	LOCAL TYCOM
36	16	Y	0	0	AIR/MST (SURF); BAWP (AIR)	LOCAL TYCOM
					MST/CLASS MAINTENANCE PLANS (SURF) CLASS MAINTENANCE PLANS	
23	5	Z	0	0	(NATIONAL) MST/M&SWP	LOCAL TYCOM
999,999	999,999	?	0	0	Invalid	Invalid

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- (1) The Engineered Overhaul Work Package prepared by SUBMEPP will reflect all PMRs authorized for accomplishment during the CNO Maintenance Availability period at the SWLIN level. For each SWLIN, the specific PMRs will be identified to the applicable component level. The Engineered Overhaul Work Package preparation process ensures all PMRs due prior to the first availability following the subject availability period are included in the Engineered Overhaul Work Package. The preparation process also includes review and inclusion of appropriate items from the ship's Current Ship's Maintenance Project (CSMP), Ship's Force originated deficiencies, and alterations screened for industrial activity accomplishment.
- (2) Completions and Material Condition Assessment 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 will be retained by SUBMEPP upon completion of the availability. The PMR inventories and schedules and local scheduling system will be updated by SUBMEPP.
- (3) Completions and MCA data for PMRs accomplished by TRIDENT Refit Facility Kings Bay/NAVIMFAC PACNORWEST during CNO availabilities will be called down and reported using their local scheduling system as identified in paragraph 24.2.3 of this chapter.

24.6.1 Operating Cycle/Interval Extension. An audit plan to assess the material condition of a ship prior to extending their operating cycles/intervals beyond PMR periodicity due to changing CNO Maintenance Availability dates is addressed in reference (c). Procedures and responsibilities are contained in Volume II, Part I, Chapter 3 of this manual.

24.7 RESPONSIBILITIES.

24.7.1 Type Commander.

- a. The TYCOM is responsible for providing an overall scheduling system for the accomplishment of PMRs for assigned ships.
- b. Perform periodic audits of ISICs and FMAs to verify full compliance with the provisions of this chapter.
- c. Provide guidance to the ISICs, obtaining NAVSEA concurrence in accordance with Volume V, Chapter 8, paragraph 8.2.4 of this manual.

24.7.2 Submarine Maintenance Engineering, Planning and Procurement Activity.

- a. Receive reports of the completion of PMRs from industrial activities and extract Maintenance and Material Management (3-M) data from NAVSEA Logistics Center, Mechanicsburg PA of all Forces Afloat accomplished PMRs containing "JC" WC.
- b. Review completion reports for any change in material condition status and analyze 3-M data for Material Condition Assessment to determine validity of requirements.
- c. Update schedules to reflect new LMA and next due dates.
- d. Provide updated quarterly PMR inventories and schedules to each ISIC and the SUBMEPP representative at TYCOM. Notify the SUBMEPP Representative at TYCOM and each ISIC when products will not be provided as scheduled.
- e. Provide quarterly or more frequent (if requested) scheduling/configuration files (M79E11) and MJC update files to each parent ISIC using a local scheduling system.
- f. Provide quarterly MJC update files to the ISIC brokering systems .
- g. Adjust the due dates for any PMRs that are accomplished within ten months of the major CNO availability start date that will come due again during the availability by the number of months of the availability duration.

- h. (SSBN/SSGN 726 Class submarines) Provide Refit Work Package electronic files which reflect PMR scheduling to the TRIDENT Refit Facility Kings Bay at the arrival minus 60 day milestone.
- i. Prepare and issue AWP in support of CNO availabilities. Ensure the I-Level PMR section of AWP (Part 4.13) is updated on each issue of the AWP.
- j. Manage AERP/Corporate Component Repair Program/TRIPER programs.
- k. Extract PMR completion verification and documentation for SEOC availabilities from the appropriate maintenance database.
- l. Update Overdue PMR Status web page (https://ebiz.submepp.navy.mil/fs/pmr_status/) with the reason for D-Level PMRs not meeting the due date.

24.7.3 Immediate Superior In Command.

- a. Although the responsibility for the accomplishment of PMRs must rest with the ship's Commanding Officer, the ISIC is responsible for scheduling and ensuring completion of all I-Level PMR work within the planned periodicity in the CMP. Normally, PMR work is accomplished by the FMA which maintains the unit's CSMP. However, when submarines are assigned availabilities to other than the parent FMA, and that FMA is authorized by the TYCOM to perform PMRs, an agreement between the parent ISIC and the accomplishing FMA will identify the PMRs to be accomplished and any associated logistics.
- b. Calldown all I-Level PMRs planned for accomplishment into the CSMP by availability dates. For SSBN/SSGN 726 Class submarines this shall be 45 days prior to refit start. For non-726 Class submarines, 60 days prior to fleet maintenance availability. This ISIC must be proficient in these procedures to preclude erroneous or duplicate data from entering the CSMP. If the inventories and schedules contain errors/omissions, report the discrepancies to SUBMEPP.
- c. Maintain auditable records of PMR accomplishment for each submarine. These records will include the current SUBMEPP Quarterly PMR Inventories and Schedules and the last completed AWR for PMRs completed by the parent FMA, whether or not reflected in the SUBMEPP Quarterly PMR Inventories and Schedules. At sites which have access to electronic certified Task Group Instructions, these Task Group Instructions can be used in place of completed AWRs as an auditable record of PMR accomplishment.
- d. At Naval Intermediate Maintenance Facility Pacific Northwest, PMR and non-controlled URO inspection scheduling, completion, LMA date establishment and next due date scheduling shall be maintained in the appropriate automated database for SSBN/SSGN 726 Class submarines. This database will contain the complete history for all occurrences (past), dates of completion, frequency of occurrence, next due dates and future scheduling data for each PMR/non-controlled URO inspection. Data will be entered from Objective Quality Evidence from refit close out processes and the selected job management report.
- e. Notify SUBMEPP Code 1814 of non-receipt of SUBMEPP Quarterly PMR Inventories and Schedules. The PMR Inventories and Schedules are also available at <https://ebusiness.submepp.navy.mil/ap/invsched/>.
- f. Keep the local scheduling system correct and accurate. This should be done by periodically doing a check of the data against the inventories and schedules, M&SWP and the ship's CSMP. Ensure the SUBMEPP representative assigned to each ISIC updates the Overdue PMR Status web page (https://ebiz.submepp.navy.mil/fs/pmr_status/) with the reason for I-Level PMRs not meeting the due date.
- g. The ISIC should make every attempt to accomplish PMRs on or before the next scheduled due date that appears in SUBMEPP Inventories and Schedules. Ensure PMRs which are not accomplished by the SUBMEPP scheduled due date are rescheduled.

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 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 PSIA contractor. The Maintenance Team may go to other contracting vehicles when:
 - (1) The PSIA contractor and government cannot agree on cost and scope.
 - (2) The PSIA contractor does not have the capability or capacity.
 - (3) Other organic RMC assets are available and have the capability for the work.
 - (4) Work is to be accomplished outside of homeport area.
 - (5) AIT/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 PSIA contractor work item estimates to independently developed government work item estimates throughout the development of the work package. Completion of package development and submission of the 100% Work Package Proposal is followed by the Technical Cost and Scope analysis, proposal revisions, TAR, establishment of the Prorate, Pre- and Post Business Clearance, and signing of the bi-lateral contract modification (definitization).

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

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

31.4.3.2 Business Rules.

- a. The contractor 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 PSIA contractor when requested by the government to resolve differences between the contractor's Planning Estimate and the IGE.
- b. The IGE is the government's detailed estimate to the trade and paragraph level. The IGE provides budget level tracking and establishes a basis for determining cost reasonableness allowing the government to validate the Planning Activity Estimate and resolve any differences in scope or cost estimates.
- c. The package will be assessed at the 50% and 80% budget to ensure that work has been brokered to planning activities continuously. These milestones also reinforce timely identification of work by Ship's Force. Following the 50% and 80% milestones, the planning activity will complete planning and estimating for all work brokered to date.
- d. Upon completion of the Planning Activity Estimate, that estimate will be compared to the IGE to gage whether the government and the Planning Activity are estimating a similar scope of work. If the individual work item Class C estimates vary by more than 10% or \$10,000 (whichever is higher), the government Program Manager will establish a scoping conference to discuss/resolve the scope of work.
- e. The 100% package lock is the official milestone to mark identification of 100% of the work requirements for an availability based on the MMBP budget. All work added to or deleted from the package after the 100% lock will be via an errata, addendum or inducted as new work via the Request for Contractual Change Process.
- f. The Final Funding Notification with Estimates of Prorates will be a formal communication with resource sponsor (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.

VOLUME VI

CHAPTER 34

**SUBMARINE FLY-BY-WIRE SHIP CONTROL SYSTEM
MAINTENANCE AND CERTIFICATION**

CHAPTER DELETED - SAVE FOR FUTURE USE

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VOLUME VI
CHAPTER 40
SUBMARINE MESSAGE REPORTING

REFERENCES.

- (a) SECNAVINST 5510.36 - Department of the Navy Information Security Program Regulation, Chapter 6
- (b) NAVSEAINST 4720.14 - Temporary Alterations to Active Fleet Submarines, Control of
- (c) NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and Operations Manual (NMP-MOM)

LISTING OF APPENDICES.

- A Sample (SUBS) Initial Message
- B Sample (SUBS) Update Message
- C Sample (SUBS) Final/Closeout Message
- D Sample (SUBS) Shipalt/Tempalt Installation Message
- E Sample (SUBS) Shipalt/Tempalt Removal Message

40.1 PURPOSE. This chapter provides policy and guidance regarding the utilization of (SUBS) messages. Reactor Plant and Strategic Weapons Systems material issues are not governed by this document and shall not to be reported via (SUBS) message format. (SUBS) message requirements for New Construction, Chief of Naval Operations, (CNO) and Type Commander (TYCOM) depot availabilities are addressed in Volume II, Part I, Chapters 3 and 4 of this manual and will not be addressed in this chapter. This chapter supercedes all other policy, procedures or guidance previously promulgated regarding (SUBS) messages.

40.2 BACKGROUND. Submarine material and equipment problems or requests for technical assistance reported via message have experienced delays receiving the required resolutions for identified problems. Delays were associated with insufficient data and or improper message addressing.

40.3 SCOPE. To establish protocol for the reporting of submarine equipment, systems and material issues that affect ship's mission or ship/personnel safety. To establish a reporting procedure that will ensure all necessary commands and technical authorities are contacted without delay. To ensure the correct action is identified and provided to the ship using the most rapid means.

40.4 POLICY.

- a. The parenthetical code word (SUBS) shall appear as the first word in the subject line before the subject description.
- b. (SUBS) messages shall identify its status by using the words INITIAL, UPDATE or FINAL at the end of the subject line.
- c. The (SUBS) message shall not be used as a substitute for any Casualty Report, Situation Report or Incident Report that may be required by higher authority. A (SUBS) message shall be sent to provide further supplemental information needed to explain the problem, provide troubleshooting support and identify its effect on the ship.
- d. (SUBS) messages are intended for material and technical assistance request issues pertaining to ship's mission or personnel safety and should not be used to report routine administrative items such as visit requests, post tech assist visit reports or any other event not requiring the urgency of a (SUBS) message.
- e. (SUBS) messages originated by submarines will be updated by the submarine at a periodicity not greater than once every 30 days. UPDATES should include equipment status, repair efforts in progress and if known anticipated repair date.
- f. To identify (SUBS) message priority use the following precedence:
 - (1) ROUTINE - REQUEST ANSWER WITHIN 5 WORKING DAYS.

- (2) PRIORITY - REQUEST ANSWER WITHIN 3 WORKING DAYS.
- (3) IMMEDIATE - REQUEST ANSWER WITHIN 24 HOURS.
- g. (SUBS) messages shall be used to identify the installation and removal of Temporary Alterations (TEMPALT) and Ship Alterations (SHIPALT). However the 30-day UPDATE requirement and precedence identification is waived for these instances.
- h. (SUBS) messages identifying the installation or removal of a TEMPALT or SHIPALT will identify such message by placing the words (TEMPALT) or (SHIPALT) at the end of the subject line.
- i. (SUBS) messages are to be classified appropriately in accordance with reference (a).
- j. (SUBS) messages shall be addressed to the controlling Immediate Superior In Command (ISIC) for action and INFO Naval Sea Systems Command (NAVSEA), NAVSEA 08, TYCOMs and Technical Authority as appropriate ensuring parent commands are included as addressees. INFO NAVSURFWARCENDIV PHILADELPHIA PA for all submarine diesel problems. **SSBNs and SSGNs will INFO Director, Strategic Systems Programs (DIRSSP).**
- k. A FINAL close out (SUBS) message shall be sent upon correction of the reported material problem or if in the Commanding Officer's judgement a technical resolution has been reached or no additional response is required from Technical Authorities, NAVSEA, TYCOM or ISIC.
- l. NAVSEA shall review all (SUBS) messages and provide responses to the ISIC within the precedence time line as identified in paragraph 40.4 f. of this chapter.
- m. (SUBS) messages initiated by NAVSEA requesting information from one or more Commands shall be tracked by NAVSEA.
- n. (SUBS) messages being initiated for the purpose of gathering technical information from submarines shall be provided to the TYCOM for action.
- o. Technical Authorities shall provide all (SUBS) message responses to NAVSEA, TYCOM and ISIC for review and action. **For messages addressed to SSBNs or SSGNs, INFO DIRSSP.**
- p. (SUBS) messages shall not be initiated by a Technical Authority unless authorized by NAVSEA, TYCOM or ISIC.

40.5 RESPONSIBILITIES.

40.5.1 Type Commanders.

- a. Review (SUBS) message traffic and when necessary readdress or forward to ensure the proper Technical Authority was identified and aware of the message.
- b. Assist and support the ISIC as required to generate (SUBS) messages.
- c. (SUBS) messages initiated by the TYCOM, requesting information from one or more Commands are to be tracked by the TYCOM department generating the message.
- d. Track all (SUBS) messages generated by submarines under its cognizance.

40.5.2 Immediate Superior In Command.

- a. Review and take for action all (SUBS) messages coordinating with NAVSEA, TYCOM and the Technical Authority to generate and provide message responses as required and within the precedence time line as identified in paragraph 40.4 f. of this chapter.
- b. (SUBS) messages sent to or initiated by a submarine under its cognizance shall be tracked by the ISIC.
- c. (SUBS) messages initiated by the ISIC requesting information from one or more commands shall be tracked by the ISIC.

40.5.3 Ship's Commanding Officer.

- a. (SUBS) messages initiated by the ship shall be tracked by the ship until closeout.

APPENDIX A

SAMPLE (SUBS) INITIAL MESSAGE

OATUZYUW RUCORGP0054 2282105-UUUU--RUCBKMC.
 ZNR UUUUU ZUI RUCOMCB4998 2290310
 O 1730XXZ AUG XX
 FM USS XXXXXXXXXXXX
 TO COMSUBRON XXXXX//
 INFO COMSUBLANT NORFOLK VA//
 COMNAVSEASYS COM WASHINGTON DC//
 COMSUBGRU XXX//
 NAVSHIPYD NORFOLK VA//
 XXXXX RMC XXXXX XX
 SUBMEPP PORTSMOUTH NH
 DIRSSP WASHINGTON DC// (FOR SSBN/SSGN)
 BT
 UNCLAS
 MSGID/GENADMIN/XXXXXXXXXX/0054/AUG//
 SUBJ/(SUBS) EPM CIRCUIT BREAKER OVERCURRENT TRIPS INITIAL//
 REF/A/DOC/NAVSEA/14MAR1995//
 AMPN/REF A IS NAVSEA 0942-LP-005-2020/(C) MAIN PROPULSION GEARS WITH
 CH-1.//
 POC/XXXXX./ENGINEER/USS XXXXXXXXXXXX/LOC:AT SEA
 /EMAIL:ENG(AT) XXXXXXXXXXXX.NAVY.SMIL.MIL//
 RMKS/1. **EXECUTIVE SUMMARY:** EMERGENCY PROPULSION MOTOR (EPM) CIRCUIT
 BREAKER AT EPM CONTROL PANEL (EPMCP) TRIPS ON OVERCURRENT WHEN
 TAKING THE EPM ABOVE 18 SHAFT RPM IN THE AHEAD DIRECTION. CONTROL OF EPM
 MOTOR ARMATURE CURRENT BETWEEN SPEEDS OF 13 AND 18 SRPM IS SENSITIVE,
 WITH MOTOR ARMATURE CURRENT SPIKING AS MOTOR SPEED IS INCREMENTALLY
 RAISED. THE EPM REMAINS OPERATIONAL AT SPEEDS LESS THAN 15 SRPM
 AHEAD. OPERATION ASTERN IS NORMAL.
 2. **BACKGROUND:** SHIP IS CURRENTLY CONDUCTING POST-SRA SEA TRIALS.
 SHIPALT 3461K (EPM HIGH TORQUE CLUTCH) WAS INSTALLED DURING SRA. EPM
 OPERATION WAS TESTED SATISFACTORILY PIERSIDE ON XXAUGXX TO A MAXIMUM
 SPEED OF 15 SRPM AHEAD AND ASTERN WITH NO ABNORMALITIES NOTED.
 3. **DESCRIPTION OF PROBLEM:**
 A. WHILE SLOWLY BRINGING THE EPM FROM 13 TO 18 SRPM AHEAD BY
 INCREMENTALLY TURNING THE HANDWHEEL (LESS THAN 1/64TH TURN)
 CLOCKWISE THE MOTOR ARMATURE CURRENT SPIKES TO APPROXIMATELY
 800 TO 1100 AMPS DC THEN RETURNS TO NORMAL STEADY RUNNING CURRENT
 (APPROX 250 AMPS DC). THE MAGNITUDE OF THE SPIKE IS DIRECTLY
 PROPORTIONAL TO THE MOTOR SPEED/HANDWHEEL POSITION. MOTOR FIELD
 CURRENT BEHAVES NORMALLY, RUNNING FROM 7-9 AMPS DC.
 B. AS SPEED IS RAISED ABOVE 18 SRPM, AN ARMATURE CURRENT SPIKE OF
 1800 AMPS DC IS INDICATED AS THE EPM BREAKER TRIPS. THE MOST LIKELY
 CAUSE OF THE BREAKER TRIP IS OVERCURRENT (RATED INSTANTANEOUS
 TRIP POINT IS 2800 AMPS DC), BUT THE AMMETER RESPONSE IS TOO SLOW TO
 REGISTER FULL DEFLECTION.
 4. **TROUBLESHOOTING EFFORTS:**
 A. PERFORMED CLEAN AND INSPECT OF EPM CONTROL PANEL AND CONTROLLER
 PER EL-26 A-5 AND A-2 SATISFACTORILY.
 B. TESTED OPERATION OF EPMCP PER EL-26 R-2M SATISFACTORILY.
 C. INSPECTED EPM CIRCUIT BREAKER SATISFACTORILY.
 5. **ASSISTANCE DESIRED:** REQUEST FURTHER TROUBLESHOOTING GUIDANCE VIA
 MESSAGE BY XXAUGXX.

6. CO ASSESSMENT AND REPAIR DESIRES: ORIG IS CONTINUING WITH POST-SRA SEA TRIALS, LIMITING EPM TO 15 SRPM AHEAD. ADDITIONAL TROUBLESHOOTING WILL BE PERFORMED UPON SURFACING.//

BT

#0054

NNNN

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

APPENDIX B

SAMPLE (SUBS) UPDATE MESSAGE

OATUZYUW RUCORGP0054 2282105-UUUU--RUCBKMC.

ZNR UUUUU ZUI RUCOMCB4998 2290310

O 1730XXZ AUG XX

FM USS XXXXXXXXXXX

TO COMSUBRON XXXXX//

INFO COMSUBLANT NORFOLK VA//

COMNAVSEASYS COM WASHINGTON DC//

COMSUBGRU XXX//

NAVSHIPYD NORFOLK VA//

XXXXX RMC XXXXX XX

SUBMEPP PORTSMOUTH NH

DIRSSP WASHINGTON DC// (FOR SSBN/SSGN)

BT

UNCLAS

MSGID/GENADMIN/XXXXXXXXXX/0054/AUG//

SUBJ/(SUBS) EPM CIRCUIT BREAKER OVERCURRENT TRIPS **UPDATE**//

REF/A/DOC/NAVSEA/14MAR1995//

AMPN/REF A IS NAVSEA 0942-LP-005-2020/(C) MAIN PROPULSION GEARS WITH CH-1.//

POC/XXXXX./ENGINEER/USS XXXXXXXXXXXX/LOC:AT SEA

/EMAIL:ENG(AT) XXXXXXXXXXXX.NAVY.SMIL.MIL//

RMKS/1. EXECUTIVE SUMMARY: EMERGENCY PROPULSION MOTOR (EPM) CIRCUIT BREAKER AT EPM CONTROL PANEL (EPMCP) IS STILL EXPERIENCING TRIPS ON OVERCURRENT WHEN TAKING THE EPM ABOVE 18 SHAFT RPM IN THE AHEAD DIRECTION. CONTROL OF EPM MOTOR ARMATURE CURRENT BETWEEN SPEEDS OF 13 AND 18 SRPM IS SENSITIVE, WITH MOTOR ARMATURE CURRENT SPIKING AS MOTOR SPEED IS INCREMENTALLY RAISED. THE EPM REMAINS OPERATIONAL AT SPEEDS LESS THAN 15 SRPM AHEAD. OPERATION ASTERN IS NORMAL.

2. BACKGROUND: SHIP IS CURRENTLY CONDUCTING POST-SRA SEA TRIALS. SHIPALT 3461K (EPM HIGH TORQUE CLUTCH) WAS INSTALLED DURING SRA. EPM OPERATION WAS TESTED SATISFACTORILY PIERSIDE ON XXAUGXX TO A MAXIMUM SPEED OF 15 SRPM AHEAD AND ASTERN WITH NO ABNORMALITIES NOTED.

3. DESCRIPTION OF PROBLEM:

A. WHILE SLOWLY BRINGING THE EPM FROM 13 TO 18 SRPM AHEAD BY INCREMENTALLY TURNING THE HANDWHEEL (LESS THAN 1/64TH TURN) CLOCKWISE THE MOTOR ARMATURE CURRENT SPIKES TO APPROXIMATELY 800 TO 1100 AMPS DC THEN RETURNS TO NORMAL STEADY RUNNING CURRENT (APPROX 250 AMPS DC). THE MAGNITUDE OF THE SPIKE IS DIRECTLY PROPORTIONAL TO THE MOTOR SPEED/HANDWHEEL POSITION. MOTOR FIELD CURRENT BEHAVES NORMALLY, RUNNING FROM 7-9 AMPS DC.

B. AS SPEED IS RAISED ABOVE 18 SRPM, AN ARMATURE CURRENT SPIKE OF 1800 AMPS DC IS INDICATED AS THE EPM BREAKER TRIPS. THE MOST LIKELY CAUSE OF THE BREAKER TRIP IS OVERCURRENT (RATED INSTANTANEOUS TRIP POINT IS 2800 AMPS DC), BUT THE AMMETER RESPONSE IS TOO SLOW TO REGISTER FULL DEFLECTION.

4. TROUBLESHOOTING EFFORTS:

A. PERFORMED CLEAN AND INSPECT OF EPM CONTROL PANEL AND CONTROLLER PER EL-26 A-5 AND A-2 SATISFACTORILY.

B. TESTED OPERATION OF EPMCP PER EL-26 R-2M SATISFACTORILY.

C. INSPECTED EPM CIRCUIT BREAKER SATISFACTORILY.

D. MEASURED RESISTANCE OF FIELD RHEOSTAT THROUGH ITS ENTIRE RANGE OF MOTION. INITIALLY DISCOVERED SEVERAL REGIONS OF HIGH RESISTANCE

CONTACT. CLEANED RHEOSTAT TO LESS THAN 0.1 OHM THROUGHOUT RANGE OF MOTION, WITH NO RESULTANT CHANGE IN OPERATING BEHAVIOR.

5. ASSISTANCE DESIRED: REQUEST FURTHER TROUBLESHOOTING GUIDANCE BY XXAUGXX.

6. CO ASSESSMENT AND REPAIR DESIRES: ORIG IS CONTINUING WITH POST-SRA SEA TRIALS, LIMITING EPM TO 15 SRPM AHEAD. ADDITIONAL TROUBLESHOOTING WILL BE PERFORMED UPON SURFACING. PER REF A VOL 2 TAB V-A TABLE 4-3, SHIP'S FORCE WILL INSPECT FIELD RESISTOR FOR A POSSIBLE OPEN CIRCUIT.//

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

APPENDIX C

SAMPLE (SUBS) FINAL/CLOSEOUT MESSAGE

OATUZYUW RUCORGP0054 2282105-UUUU--RUCBKMC.

ZNR UUUUU ZUI RUCOMCB4998 2290310

O 1730XXZ AUG XX

FM USS XXXXXXXXXXX

TO COMSUBRON XXXXX//

INFO COMSUBLANT NORFOLK VA//

COMNAVSEASYS COM WASHINGTON DC//

COMSUBGRU XXX//

NAVSHIPYD NORFOLK VA//

XXXXX RMC XXXXX XX

SUBMEPP PORTSMOUTH NH

DIRSSP WASHINGTON DC// (FOR SSBN/SSGN)

BT

UNCLAS

MSGID/GENADMIN/XXXXXXXXXX/0054/AUG//

SUBJ/(SUBS) EPM CIRCUIT BREAKER OVERCURRENT TRIPS **FINAL**//

REF/A/DOC/NAVSEA/14MAR1995//

AMPN/REF A IS NAVSEA 0942-LP-005-2020/(C) MAIN PROPULSION GEARS WITH CH-1.//

POC/XXXXX./ENGINEER/USS XXXXXXXXXXXX/LOC:AT SEA

/EMAIL:ENG(AT) XXXXXXXXXXXX.NAVY.SMIL.MIL//

RMKS/1. EXECUTIVE SUMMARY: THE MATERIAL ISSUE OF OVERCURRENT TRIPS OF THE EMERGENCY PROPULSION MOTOR (EPM) CIRCUIT BREAKER HAS BEEN CORRECTED.

2. BACKGROUND: SHIP WAS CONDUCTING POST-SRA SEA TRIALS. SHIPALT 3461K (EPM HIGH TORQUE CLUTCH) HAD BEEN INSTALLED DURING SRA. EPM OPERATION WAS TESTED SATISFACTORILY PIERSIDE ON XXAUGXX TO A MAXIMUM SPEED OF 15 SRPM AHEAD AND ASTERN WITH NO ABNORMALITIES NOTED.

3. DESCRIPTION OF PROBLEM:

A. WHILE SLOWLY BRINGING THE EPM FROM 13 TO 18 SRPM AHEAD BY INCREMENTALLY TURNING THE HANDWHEEL (LESS THAN 1/64TH TURN) CLOCKWISE THE MOTOR ARMATURE CURRENT SPIKES TO APPROXIMATELY 800 TO 1100 AMPS DC THEN RETURNS TO NORMAL STEADY RUNNING CURRENT (APPROX 250 AMPS DC). THE MAGNITUDE OF THE SPIKE IS DIRECTLY PROPORTIONAL TO THE MOTOR SPEED/HANDWHEEL POSITION. MOTOR FIELD CURRENT BEHAVED NORMALLY, RUNNING FROM 7-9 AMPS DC.

B. AS SPEED WAS RAISED ABOVE 18 SRPM, AN ARMATURE CURRENT SPIKE OF 1800 AMPS DC WAS EXPERIENCED AND THE EPM BREAKER TRIPPED.

4. TROUBLESHOOTING EFFORTS:

A. PERFORMED TROUBLESHOOTING AS IDENTIFIED IN PROVIDED TECHNICAL ASSIST MESSAGES.

B. PROBLEM WAS FOUND TO BE THE FIELD RESISTOR WAS EXPERIENCING AN OPEN CIRCUIT DUE TO A LOOSE CONNECTOR LUG CAUSING A HIGH RESISTANCE CONNECTION. THIS PROBLEM WAS IDENTIFIED DURING THE INSPECTION OF EPM CONTROL PANEL AS DESCRIBED IN THE PROVIDED TECH ASSIST MESSAGE.

5. ASSISTANCE DESIRED: PROBLEM CORRECTED, NO FURTHER ASSISTANCE REQUIRED. THIS IS THE FINAL REPORT NO ADDITIONAL ACTION REQUIRED.

6. CO ASSESSMENT AND REPAIR DESIRES: EPM RESTORED TO FULL SERVICE. //

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

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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 is notionally conducted in five events prior to the availability start date and one mid-availability. IPTD events are outlined below:

- a. Planning Event. Transition ownership and responsibility for the final development of the AWP from the Advanced Planning Phase (SEA 21 - Surface Maintenance Engineering Planning Program (SURFMEPP) responsibility), to the Planning Phase (CNRMC - NSA/RMC responsibility). Review, update and identify risks.
- b. 50% P&E COST/50% 2-Kilo Lock for Firm Fixed Price Event. This event will be scheduled based on the Joint Fleet Maintenance Manual tailored milestone determined at the Planning event. The event focuses on work package development, project strategies and reviewing, updating and identifying risks.
- c. 80% P&E/WPIC COST/WPIC Firm Fixed Price Event. This event will be scheduled based on the Joint Fleet Maintenance Manual tailored milestone determined at the Planning Event. The primary purpose of this event is to conduct the WPIC.
- d. WPER. The primary purpose of this event is to conduct the WPER meeting.
- e. Availability Completion Conference (in Accordance with Volume II, Part II, Chapter 2, Appendix D of this Manual). The primary purpose of this conference is to conduct a detailed review of the work package executed during the CNO Availability, and identify Lessons Learned that can be utilized for revising work items and class standard work templates for future maintenance availabilities. Additionally, this conference will serve as the transition (CNRMC - NSA/RMC) back to Advanced Planning (SEA 21 - SURFMEPP) to commence the next cycle in the Fleet Response Plan.
- f. 50% Review – Regroup
 - (1) Midlife Avails: 50% Conference
 - (2) Std Avails: 50% Conference/TBD by PT
 - (3) 1 day duration
 - (4) Focus: Regroup, Refocus & Realign

- b. Assessment procedures standardized to the maximum extent possible and identified in the CMP.
- c. A standardized assessment tool set used to plan, execute and report assessments.
- d. Assessment results recorded in a common shared data warehouse.
- e. Accomplished using a common material assessment process, as defined below.
- f. Assessment process has an effective method of feedback for periodic reviews and analysis for improvements.

42.5 MATERIAL ASSESSMENT PROCESS.

42.5.1 Discussion. The primary focus of the material assessment process is to coordinate and integrate the various Navy material assessment processes into a single, integrated, effective process designed to evaluate, measure and report individual unit's material condition. This information will be used to improve fleet readiness, ship design, maintenance and modernization identification, as well as the self-assessment capabilities of fleet units. Activities performing assessments are encouraged to communicate with each other to avoid duplicate work. Additionally, the assessment process will provide data to help determine a unit's ability to reach its expected hull life, measure the effectiveness of the CMP and identify potential crew training deficiencies. (Submarines only) References (b) and (c) are applicable to all performing submarine material and maintainability readiness assessments.

42.5.2 Material Assessments. Units will undergo assessments per the CMP and as scheduled by the TYCOM. Systems and equipment are selected for assessment based upon:

- a. The CMPs.
- b. Ship Class trends.
- c. Unit requests.
- d. Review of the Current Ship's Maintenance Project (CSMP).
- e. Maintenance Team inputs.
- f. Integrated Condition Assessment Systems (ICAS)
- g. Integrated Performance Assessment Reports
- h. Corrosion Control Information Management Systems
- i. Master Assessment Index

42.5.2.1 Submarine TSRA Material Assessments. Reference (b) is applicable to TYCOM managed activities with responsibility to perform submarine material and maintainability readiness assessments. Reference (c) is applicable to Commander, Navy RMC managed activities with responsibility to perform submarine material and maintainability readiness assessments.

42.5.2.2 Surface Force TSRA Material Assessments. TSRA visits are nominally two weeks in duration. However, at the discretion of the TYCOM, TSRA events may be scheduled for more or less than two weeks in order to avoid conflicting with operational schedules. When the TSRA event is scheduled for less than two weeks, the focus of the TSRA will be identification and documentation of systems deficiencies.

42.5.3 Assessment Authorizing. The Platform Program Manager develops the CMP requirements as outlined in reference (d), and provides the requirements to the Platform TYCOM, who develop the assessment work packages and initiate assessments via "go assess work notifications" (GA2-K). Many factors determine what items will be selected for assessment, including the level of risk, funding constraints, ship's availability and ongoing maintenance and modernization. RMCs are tasked by Commander, Naval Sea Systems Command to support surface ships under the cognizance of Commander, Naval Surface Force Atlantic and Commander, Naval Surface Force Pacific to plan and execute TSRA's.

- a. The CMP contains two types of assessment notifications that may influence the agenda:
 - (1) Scheduled assessments.

- (2) **Unscheduled “As needed” or “pulled assessments” (“Go Assess” maintenance notification).** The Go Assess maintenance notification (GA2-K) identifies the equipment and the associated assessment procedure which shall be used.
 - b. Individual material assessments (not more than five assessment procedures) may be scheduled outside of a scheduled assessment event or availability if they can be planned and coordinated on a not to interfere basis with the unit’s combined schedule (operational and maintenance). A larger number of assessments or assessment events require additional planning, integrated scheduling and project management (e.g., C5RA, TSRA, Carrier Material Assessment Team, etc.). In this case, a maintenance availability should be used or added to the ship’s schedule. These assessment notifications are screened and brokered to the appropriate executing activity.
 - c. All material assessments are scheduled in accordance with the CMP and should not be repeated or duplicated by multiple activities. Assessment results shall be shared and used by multiple activities.
 - d. Surface Force TSRA’s will include comprehensive assessments of ship’s Hull, Mechanical and Electrical, combat systems, Command, Control, Communications, Computers and Intelligence systems, support equipment and logistics condition per reference (e). TSRA’s are tailored material assessment packages scheduled to occur at specific times during a ship’s schedule to improve maintenance availability planning, CSMP management, equipment repair, Ship’s Force technician proficiency and operational availability. The Master Assessment Index process is used by Surface TYCOM as a risk prioritization model to assist in the development of the TSRA agenda.

42.5.4 Assessment Planning. For scheduled material assessments or events, the Executing Activity identifies a Team Leader and develops the execution plan. The plan contains all of the necessary information required to complete the assigned tasks and should be integrated with the unit’s schedule. Conduct assessments using the applicable pieces of the standard assessment tool set. To facilitate planning and scheduling and avoid redundancy, assessments may be consolidated into a material inspection. Deficiencies identified during other major ship inspections and assessments such as C5RA’s shall be incorporated into the final INSURV inspection report if the assessment was conducted within 60 days of the scheduled material inspection or as negotiated between INSURV and the TYCOM. Although deficiencies generated during the assessment will become part of the final INSURV report, these deficiencies will be annotated as “corrected”, where applicable. The TYCOM will document this linked event by message request to INSURV, cognizant RMCs and the affected unit nominally four months prior to the scheduled material inspection. INSURV will evaluate the request and determine the scope and applicability of the linkage.

42.5.5 Assessment Execution.

- a. Work with the unit’s personnel to assess, analyze and document the material condition in accordance with standard procedures. Maintain good communications with all levels of unit personnel. Train unit personnel in assessment procedures and techniques.
- b. The assessment includes validation of equipment configuration, evaluation of the maintenance periodicity and effectiveness, evaluation of the assessment periodicity.
- c. Documentation of assessment results by the equipment Subject Matter Expert (SME) will include all required data. A maintenance ready work notification (2-Kilo) that is sufficiently defined, contains correct and complete information, provides an accurate diagnosis, and provides an applicable, effective and feasible recommended resolution. A properly validated maintenance ready work notification (2-Kilo) should allow the planning and executing activities the ability to understand the requirement and not to expend additional manpower or time obtaining needed information for any deferred maintenance, and completion of the assessment maintenance notification. All Unclassified Non-Nuclear Naval Propulsion Information/Naval Nuclear Propulsion Information assessment results and data will be handled in accordance with current regulations and standing guidance from NAVSEA 08.
- d. During Surface Force TYCOM TSRA assessments, repairs will be accomplished based on priority, availability of parts, Ship’s Force support, SME availability or time remaining in the TSRA.
- e. Conduct assessments using the Automated Work Notification software contained in Afloat Toolbox for Maintenance. This software is located in the MFOM Suite. All collected data is stored in the MFOM data warehouse.