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ARINC RESEARCH CORP ANNAPOLIS MD
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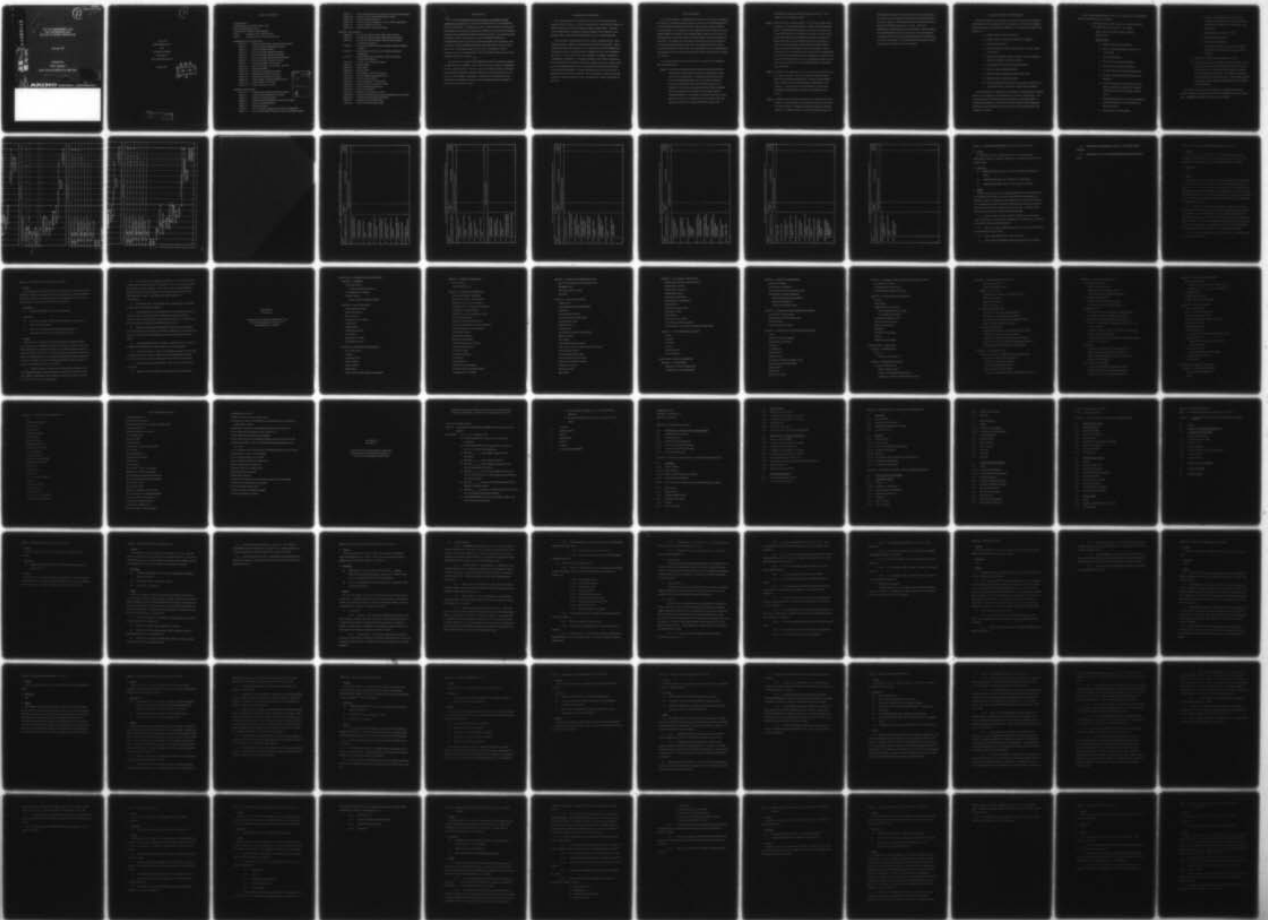
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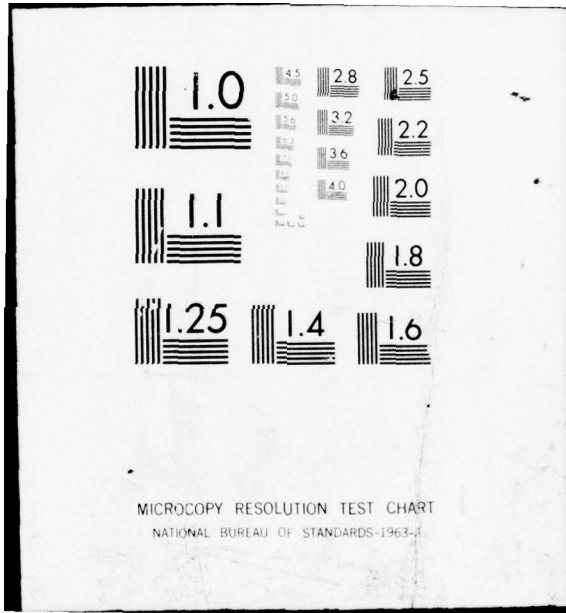
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DLG TYPE MANAGEMENT PLAN
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FOR USE IN PEB/LOE PREPARATION

January 1975

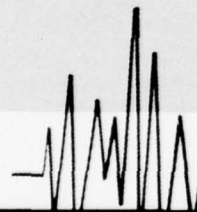
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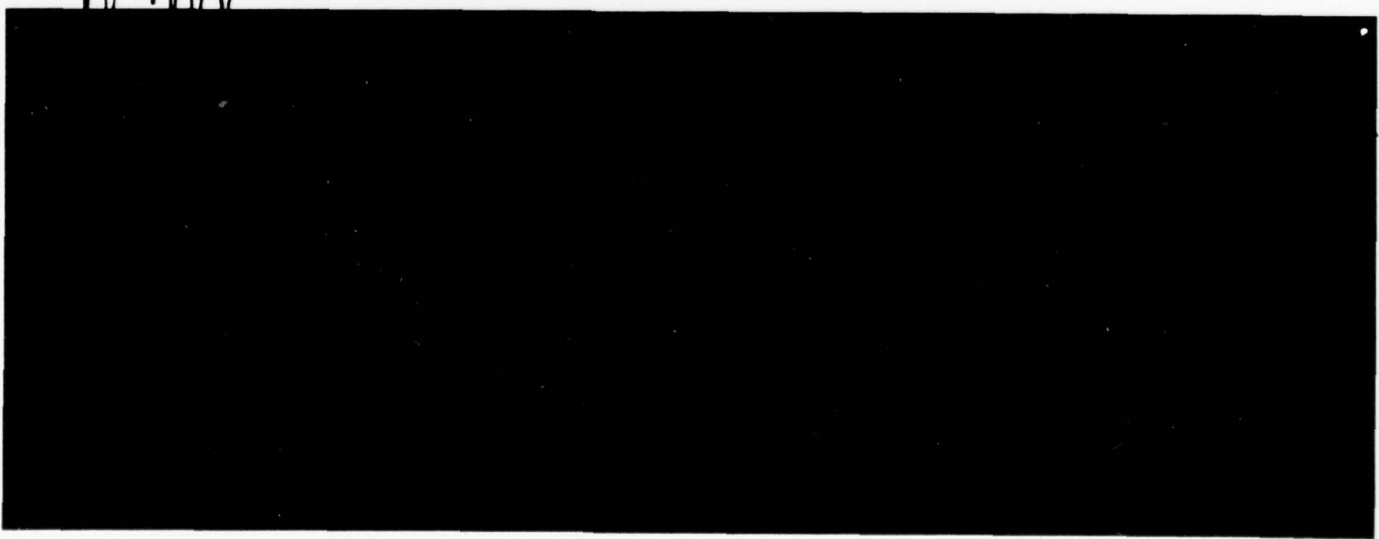
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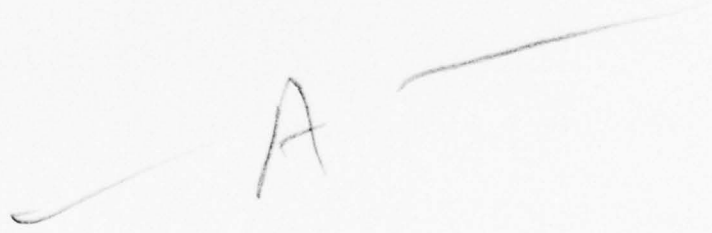


INTRODUCTION

The document, Management Plan and Milestones to Assist Ship's Force in Preparation for PEB/LOE, was prepared for COMCRUDESPAC by PERA(CRUDES) and issued in May 1974. It identifies many areas in which elements of the Fleet need documentation to assist them in meeting Navy standards when tested by the Propulsion Examining Board (PEB) during Light-Off Examinations (LOEs). The management plan and program outlines presented herein are part of COMCRUDESPAC and PERA(CRUDES) efforts to develop the required documentation and instructions, and to expand the existing NAVSHIPS and OPNAV instructions that are needed to assist ship's force. The program outlines are part of the second phase of a task to assemble and review existing documents and provide detailed outlines in areas where additional information is required.



This documents was prepared by PERA(CRUDES) with the contractual assistance of ARINC Research Corporation. It has been reviewed in the context of existing Navy directives and requirements. However, some of the suggested courses of action and recommendations contained herein may conflict with, be inconsistent with, or vary from Navy documentation requirements. In such cases, the requirements of the official Navy documentation will govern, and PERA(CRUDES) should be notified so that corrective action can be taken.



ORGANIZATION OF DOCUMENT

This document contains information that will be helpful to ship personnel in preparing for the PEB/LOEs. An LOE is conducted by the PEB before the first fire is lighted in a boiler in each fireroom during a regular overhaul (ROH). The Board reviews administrative, training, and material readiness for the light-off of each propulsion plant. (Actual light-off of the plant is not a part of the examination).

This document is assembled into five basic sections, identified by tabs. Tab A, "Management Plan", contains a milestone chart for PEB/LOE preparation. Tab B, "Management Plan Action Required Form", is provided as a check-off planning and monitoring document. Each task in Tab A is contained in Tab B, and is identified in the "Task No." column of the form. Tabs C through E are entitled, respectively, "Administrative Preparation", "Training Preparation", and "Material Preparation". The tasks outlined in each of these sections are arranged in the same sequence as the *tasks of the Management Plan*, Tab A. Each of the tasks presented in the management plan has been identified as a requirement that must be met or must be part of ongoing activities at the time of the LOE. Each task requires specific action by ship personnel to reach the milestones on time and support the scheduled preparation for the LOEs.

USE OF DOCUMENT

To use this document in a COMCRUDESPEC program to assist ships in preparing for PEB/LOEs, the Management and Engineering personnel of designated ships should develop individual management plans for their ship, using the milestone charts in Tab A for guidance. The ship plans must be completed prior to the initial visit of the PERA(CRUDES) representative to the designated ships so that they may be used as a planning baseline. Space is provided in the subject chart to insert the ship name and hull number. The months before and after the start of the ROH must be inserted in the margin at the top and bottom of the chart. The guideline plan in Tab A can be reviewed and modified to suit the needs of each particular ship. The PERA(CRUDES) representative will review the ship's plan during the initial visit and assist in refining it as required.

It is suggested that the procedure outlined below be followed in developing the ship's Management Plan:

Step 1 - Review the requirements presented in the milestone chart of Tab A.

Tab B lists these requirements in tabular form and provides a form to be used as a check-off list. A completed copy of this form will provide the Commanding Officer with a list of actions required to correct the problem areas that existed at the time the form was completed. These items are of primary interest to the Commanding Officer in preparation for the PEB/LOEs, and require intensive management attention. To facilitate development of this list, all items listed in Tab B are cross-referenced to the same items in Tab A and supported by references or detailed information in tasks in the

administrative, training and material preparation sections. Task numbers must correspond throughout.

Step 2 - Schedule the items requiring attention. A format such as that in Tab A is suggested. The Commanding Officer, together with his Department Heads, PERA(CRUDES) representatives, and other assistance as may be required, should develop schedules for each task. It may be found in some ships that there are insufficient resources to schedule completion of the tasks at the desired times prior to the PEB/LOEs. In such cases, the best possible schedule should be developed and the Division or Squadron Commander advised of the situation. Once the rough schedules are developed, they can be delivered to PERA(CRUDES) for final draft of the milestone chart and reproduction. Sufficient copies should be provided to the ship for use in monitoring the progress of each task. One copy will be delivered to COMCRUDES PAC to assure their timely assistance.

Step 3 - Periodically review the progress of work on each task, and take corrective action as required. This review should be repeated at weekly intervals throughout the planning period. When the situation dictates major revision, the chart should be updated to reflect the revised schedule. A marked-up copy of the chart should be sent to PERA (CRUDES) and the Squadron Commander so that schedules can be revised.

Step 4 - In addition to posted schedules and normal files, maintain a loose-leaf notebook reflecting the status of this program and the work in progress. The notebook should be arranged and tabbed in conformance with this document. The initial insertions in the notebook should consist of the

documentation applicable to the requirements of the various task items. As work proceeds, documentation reflecting the current situation can be added to the notebook. The Management Plan tasks should be entered as jobs into the (SFOMS) package under a "dummy" work center. SFOMS status reports should be kept in the notebook. Thus at all times, the Commanding Officer will have at his disposal current information concerning each of the tasks in the specific program for his ship for use in discussion with others. One complete copy of this notebook should be kept up-to-date in the file for reference purposes.

APPROACH TO TASK ACCOMPLISHMENT

The primary objective of this approach is to provide general outline guidance for organizing task effort, assigning resources, pursuing task objectives, and managing task accomplishment in preparation for PEB/LOEs. The steps needed to achieve this objective are:

- 1) Establish where you are in a task area.
- 2) Establish where you should be at a given time (schedule).
- 3) Determine the difference.
- 4) Analyze the difference and determine what has to be done to meet your schedule.
- 5) Develop a plan; identify resources required and advise appropriate authority of additional assistance required.
- 6) Set recognizable, specific, incremental objectives.
- 7) Develop a means of depicting the plan.
- 8) Monitor actions frequently and identify trouble areas.
- 9) Initiate trouble-area corrective action.
- 10) Keep your ISIC and TYCOM advised of your status, progress, and any problems that you cannot solve without outside assistance.

Every administrative, maintenance, and training task confronting the Commanding Officer of every ship involves the performance of a number of specific duties. The work ranges from writing instructions and procedures to performing repairs on machinery and equipment. The success of the effort requires not only appropriate talent but also a plan of attack that makes the best use of this talent to achieve the objectives of each task.

To aid in achieving full utilization of the resources available to the Commanding Officer, the following steps are suggested:

- 1) Identify what has to be done in each task. Break the task down into required actions and list them. For example:

Task - Train Fire Fighters to Type Commander

Required Level

Required Action

- a. Obtain requirements documentation
- b. Analyze requirements against present level of crew training
- c. Determine deficiencies
- d. Determine on-ship training capabilities
- e. Determine off-ship training capabilities
- f. Correlate deficiencies with training capabilities
- g. Identify personnel with training deficiencies and capabilities
- h. Determine prerequisites in training sequence (for example, attendance at Advanced Fire Fighting school might require prior attendance at a basic course)
- i. Establish training objectives for each man identified; make training objectives as incremental and as specific as possible
- j. Obtain quotas for off-ship training

- k. Organize on-ship training program – this involves consolidation of training plans for each individual into divisional, departmental, and, as appropriate, ship training plans
 - l. Initiate training in accordance with plan
 - m. Monitor plan accomplishment
 - n. Reschedule missed training
 - o. Advise Type Commander, via chain of command, of any inadequacies in resources necessary to achieve objectives
- 2) Determine the sequence in which subtasks must occur.
- 3) Develop check-off sheets, listing the subtasks and subtask elements to the level necessary to provide achievable objectives at least at biweekly intervals. A useful device in this regard is a columnar form, with tasks and task elements. This should be supported by a personnel listing on a back-up chart or by a form listing personnel vertically and time horizontally, with training objectives identified at the intersections.

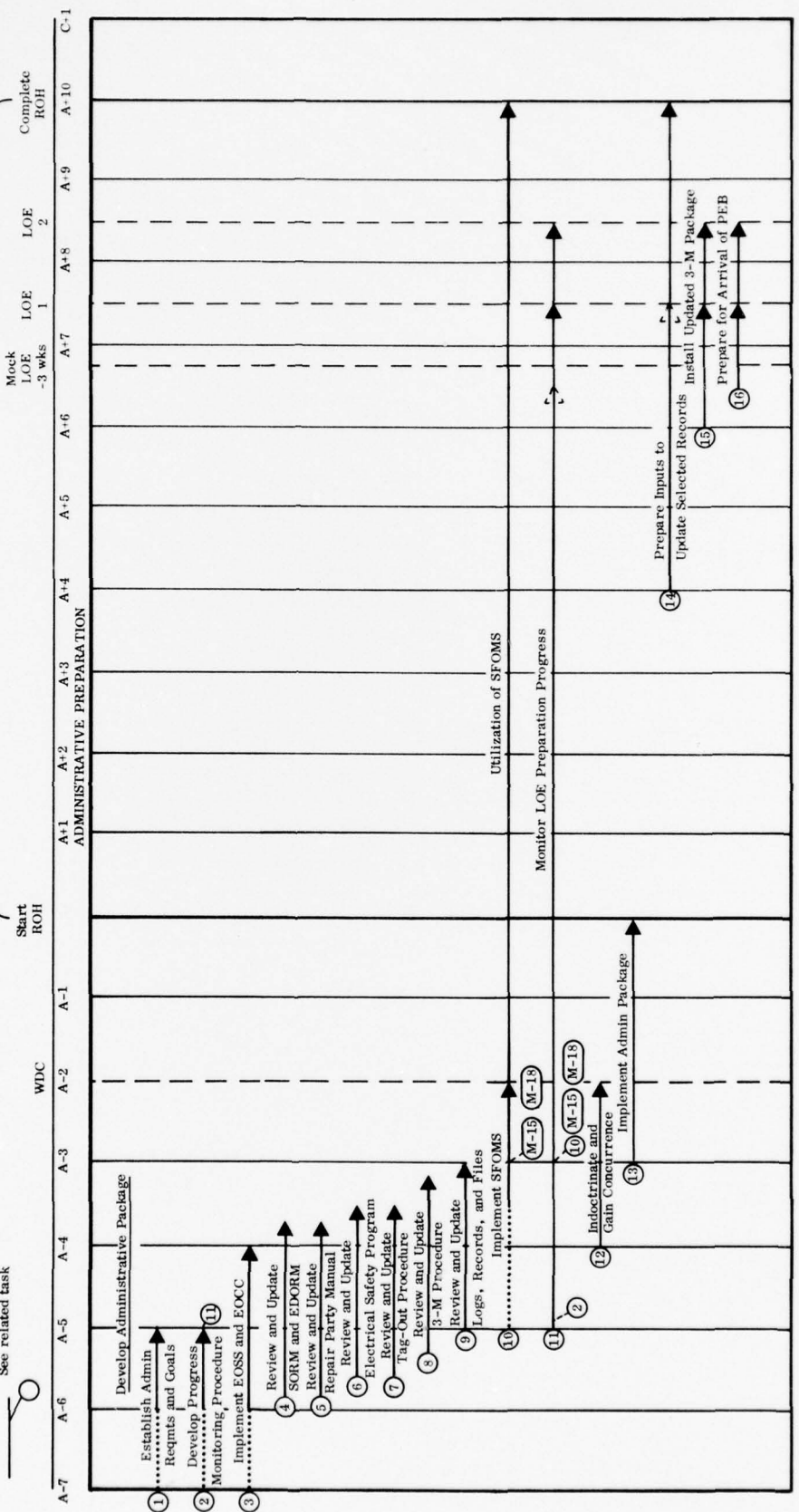
As each task is analyzed, different approaches of depicting task plans and objective milestones will probably occur to the Commanding Officer and his subordinates. Imagination and initiative in this area are encouraged.

TAB A - MANAGEMENT PLAN

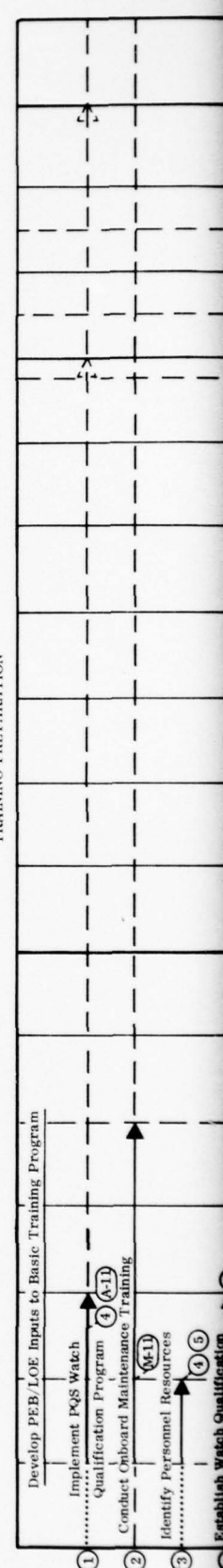
..... Can be started
 --- Ongoing
 --- Should be accomplished at this time

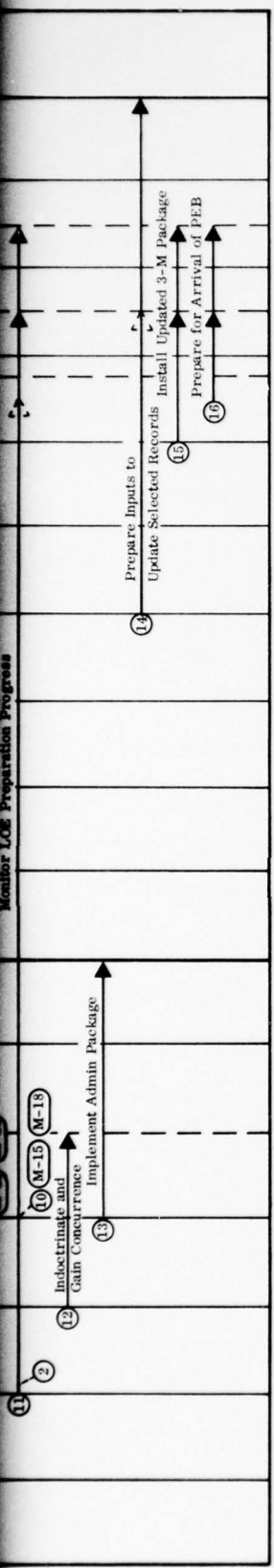
↑ Completion
 → Interim completion
 ○ See related task

Regular Overhaul

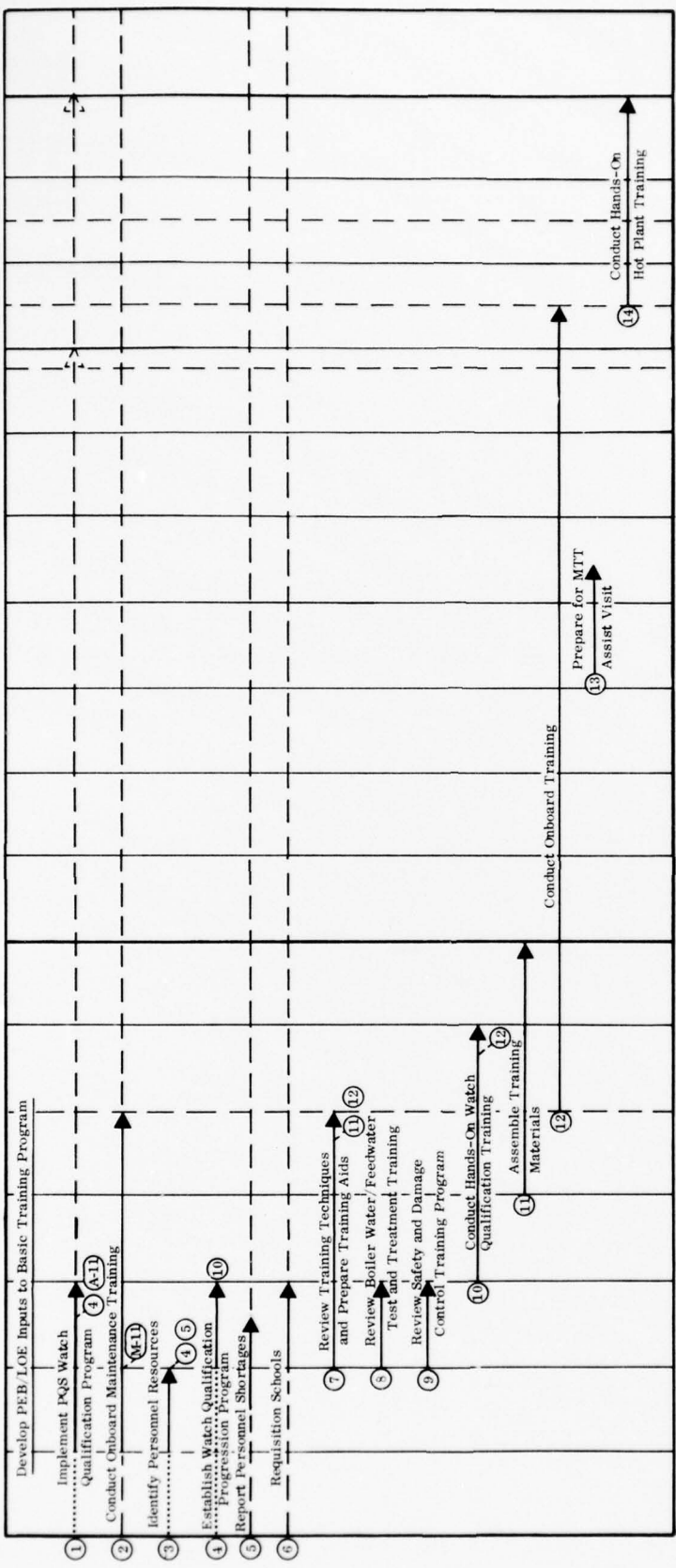


TRAINING PREPARATION

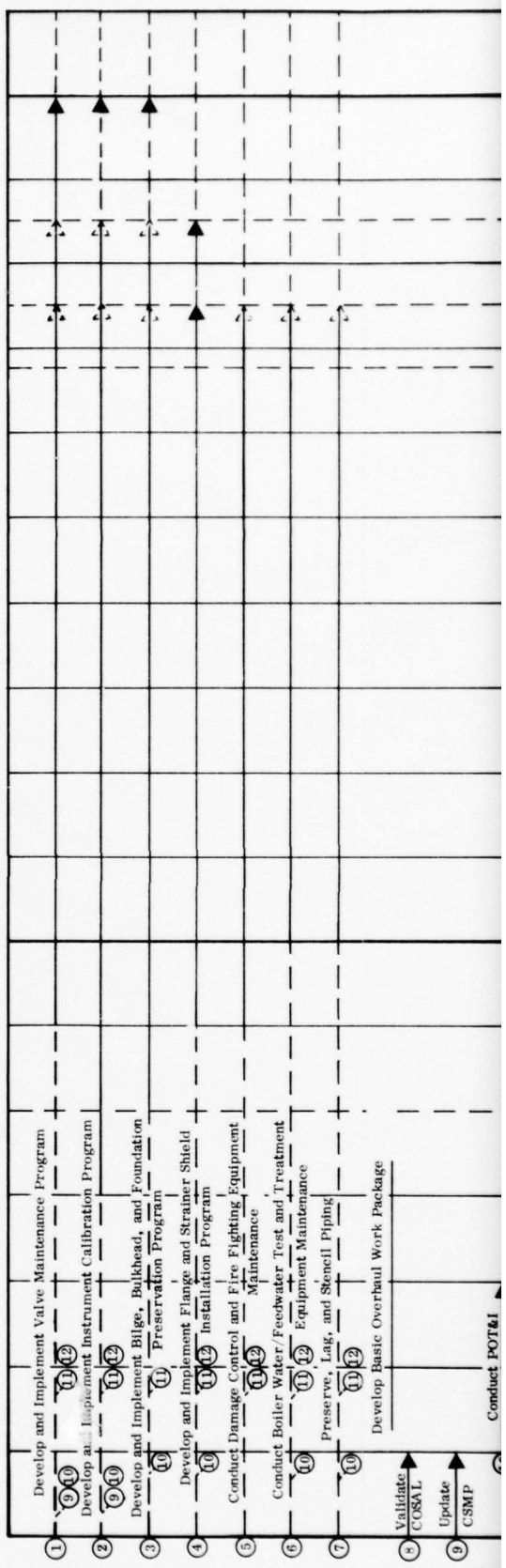




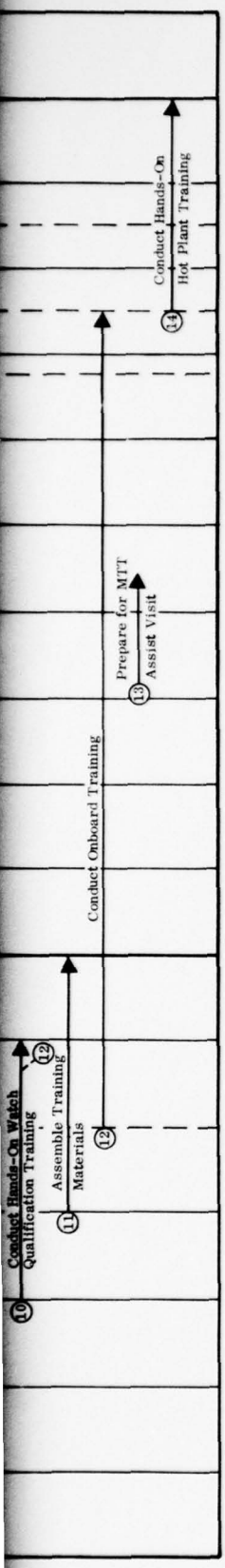
TRAINING PREPARATION



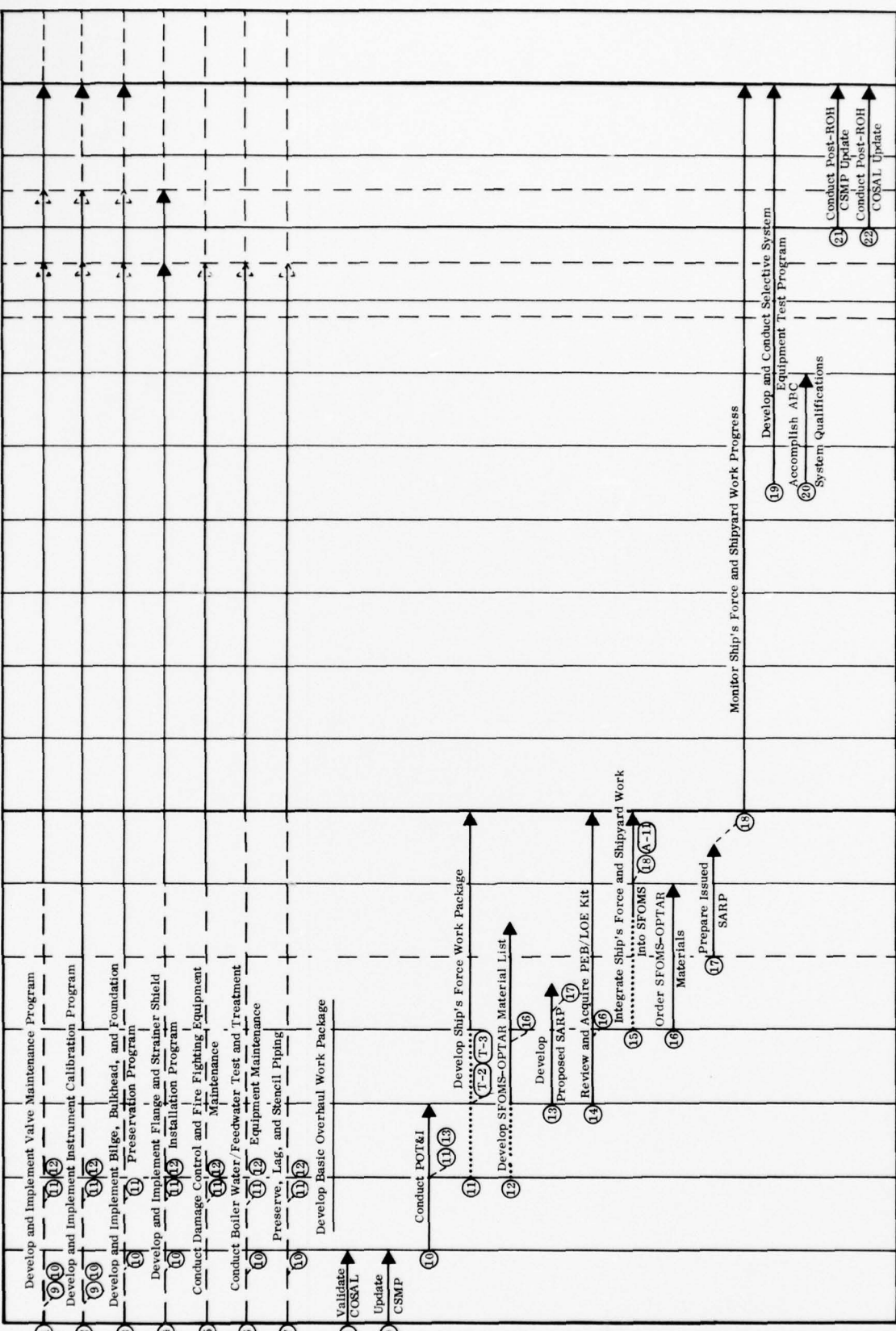
MATERIAL PREPARATION



2



MATERIAL PREPARATION



A-7 A-6 A-5 A-4 A-3 A-2 A-1 A-1 A-2 A-3 A-4 A-5 A-6 A-7 A-8 A-9 A-10 C-1

USS (DDG-) MANAGEMENT PLAN WITH MILESTONES FOR PEB/LOE PREPARATION



TAB B - MANAGEMENT PLAN ACTION REQUIRED FORM (Sheet 1 of 6)

Task No.	Management Plan Activity	Responsibility	Action Required	Complete
ADMINISTRATIVE PREPARATION				
A-1	Establish Administrative Requirements and Goals			
A-2	Develop a Progress Monitoring Procedure			
A-3	Implement EOSS and EOCC			
A-4	Review and Update SORM and EDORM			
A-5	Review and Update Repair Party Manual			
A-6	Review and Update Electrical Safety Program			
A-7	Review and Update Tag-Out Procedure			
A-8	Review and Update 3-M Procedure			
A-9	Review and Update Logs, Records and Files			
A-10	Implement SFOMS			
A-11	Monitor LOE Preparation Progress			

TAB B - MANAGEMENT PLAN ACTION REQUIRED FORM (Sheet 2 of 6)

Task No.	Management Plan Activity	Responsibility	Action Required	Complete
ADMINISTRATIVE PREPARATION (Continued)				
A-12	Indoctrinate and Gain Concurrence			
A-13	Implement Administrative Package			
A-14	Prepare Inputs to Update Selected Records			
A-15	Install Updated 3-M Package			
A-16	Prepare for Arrival of PEB			
TRAINING REQUIREMENTS				
T-1	Implement PQS Watch Qualification Program			
T-2	Conduct Onboard Maintenance Training			
T-3	Identify Personnel Resources			
T-4	Establish Watch Qualification Progression Program			
T-5	Report Personnel Shortages			

TAB B - MANAGEMENT PLAN ACTION REQUIRED FORM (Sheet 3 of 6)

Task No.	Management Plan Activity	Responsibility	Action Required	Complete
TRAINING REQUIREMENTS (Continued)				
T-6	Requisition Schools			
T-7	Review Training Techniques and Prepare Training Aids			
T-8	Review Boiler Water/Feedwater Test and Treatment Training			
T-9	Review and Update Safety and Damage Control Training Program			
T-10	Conduct Hands-On Watch Qualification Training			
T-11	Assemble Training Materials			
T-12	Conduct Onboard Training and Complete Watch Qualifications			
T-13	Prepare for MTT Assist Visit			
T-14	Conduct Hands-On Hot-Plant Training			

TAB B - MANAGEMENT PLAN ACTION REQUIRED FORM (Sheet 4 of 6)

Task No.	Management Plan Activity	Responsibility	Action Required	Complete
MATERIAL PREPARATION				
M-1	Develop and Implement Valve Maintenance Program			
M-2	Develop and Implement Instrument Calibration Program			
M-3	Develop and Implement Bulkhead and Foundation Program			
M-4	Develop and Implement Flange and Strainer Shield Installation Program			
M-5	Conduct Damage Control and Firefighting Equipment Maintenance			
M-6	Conduct Boiler Water/Feedwater Test and Treatment Equipment Maintenance			
M-7	Preserve, Lag, and Stencil Piping			
M-8	Validate COSAL			

TAB B - MANAGEMENT PLAN ACTION REQUIRED FORM (Sheet 5 of 6)

Task No.	Management Plan Activity	Responsibility	Action Required	Complete
MATERIAL PREPARATION (Continued)				
M-9	Update CSMP			
M-10	Conduct POT&I			
M-11	Develop Ship's Force Work Package			
M-12	Develop SFOMS-OPTAR Material List			
M-13	Develop Proposed SARP			
M-14	Review and Acquire "PEB/LOE Kit"			
M-15	Integrate SF and SY Work into SFOMS			
M-16	Order SFOMS-OPTAR Material			
M-17	Prepare Issued SARP			
M-18	Monitor Ship's Force and Shipyard Work Progress			
M-19	Develop and Conduct Selective System/Equipment Test Program			

TAB B - MANAGEMENT PLAN ACTION REQUIRED FORM (Sheet 6 of 6)

Task No.	Management Plan Activity	Responsibility	Action Required	Complete
MATERIAL PREPARATION (Continued)				
M-20	Accomplish ABC System Qualifications			
M-21	Conduct Post-ROH CSMP Update			
M-22	Conduct Post-ROH COSAL Update			

TASK A-1 - ESTABLISH ADMINISTRATIVE REQUIREMENTS AND GOALS

1. Purpose

To establish an overall coordinated program to review and update the administrative manuals, instructions, and procedures relating to the operation of the propulsion plant.

2. References

- (a) COMCRUDESPACINST 3540.11A, 1200 PSI Engineering Management Manual
- (b) COMCRUDESPACINST 1500.1, Shipboard Training Manual
- (c) COMCRUDESPACINST 9880.17A, Force Repair Party Manual

3. Method

References (a), (b), and (c) are recently promulgated Type Commander instructions which have been written or revised to reflect the most recent policies and procedures of the Type Commander in their subject areas. Some of the instructions can be promulgated as ship's instructions in their present form; others need inputs from the ship to make them complete before use by the ship. In addition to these instructions, ship's personnel must take the following action.

3.1 Assess the status of all other manuals, instructions, orders and procedures with regard to inconsistencies, duplications, and overlapping of responsibility and authority in the Engineering Department.

3.2 Make a list of ship's instructions which require revision and schedule the accomplishment of those revisions.

3.3 Assign responsibility for the review and revision.

3.4 Develop a plan to indoctrinate ship's personnel in the new procedures.

3.5 Implement the new instructions in time to be fully effective for the PEB/LOE.

3.6 Establish the above as the Command administrative requirements and goals.

TASK A-2 - DEVELOP A PROGRESS MONITORING PROCEDURE

1. Purpose

To provide a simple system capable of keeping ship's force management personnel advised of the status of all preparations for the PEB/LOEs prior to the implementation of the Ship's Force Overhaul Management System (SFOMS).

2. References

None

3. Method

The large number of diverse activities involved in preparing for the PEB/LOEs, as well as an extensive ROH, requires some system for monitoring the status of those activities. That system must be usable by the upper-level management of the ships prior to installation of the SFOMS. (Two months prior to ROH, the ship should load its known ship's force material work items for the overhaul into the SFOMS data bank; see Task A-11.) The following steps should be taken for proper monitoring of the preparation for the LOEs:

3.1 Six months or more in advance of the ROH, establish a "Propulsion Board" whose primary function is to ensure that the propulsion plant and personnel are operating in a safe condition and that this state continues through the LOEs. The Propulsion Board can consist of as few persons as the Commanding Officer and Engineer Officer, or as many as all Engineering Department supervisory personnel, C.O., X.O., and any others associated with the PEB/LOEs or ROH preparations. This board should meet weekly up to the LOEs and as required thereafter.

3.2 From the recommendations of the Propulsion Board, establish a master list of items similar to Tab B.

3.3 Break down the items or tasks into manageable steps and assign responsibility and an estimated completion date for each task or major step.

3.4 Update the master list weekly and use copies of this updated list as an agenda for the Propulsion Board meeting. Individuals responsible for the action involved, or for managing the action, should report on the status of the effort. Deficiencies should be emphasized and corrective actions indicated or planned.

3.5 Develop a chart similar to Tab A to show the planned actions of the propulsion board.

3.6 Transfer the incomplete tasks for PEB/LOE preparation to the Ship's Force Overhaul Management System for monitoring when this system becomes available, normally two months prior to ROH, (see Task A-11).

TASK A-3 – IMPLEMENT EOSS AND EOCC

1. Purpose

To provide a systematic approach to the implementation of Engineering Operational Sequencing System (EOSS) and Engineering Operational Casualty Control (EOCC).

2. References

- (a) EOSS User's Guide

3. Method

Proper implementation of EOSS and EOCC requires that watchstanders not only be qualified to stand the watch to which they are assigned, but also know the effect of their actions in operating machinery or piping systems on other parts and systems in the engineering plant. Use of EOSS and EOCC in conjunction with the Personnel Qualification System (PQS) Watch Qualification Program, Task T-1, will meet these requirements.

TASK A-4 - REVIEW AND UPDATE SORM AND EDORM

1. Purpose

To provide guidance in updating the Ship's Organizational and Regulations Manual (SORM) and Engineering Department Organization and Regulations Manual (EDORM) to standardize instructions throughout the ship, prevent duplication of duties and functions, and define clearly what is required in each instruction.

2. References

- (a) COMCRUDESACINST P5400.55, Standard SORM

3. Enclosures

- (1) Destroyer Type Ship's Organization and Regulations Manual, Outline of Recommended Contents
- (2) Destroyer Type Engineering Department Organization and Regulations Manual, Outline of Recommended Contents

4. Method

Attached to this task outline are recommended SORM and EDORM outlines. These outlines are a compilation of the tables of contents of reference (a) and of the SORM and EDORM of several ships which have successfully passed the PEB/LOEs. Particular attention in this review and update should be given to those portions of the SORM and EDORM which involve the Engineering Department and other departments in policies, procedures, and action requirements relating to PEB/LOE matters. Steps in accomplishing this review are as follows:

4.1 Compare the table of contents of the two attachments with those of the ship's SORM and EDORM. Identify discrepancies and provide for inclusion in the ship's SORM and EDORM those items which may currently be omitted. Prepare a revised table of contents for each document.

4.2 Review both tables of contents and identify all items listed which pertain to the personnel, physical, and material condition and status of the ship in port and under auxiliary steaming conditions. Remove these sections from the SORM and EDORM and divide them into departmental and divisional groupings based on the relationship of the content to department and division functions and responsibilities.

4.3 Commanding Officer should assign review responsibility to experienced division officers and leading petty officers.

4.4 Commanding Officer should instruct the review personnel to study their assigned sections and identify and note in writing any variations of policies, regulations and procedures from the existing practices on the ship. Inconsistencies between and within the SORM and EDORM should also be noted.

4.5 Schedule group discussions and explore the documents in detail with a view toward improvement in clarity of expression, elimination of inconsistencies and inclusion of all requirements, instructions, policies and procedures previously omitted.

4.6 Assign qualified personnel to rewrite, as appropriate, those elements of the SORM and EDORM which have been identified as needing such action.

4.7 Prepare rough-typed versions of the rewritten elements and review them for substance and final correction. Submit to the Commanding Officer for final review and concurrence, and provide material for any revisions he may require.

4.8 Prepare final copy for reproduction. Enter the revision date on each revised page.

4.9 Reprint or otherwise reproduce new pages and insert in the binders.

ENCLOSURE 1
TO TASK A-4

DESTROYER TYPE SHIP'S ORGANIZATION AND
REGULATIONS MANUAL, OUTLINE OF
RECOMMENDED CONTENTS

CHAPTER ONE – ADMINISTRATIVE ORGANIZATION

SECTION 1 – COMMAND

Commanding Officer

Command Organization (Figure)

Commanding Officer (acting)

Executive Officer

Executive Staff Organization (Figure)

SECTION 2 – EXECUTIVE STAFF

Administrative Assistant

Senior Watch Officer

Ship's Secretary

Educational Services Officer

Legal Officer

Training Officer

Public Affairs Officer

Postal Officer

Special Services Officer

Chief Master-At-Arms

SECTION 3 – DEPARTMENT ORGANIZATION

Head of Department

Navigator

Operations Officer

Weapons Officer

Engineer Officer

Supply Officer

Medical Officer/Senior Medical Representative

SECTION 4 – DIVISION ORGANIZATION

Division Officer

Junior Division Officer

SECTION 5 – BOARDS AND COMMITTEES

Board and Committee Organization

Membership of Boards and Committees

Activation of Boards and Committees

Functional Guides for Boards and Committees

Audit Board for Wardroom Mess

Audit Board for Chief Petty Officer's Mess

Cash Verification Board

Registered Publications Audit Board

Naval Communication Service Fund Audit Board

Controlled Medicinals Inventory Board

Formal Survey Board

Special Courts-Martial

Summary Courts-Martial

Officer Candidate Interview Board

Enlisted Examining Board

Recreation Council

Recreation Committee

Crypto Board

Censoring Board

Material Conservation Board

Post Office Audit and Inspection Board

Planning Board for Training

SECTION 5 – BOARDS AND COMMITTEES (Cont'd)

Imprest Fund Inspection and Verification Board

Habitability Board

Wardroom Calling Committee

Hull Board

SECTION 6 – COLLATERAL DUTIES

Athletic Officer

Career Appraisal and Retention Officer

Chief Censor

Civil Readjustment Officer

Classified Material Control Officer

Crypto Security Officer

Intelligence Officer

Library Officer

Lookout and Recognition Training Officer

MDCS Coordinator

Movie Officer

Controlled Medicinals Custodian

NBC Defense, Gas Free Engineer and Fire Marshall

Nuclear Weapons Officer

Nuclear Weapons Safety Officer

Nuclear Weapons Security Officer

Registered Publications Custodian

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ENCLOSURE 2
TO TASK A-4

DESTROYER TYPE ENGINEERING DEPARTMENT
ORGANIZATION AND REGULATIONS MANUAL,
OUTLINE OF RECOMMENDED CONTENTS

DESTROYER TYPE ENGINEERING DEPARTMENT ORGANIZATION AND
REGULATIONS MANUAL - OUTLINE OF RECOMMENDED CONTENTS

LETTER OF PROMULGATION

SUBJECT: ENGINEERING DEPARTMENT ORGANIZATION AND REGULATIONS
MANUAL

- REFERENCE:
- (a) U.S. Navy Regulations, 1973
 - (b) CINCPACFLTINST 5440.3 Series (U.S. Pacific Fleet Regulations)
 - (c) COMCRUDESPACINST 5000.3 Series (Cruiser-Destroyer Force, U.S. Pacific Fleet Regulations)
 - (d) SHIPINST _____ Series (Ship's Organization and Regulations)
 - (e) SHIPINST _____ Series (Physical Security)
 - (f) SHIPINST _____ Series (Shipboard Maintenance and Material Management, 3M System)
 - (g) SHIPINST _____ Series (ex-OPNAVINST 5100.19) (Navy Safety Precautions for Forces Afloat) (expand basic instruction with ship's addendum)
 - (h) SHIPINST _____ Series (ex-COMCRUDESPACINST 1500.1 (Shipboard Training Program)
 - (i) SHIPINST _____ Series (ex-COMCRUDESPACINST 3540.11A (1200 PSI Engineering Management Manual)
 - (j) COMCRUDESPACINST C3590.15 Series (Battle Readiness and Competition Instruction Manual)

(k) NAVPERS 94100-2 (Handbook on Personnel Qualifications Standards)

(l) COMCRUDESPACINST 9880.17 Series-Force Repair Party Manual

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TASK A-5 - REVIEW AND UPDATE REPAIR PARTY MANUAL

1. Purpose

To provide guidance in the update of the ship's Repair Party Manual

2. References

(a) COMCRUDESPACINST 9880.17A, Force Repair Party Manual

3. Method

Compliance with the action requirements contained in refernce (a) will result in an updated, promulgated, and distributed ship's Repair Party Manual. Review of this manual should be made before issuance as a ship's directive to ensure that all requirements included are applicable to the individual ship.

TASK A-6 - REVIEW AND UPDATE ELECTRICAL SAFETY PROGRAM

1. Purpose

To provide guidance in the revision of the ship's Electrical Safety Program.

2. References

(a) COMCRUDESPACINST 3540.11A, 1200 PSI Engineering Management Manual, Chapter 7.

(b) NAVSHIPS Technical Manual 0901-000-002, Chapter 9600.

3. Method

Reference (a) provides broad basic information and detailed guidance and procedures for installation of an Electrical Safety Program in CRUDESPAC ships. Reference (b) presents the safety requirements for electrical equipments and must be used in conjunction with reference (a) in evaluating the ship's existing program of electrical safety.

TASK A-7 - REVIEW AND UPDATE TAG-OUT PROCEDURE

1. Purpose

To provide guidance in the review by ship's force of the ship's Tag-Out Procedure.

2. References

- (a) COMCRUDESPACINST 3540.11A, 1200 PSI Engineering Management Manual, Chapter 6.

3. Method

Reference (a) provides detailed guidance for installation of Tag-Out Procedures in CRUDESPAC ships. Compare the existing ship procedure in this area with that of reference (a) and revise to conform with the requirements of reference (a).

TASK A-8 - REVIEW AND UPDATE 3-M PROCEDURE

1. Purpose

To provide the necessary instructions and procedures for review of the 3-M System as required by the Type Commander and examined by the PEB, and to alert ships to the procedures for Planned Maintenance During Overhaul (PMDO) that must be used during ROH in accordance with the Type Commander's schedule.

2. References

- (a) COMCRUDESPACINST 4790.1A, Navy 3-M (Maintenance and Material Management) System
- (b) OPNAVINST 4790.4, 3-M Manual, Volume 1
- (c) OPNAV 43P2, 3-M Manual

3. Method

Reviews of references (a), (b), and (c) indicate that sufficient detail exists in these documents for ships to establish, manage, monitor, and utilize the 3-M System. Additional guidance from the COMCRUDESPAC Staff 3-M Officer and the implementation team for PMDO will be provided for those ships specifically designated to use this system during ROH. In conjunction with the instructions of references (a), (b), and (c), the following steps are recommended:

- 3.1 Review the existing ship's instruction as compared with the new requirements and procedures of reference (a).
- 3.2 Rewrite or modify the ship's instruction, if required.
- 3.3 Include in the ship's training program sufficient training sessions to indoctrinate the crew in the new procedures.
- 3.4 Determine the schedule for PMDO implementation, and make allowance for the time required in the training schedule.

3.5 Ensure that all required persons are made aware of the shipyard responsibility for proper maintenance of equipment under shipyard cognizance for overhaul or modification until the completed job is accepted by the ship.

3.6 Order PMS materials for new or significantly altered equipments, and include these materials as training aids for those persons who will operate the new equipments/systems.

TASK A-9 - REVIEW AND UPDATE LOGS, RECORDS, AND FILES

1. Purpose

To provide guidance and direction to ship's force personnel in bringing the Engineering Department logs, records, and files up-to-date and in line with the standards that will be applied to their review at the LOEs.

2. References

- (a) Senior Member, PACFLT 1200 PSI PEB Ltr 03BP: __, Undated, Subj: 1200 PSI Light-Off Examination, Enclosure (2), "Sample Records to be reviewed during 1200 PSI Light-off Examination"
- (b) CTF 75 Logistics/Material Officer Memorandum of 12 September 1973, "Engineering Readiness"

3. Method

The review and update of logs, records, and files as found in reference (a) is a sizeable task. A methodical approach is required to put these items in their proper condition, and continuous attention is required to maintain that condition. Steps in accomplishing these objectives are generally as follows.

3.1 Legal Records

3.1.1 Bell Book - Ensure that every throttleman is fully aware of his responsibility in keeping the Bell Book and of the necessity for absolute accuracy. It is suggested that instructions regarding the Bell Book be posted at each throttle station. Ensure that there is a procedure for maintaining, signing, turning in, and safekeeping of the Bell Book, and that the procedure is followed.

3.1.2 Engineering Log - Ensure that a written procedure exists for preparing the Engineering Log and that all Engineering Watch Officers are well versed in preparation requirements. The Engineering Log must be signed by the Commanding Officer.

3.2 Technical Library

3.2.1 NAVSHIPS Technical Manual (NSTM) - Ensure that a complete set of the latest revision of all chapters of the NAVSHIPS Technical Manual is in the Log Room. Ensure that separate copies of chapters pertaining to the ship and its equipment are onboard in sufficient numbers that individuals studying technical areas to which such chapters pertain may have their personal study copies.

3.2.2 Technical Manuals - Ensure that there is available at least one technical manual for every machinery and equipment item in the ship and a master copy in the Log Room. Ensure that additional copies are available, or on order, to provide working copies in sufficient quantity to meet the ship's training program requirements.

3.2.3 Ship's Plans - Ensure that there is one complete set of ship's drawings onboard, in microfilm format, and that the reproduction capability for such drawings is onboard and in working order.

3.2.4 Ship's Allowance List - Ensure that there is an Engineering Department copy of the ship's COSAL available in the Log Room and that it conforms to the Supply Officer's records.

3.2.5 Engineering Department Technical Procedures - Ensure that there is a master file of all Engineering Department Instructions addressing technical matters, requirements, and procedures on file in the Log Room. Ensure that there is a Master Index of these instructions showing the date of issue and the date of last review for effectiveness. Review such instructions at least yearly. Such instructions include locally issued watchstanding instructions, light-off and securing procedures, start-up and securing procedures, and special technical routines.

3.2.6 Other Technical Data - Identify and acquire other technical data pertaining to the ship, such as:

3.2.6.1 Heat balance for different power levels

3.2.6.2 Division, Squadron, and Type Commander technical instructions and notices.

3.3 Operating Logs and Technical Records

3.3.1 Prepare a comprehensive list of all operating logs and technical records to be kept by engineering personnel, including those of reference (a).

Examples are:

3.3.1.1 Fuel and water report

3.3.1.2 Fuel oil characteristics

3.3.1.3 Lube oil test reports

3.3.1.4 Lube oil inventory

3.3.1.5 Watch station operating logs

3.3.1.6 Vent cleaning program records

3.3.1.7 Boiler water test/treatment reports

3.3.1.8 Boiler record sheets

3.3.1.9 Bearing constants, main engines

3.3.2 Check technical manuals and NSTM to ensure that all required records are identified.

3.3.3 Make an inventory of available forms.

3.3.4 Check forms for applicability in all details to the ship and its equipment.

3.3.5 Design new forms, as appropriate, and correct existing forms. Request printing services for adequate supplies. Advise ISIC of changes desired to standard forms.

3.3.6 Establish a file for each record and log. Establish procedures for review of each by proper authority prior to filing.

3.3.7 Identify any forms for removal/revision as a result of ROH action, shipalt installation, etc.

3.4 General Files

Ensure that Engineering Department general files are established in conformance with the Navy Filing Manual, and that provisions are made in office procedures to correlate instructions and notices received with equipments and machinery and that written information and guidance is provided to operating and maintenance personnel concerned.

3.5 Message Traffic

Ensure that a system of accountability for action messages is established within the Engineering Department and that a master file, by date-time group, is maintained of all messages affecting the Engineering Department.

3.6 Review

Reference (b) is a memorandum to all ships deploying to WESTPAC outlining a number of areas in which self-examination during deployment can greatly enhance engineering readiness and assist in preparing in advance for the PEB/LOEs. The CTF 75 Material/Logistics Officer realized that preparations such as those required by ships going through their first LOE should begin far in advance of the ROH. His guidance is extremely sound, and the questions asked about logs and records provide criteria for review. These questions are repeated below as an aid to ships now approaching their LOEs:

3.6.1 Do logs and record sheets indicate standard operating temperatures, pressures, etc. ?

3.6.2 Are orders to watchstanders effective and current? Have all cognizant personnel signed an acknowledgement of their understanding of these instructions?

3.6.3 Has a required reading list (plant capabilities and procedures, casualty control procedures, etc.) been promulgated, and do appropriate personnel sign, indicating they have read them?

3.6.4 Are records of ultrasonic testing of bottom blow and soot-blower piping maintained?

3.6.5 Is a copy of the plant's heat flow diagram available?

3.6.6 Are plant operating parameters governed by the heat flow diagram?

3.6.7 Are inspection check-off sheets utilized by petty officers-in-charge to check for tampering of major equipments? Are records of these maintained?

3.6.8 Are provisions made for personal review of the engineering logs by the Commanding Officer? Does the Commanding Officer review any other logs? How frequently?

3.6.9 Are recent and current logs accessible yet properly stowed in the log room? (Standard Navy magazine racks can prove of good benefit toward care of logs and neatness of stowage.)

3.6.10 Are required technical publications available and filed in proper order?

3.6.11 Can you show records of an effective vent cleaning program?

3.6.12 Are records of lube oil sample tests maintained?

3.6.13 Does the department maintain a complete list of PEB advisories?

3.6.14 Has a viable cleaning bill been promulgated with meaningful accountability assigned for each space?

3.6.15 Do you have a tickler system for renewal of boiler water test chemicals?

3.6.16 Does the Engineer Officer maintain a repository for all department keys?

3.6.17 Do you maintain a history of depth micrometer constants for your main engines and generators?

3.7 *Publication Accountability*

Technical publications are frequently removed from the Log Room for reference. A system of accountability for technical publications removed from the master file in the Log Room must be maintained.

TASK A-10 - IMPLEMENT SFOMS

1. Purpose

To provide guidance to ship's force in familiarization and implementation of the Ships Force Overhaul Management System (SFOMS).

2. References

None

3. Method

3.1 COMCRUDESPEC and PERA(CRUDES) will provide a SFOMS familiarization team at approximately A-3 months.

3.2 The Commanding Officer will select a "SFOMS team" of key personnel who will implement, operate, maintain, and aid in monitoring the SFOMS. The SFOMS team will be responsible for entering all known SF work items and a preliminary manpower budget for the ROH into the SFOMS program. Other items such as training, parts requisitions, and key SY tasks that have to be monitored for LOE will also be entered by this team. SFOMS is a computer-based system that aids the ship in scheduling and monitoring progress of its assigned jobs and associated material. Data should be available for use by the SF at the Work Definition Conference (WDC).

3.3 The SFOMS familiarization team will:

3.3.1 Instruct the ship's force SFOMS team in methods of data analysis and recording and assist ship personnel in loading the initial input data for the SFOMS.

3.3.2 Instruct Work Center supervisors in manpower budget and work data form preparation.

3.3.3 Review the ship's force use of the SFOMS relating to format, printing, input coding, and general debugging, and recommend improvement or provide assistance in problem areas.

3.3.4 Review SFOMS data entry forms for inclusion of those items necessary to monitor progress toward accomplishment of the LOE preparation items, and for completeness and correctness of the entries prior to loading the SFOMS.

3.3.5 Instruct ship's force management personnel in uses of SFOMS in making management decisions.

TASK A-11 - MONITOR LOE PREPARATION PROGRESS

1. Purpose

To provide guidance in the preparations to be taken as the ship progresses to LOE.

2. References

None

3. Method

3.1 The procedures for monitoring progress prior to the implementation of SFOMS (established in Task A-2) must be adhered to and modified as required until SFOMS is initiated.

3.2 The SFOMS is the primary tool used from the date of its initiation (normally A-2) until LOE to indicate remaining tasks and the resources available. Once SFOMS is initiated it should be continuously used and updated so that problem areas may be identified for those items that are not going to be accomplished as scheduled. This will permit timely management action and lessen or eliminate the effect of the problems as they arise.

3.3 COMCRUDESPEC, ISIC, and PERA(CRUDES) should be informed as soon as possible when major material or resource problems arise that could impact on accomplishing successful LOEs. This includes completion of work by the shipyard in a timely manner, allowing ship's force sufficient time to complete the necessary grooming and training.

3.4 A status milestone chart can be established to aid in reallocation of resources from areas where work is ahead of schedule or completed early to areas where additional assistance is needed. This chart can be a visual supplement to SFOMS.

3.5 The Management Plan Tasks (Tab A) and personnel responsible should be entered into the SFOMS under a "dummy" work center. Major steps in these tasks, together with estimated start and completion dates, should be entered into the SFOMS as key-ops in this work center. Use this SFOMS work center to monitor progress toward the LOEs in all three major categories: (Administrative, Training, and Material), and to maintain schedule.

TASK A-12 - INDOCTRINATE AND GAIN CONCURRENCE

1. Purpose

To provide guidance to ship's force management to indoctrinate and gain concurrence of ship personnel.

2. References

None

3. Method

Key ship's force personnel must be indoctrinated in all the procedures, policies, objectives, and requirements, and their concurrence obtained at least two months prior to ROH in order for the new procedures to become part of the shipboard routine by the start of ROH. Involvement of all levels of management in the development of the new procedures will avert any major resistance to the new package before it is implemented.

TASK A-13 - IMPLEMENT ADMINISTRATIVE PACKAGE

1. Purpose

To provide guidance to ship's force in the implementation of the administrative package.

2. References

None

3. Method

Implementation of the administrative package should be started three months prior to ROH and completed by the start of the overhaul. This can be accomplished by holding a meeting of all key department heads, furnishing them with the administrative package and instructions required to implement each procedure. The successful dissemination of information by each department head to all concerned personnel in the department will enhance the achievement of well-administered functions, duties, and drills required by the PEB. Adherence to these administrative procedures on a day-to-day basis is of prime importance in passing the PEB/LOE.

TASK A-14 - PREPARE INPUTS TO UPDATE SELECTED RECORDS

1. Purpose

To provide a means of ensuring that changes to machinery plant systems, components, or equipment during ROH which affect safety of operation of the plant are reflected in plans, manuals, and records.

2. References

- (a) NAVSHIPSINST 4720.6F, Ship Life Cycle Management (SLCM) Support Manual, Design Services Allocation (DSA) (RCS-NAVSHIPS 4720-3), NAVSHIPS 0900-060-0210, invoking of; dated 5 October 1973
- (b) NAVSHIPS 0900-060-0210, Ship Life Cycle Management Support Manual, Design Services Allocation, September 1973

3. Method

During ROH alterations to machinery plant systems, components or equipment may be required that affect the safe operation of the machinery plant. References (a) and (b) define the procedure and funding required for correction and updating by shipyards of selected record drawings and selected record data to reflect such alterations. However, formal correction of documentation may not be complete in time for the LOEs. If the shipyard cannot provide selected record drawings and data one month prior to an LOE for use in training and operation, complete the following actions at least one month prior to that LOE:

3.1 Identify all alterations in the SARP which modify or affect the machinery plant and associated piping and power systems.

3.2 Review technical substance of these alterations as provided in shipalt briefs and referenced documents. If background references are not available in the

ship's files, obtain copies from the Shipyard Design Superintendent or the Ship Superintendent. Obtain piping alteration diagrams from the same sources.

3.3 Determine those alterations which affect safety of operation or are required for safe operation.

3.4 Identify the systems, machinery or components involved in the alterations. Prepare a brief description of each alteration, using the shipalt brief, amplified as necessary to identify the item involved and the safety impact of the alteration on it. Identify any changes in operation procedures.

3.5 Obtain all copies of technical manuals affected by the alteration and insert a copy of the alteration description and its effect in the front of each manual. Where piping or power systems are involved, obtain all working copies of the diagrams in use in the ship. Make notations in red pencil on the diagrams showing new and modified piping runs and power line changes. Print on the diagrams or attach to them a written description of these changes, and of any changes in operation of the system. Cite the shipalt brief number and location on each changed page.

3.6 Ensure that officers and petty officers responsible for plant operation are apprised of the changes and that watch station training includes training in the operation of the changed system, machinery, and equipment.

3.7 Request that the shipyard, before departure of the ship upon completion of overhaul, provide the ship with corrected drawings and interim or final inserts for all technical manuals and other documentation affected.

TASK A-15 - INSTALL UPDATED 3-M PACKAGE

1. Purpose

To provide the guidance for incorporation of the updated 3-M package after overhaul, including any new Maintenance Index Pages (MIP) and Maintenance Requirement Cards (MRC), and revised scheduling charts or manuals reflecting any change in equipment or system configuration.

2. References

- (a) COMCRUDESPACINST 4790.1A, Navy 3-M (Maintenance and Material Management) System
- (b) OPNAVINST 4790.4, 3-M Manual, 3 volumes
- (c) OPNAV 43P2, 3-M Manual

3. Method

3.1 The validated and updated COSAL will serve as the primary guide for updating the 3-M package. The COSAL will contain all the new or changed system/component configurations that must be incorporated into the updated 3-M package.

3.2 All ship alterations must be reviewed to determine the impact on 3-M requirements.

3.3 New PMS materials for new or significantly altered equipment must be ordered as early as possible. Training aids for these items should also be ordered for those persons who will operate the new equipment.

3.4 As soon as spaces are sufficiently groomed to ensure that 3-M material will not be lost or damaged, the updated 3-M package should be installed prior to the LOE.

TASK A-16 - PREPARE FOR ARRIVAL OF PEB

1. Purpose

To provide the steps necessary to prepare for arrival of the PEB.

2. References

- (a) Letter of Instruction, PACFLT 1200 PSI PEB, CINCPACFLT Staff;
Subj: 1200 PSI Light-Off Examination

3. Method

The referenced letter of instruction (LOI) should be received by the Commanding Officer about a month prior to the LOE. The letter contains the following information concerning the 1200 PSI LOE:

- 3.1 General information about the examination.
- 3.2 Sample schedule for the examination.
- 3.3 Records to be reviewed during the examination.
- 3.4 Sample interview schedule for the examination.
- 3.5 Sample personnel information sheets.

The information requested requires a significant amount of time to gather, organize, and present, and should not be left to the last minute. Additionally, the information provided by the PEB on the conduct of an LOE should be disseminated to all concerned so each can make his own personal preparations for the examination.

TASK T-1 - IMPLEMENT PQS WATCH QUALIFICATION PROGRAM

1. Purpose

To provide the action necessary to implement the PQS Watch Qualification Program.

2. References

- (a) COMCRUDESACINST 1500.1, Shipboard Training Manual
- (b) Chief of Education and Training, CNETNOTE 3500, PQS Standards Available, 29 October 1974
- (c) Chief of Naval Education and Training, NAVEDRA 43100-1, PQS Implementation Procedures Aboard Ship

3. Method

The referenced documents contain complete information on the implementation of PQS aboard Cruiser-Destroyer Force ships. Progress monitoring is essential for effectiveness of PQS training.

TASK T-2 – CONDUCT ONBOARD MAINTENANCE TRAINING

1. Purpose

To provide guidance in the organization of training that will lead to qualification in onboard overhaul maintenance.

2. References

- (a) COMCRUDESPECINST 1500.1, Shipboard Training Manual
- (b) NAVSHIPS Technical Manual 0901-000-0002, applicable chapters
- (c) Applicable manufacturers' technical manuals describing systems and components involved in each watch station PQS

3. Method

3.1 The implementation of Task T-1 and this task will result in a training program in watch station system fundamentals that must be understood before actual system maintenance, both routine and overhaul, can be effectively performed. Two maintenance objectives must be recognized:

3.1.1 Qualification in routine maintenance associated with watch station qualifications and covered by the Planned Maintenance System (PMS).

3.1.2 Qualification in overhaul maintenance involving trouble diagnosis, component disassembly, parts replacement, reassembly, and testing. Routine maintenance training is provided through the PMS program, complemented by the PQS program. For overhaul maintenance training the following functions must be performed.

3.2 Implementation of PQS (TASK T-1) is a prerequisite to accomplishing an orderly onboard overhaul maintenance program, and must be performed concurrently with this task since it is closely related.

3.3 In addition to implementation of PQS, the following functions must be performed:

3.3.1 Identify for each watch station, the systems/components scheduled for overhaul by ship's force during the overhaul period. This process is a continuous effort (see Task M-11).

3.3.2 Through discussions with and individual instructions to in-training watchstanders, emphasize overhaul maintenance procedures and actions pertinent to the systems or components scheduled for ship's force overhaul.

3.3.3 During corrective maintenance involving disassembly and parts replacement on systems/components, conduct "hands-on" training using in-training watchstanders as helpers or observers. Such training should be conducted whenever corrective maintenance is necessary, whether or not the system/component involved is scheduled for onboard overhaul.

3.3.4 Record in each man's training file the occurrence of each "hands-on" training session as documentation of his exposure to and experience in corrective maintenance.

TASK T-3 - IDENTIFY PERSONNEL RESOURCES

1. Purpose

To determine the personnel resources required by a given ship to adequately meet PEB/LOE requirements.

2. References

- (a) Navy Regulations, 1973
- (b) Active Personnel Status Summary, Form 1080
- (c) Engineering Department PQS, All Engineering Ratings
- (d) NAVPERS 18068 Series, Manual of Qualifications for Advancement
- (e) NEC Manual
- (f) COMCRUDESPACINST 1500.1, Shipboard Training Manual
- (g) COMCRUDESPACINST C3590.15 Series, Battle Readiness Competition Manual
- (h) BUPERS Report 1080-14, Enlisted Distribution and Verification Report

3. Method

3.1 Establish an ideal manpower/skill resource objective. Establish the minimum basic rating and PQS characteristics for each watch station identified in this objective. This data becomes the PEB/LOE Qualification Objective and is the target to which training plans should be directed to meet Engineering Department PEB/LOE requirements. This analytical concept should also be carried out in the determination of special skills normally associated with school training required for NEC designation or by the COMCRUDESPAC Battle Readiness Competition Manual.

3.2 Steps in accomplishing this analysis for watch stations are:

3.2.1 Identify all engineering watch stations that must be manned to light off the plant under in-port auxiliary steaming conditions, and to provide all necessary utilities to meet the normal in-port hotel load for the ship.

3.2.2 Assign an ideal engineering rating from the Ship Manning Document (SMD) to each watch station. This will provide the minimum rating allowable. Prepare a list of all rating characteristics and PQS requirements pertinent to the rating assigned and the watch station involved (references c, d, and e should be helpful). These are the ideal rating characteristics and PQS requirements for that watch station.

3.2.3 Identify, for each watch station and rating assigned, those characteristics of that rating and the PQS for that watch station which will not be directly associated with the capability of a person to stand that particular watch for light-off and auxiliary steaming purposes. Delete these characteristics and requirements from the ideal list.

3.2.4 After completion of the evaluation and deletion action of paragraph 3.2.3, the remaining rating characteristics and PQS requirements will describe the minimum qualifications a watchstander must possess to satisfactorily stand that watch for light-off and auxiliary steaming purposes. These characteristics and PQS Requirements for each watch station comprise the PEB/LOE Light-Off Qualification Objective for that watch station.

3.2.5 Inventory the command's personnel resources, using BUPERS Report 1080-14 (reference h). Assign available and projected personnel by name and current rating to each watch station. In making these assignments, take care to match existing qualifications to watch stations as closely as possible. Do not assign

personnel to a light-off watch station if they are scheduled for rotation before the scheduled light-off dates. Plan to train only those who will be on board through the ROH.

3.2.6 If personnel resources are inadequate to properly man light-off watch stations under the planned light-off and in-port auxiliary steaming watch routine, include this information in your report of personnel shortages (Task T-5) and reduce the number of watch sections. Determine what off-ship training can be used to properly qualify personnel to meet the SMD minimum rating qualifications.

3.2.7 For each man assigned to a watch station, determine the differences between his current qualifications and those required by the watch assignment, as described in the PEB/LOE Light-Off Qualification Objective.

3.2.8 Develop a training plan for each man according to the provisions and procedures of reference f, Task T-1, and Task T-2, to bring them to the level of qualification required by directives prior to the LOE date.

3.3 Steps similar to those outlined above should be used to determine the status and need for personnel with special skills. These steps are:

3.3.1 Review the SMD to determine the ideal number of men required with special NEC's related to Engineering Department requirements. Reivew the CCDP Battle Readiness Competition Manual for the requirements for specially trained personnel to perform the ship's missions as they involve the Engineering Department. Note any other requirements for specialty ratings to operate/maintain peculiar equipment or systems used in the ship. Make an idealized master list of special skills need for the ship. As a primary objective in this effort, emphasize identification of special skills associated with light-off and auxiliary condition steaming.

3.3.2 Identify the personnel with these special skills who will be onboard through the overhaul. Compare the identified personnel skills with the idealized list developed in paragraph 3.3.1. Note those skills not covered by personnel currently onboard or who cannot reasonably be projected to be onboard during the overhaul period according to the BUPERS 1080-14. If qualified personnel are onboard and will be leaving the ship just prior to the LOEs, use them as instructors so that their skills can be transferred to those will remain onboard.

3.3.3 Prepare a shortage list specifying special skill deficiencies developed under paragraph 3.3.2 above.

3.4 Determine any correlation between the shortages developed under paragraphs 3.2.6 and 3.3.3 and prepare a consolidated shortage list summarizing personnel and skill shortages. This list will be used in Task T-5.

3.5 Update the analyses described in paragraphs 3.2 and 3.3 at least monthly and modify the consolidated shortage list as appropriate.

TASK T-4 – ESTABLISH WATCH QUALIFICATION PROGRESSION PROGRAM

1. Purpose

To establish a program for actively training every watchstander to qualify for the next senior watch in his rating.

2. References

- (a) COMCRUDESPACINST 1500.1, Shipboard Training Manual

3. Method

The establishment of Watch Qualification Progression is an integral part of the PQS program. Training in conformance with the requirements of the PQS Program (Task T-1) will meet the requirements of this task.

TASK T-5 - REPORT PERSONNEL SHORTAGES

1. Purpose

To implement a routine for periodic reporting of personnel shortages to appropriate authority.

2. References

None

3. Method

Using the consolidated resource shortage list developed under Task T-3, paragraph 3.4, take the following actions:

3.1 Notify the Enlisted Personnel Distribution Office, Pacific (EPDOPAC) of the shortages of personnel with the required NEC's and determine whether each NEC is in critical shortage. This will indicate whether a waiting period for receipt of persons with these NEC's can be expected.

3.2 Maintain periodic liaison with EPDOPAC on a monthly basis starting no later than four months before ROH. Increase the frequency to biweekly commencing with the start of ROH. The purpose of this liaison action is to keep abreast of any changes in resources available to EPDOPAC which might adversely or beneficially affect the projections on which training plans and programs are based. Update the chart in Task T-3, paragraph 3.2.8, with information gained from EPDOPAC.

3.3 Start Task T-6 and determine skill deficiencies associated with non-returnable school quotas.

3.4 Make a letter report to the ISIC and TYCOM of the personnel resource shortages facing the ship. Show planned and taken actions, within the authority of the

Commanding Officer, to eliminate the shortages. Make special notation regarding shortages that can only be satisfied by retention of nonreturnable school quotas.

3.5 This task effort must be conducted at the same time as and cross-checked with Task T-6 and revisions to shortage lists reported as soon as significant changes develop.

3.6 Keep the ISIC and TYCOM apprised of the status of actions to correct resource deficiencies.

TASK T-6 – REQUISITION SCHOOLS

1. Purpose

To provide a systematic method for determining school requisitioning requirements.

2. References

- (a) Personnel Resources Status Chart (Task T-3, paragraph 3.2.8)

3. Method

Before this task can be started, the Personnel Resource and Skill Shortage List developed under Task T-3, paragraph 3.4, must be available and the chart required by Task T-3, paragraph 3.2.8, prepared. With these items in hand, proceed as follows:

3.1 Identify skill shortages that can be eliminated by training on a returnable quota school basis.

3.2 Identify onboard personnel eligible to receive training in the required skill who will be onboard or who can be reasonably projected to be onboard through the ROH.

3.3 Requisition school quotas based on Task T-5, paragraph 3.2 and 3.3.

3.4 Note action taken in the proper column of the Personnel Resources Shortage Status Chart.

3.5 Periodically review resource situations and requisition additional quotas as the need becomes apparent.

TASK T-7 - REVIEW TRAINING TECHNIQUES AND PREPARE TRAINING AIDS

1. Purpose

To provide a systematic method of identifying and applying training techniques and aids, as required, for use primarily during ROH and correlating existing aids and techniques with planned training programs related to PEB/LOE requirements.

2. References

- (a) COMCRUDESACINST 1500.1, Shipboard Training Manual

3. Method

Before this task can be started, Tasks T-1 and T-2 must be completed and the individual training plan, Task T-3, paragraph 3.2.8, must be prepared for each man in the Engineering Department. Upon completion of this work, proceed as follows:

3.1 Summarize training requirements by specific training objectives and by names of personnel involved in each objective.

3.2 Identify techniques to be used in accomplishing each objective. Some suggested techniques are:

- 3.2.1 Individual study
- 3.2.2 Lectures
- 3.2.3 Seminars or group discussions
- 3.2.4 Practical demonstrations
- 3.2.5 System tracing

3.3 Identify training aids and techniques applicable to the training objectives.

The PQS is one of the best training aids available and should be exploited to the

greatest possible extent for system and component fundamentals and watch station qualifications. In addition, other training aids are:

- 3.3.1 Motion pictures
- 3.3.2 System and component technical manuals
- 3.3.3 NAVSHIPS Technical Manual
- 3.3.4 Video tapes.

TASK T-8 - REVIEW BOILER WATER/FEEDWATER TEST AND TREATMENT
TRAINING

1. Purpose

To provide guidance in reviewing or establishing a feedwater testing and treatment training program to ensure that all required personnel in the Engineering Department can test and treat boiler water, feedwater, and condensate, and accurately maintain required records and logs.

2. References

- (a) NAVSHIPS Technical Manual 0901-000-0002, Chapter 9560, Boiler Water/Feedwater Test and Treatment
- (b) Applicable Boiler Technical Manual
- (c) Engineering Department Watch Qualification Standards

3. Method

3.1 Personnel must be able to perform the proper tests at the proper time intervals, know the required courses of action to be taken as a result of the tests, and be able to record and relay the information to all authorized personnel in charge. Responsibilities for the training program are as follows:

3.1.1 The Commanding Officer (CO) shall approve the training program for boiler water/feedwater testing and treatment, establish the priorities for the training program, and review the results of the program.

3.1.2 The Engineer Officer (EO) shall establish the boiler water/feedwater testing and treatment training program using reference (a) and any training outlines/aids obtainable from the Boiler Water/Feedwater Test School. It is also the responsibility of the EO to assure that the required personnel have attended the

Boiler Water/Feedwater Test School and any necessary supplementary training schools.

3.1.3 An Oil King/Water King with Boiler Water/Feedwater Test School qualifications shall conduct the training program for all required personnel in their watch sections. The Engineer Officer is responsible for insuring that personnel under his control have knowledge of boiler water/feedwater testing and treatment, and are capable of performing all necessary tests and treatments and recording and sending results to the EOOW for relay to the EO.

3.2 The boiler water/feedwater test and treatment training program shall cover the following areas:

3.2.1 Understanding why boiler water/feedwater must be tested and treated, and the possible consequences of poor or incorrect testing and treatment.

3.2.2 The required quality of the boiler water/feedwater on the ship.

3.2.3 Procedure for sampling boiler water/feedwater and condensate.

3.2.4 All required tests and their frequency, which must be listed in EDORM.

3.2.5 Procedure for conducting all required tests and determining the results.

3.2.6 Course of action required to maintain correct quality of boiler water/feedwater to include:

- (a) Freshly filled boilers
- (b) Steaming boilers
- (c) Chemical treatment limitations
- (d) Desuperheater leaks

- (e) Idle boilers
- (f) Boiler water under steam blanket
- (g) Boiler water under nitrogen blanket
- (h) Resolution of conflicting water treatment actions
- (i) Water treatment prior to securing

3.2.7 Recording procedures for maintaining water treatment log and the requirements for sending results of tests and recommended treatments to personnel in charge.

3.2.8 Procedure for injection of chemicals into the boiler water and feedwater, the maximum allowable amounts, and handling and preservation of the chemicals.

3.2.9 Maintenance of boiler water/feedwater testing and treatment equipment.

TASK T-9 – REVIEW AND UPDATE SAFETY AND DAMAGE CONTROL TRAINING
PROGRAM

1. Purpose

To provide general guidance for reviewing the shipboard safety and damage control training program.

2. References

- (a) COMCRUDESPACINST 9880.17A, Force Repair Party Manual
- (b) COMCRUDESPACINST 1500.1, Shipboard Training Manual

3. Method

Compliance with the action requirements contained in references (a) and (b) will assure that the proper procedures are employed in the review of the shipboard safety and damage control training program.

TASK T-10 – CONDUCT HANDS-ON WATCH QUALIFICATION TRAINING

1. Purpose

To provide guidance to ship's force in establishing a watch qualification training program involving actual watch standing on operating systems under supervision during periods prior to ROH.

2. References

- (a) COMCRUDESPACINST 1500.1, *Shipboard Training Manual*
- (b) Chief of Naval Education and Training, CHETNOTE 3500, 6 March 1974
- (c) Bureau of Naval Personnel Manual, NAVPERS 94100A-2, PQS Implementation Procedures Aboard Ship

3. Method

The importance of hands-on training as a part of watch qualification cannot be overemphasized. There are virtually no operating systems available during ROH. Therefore, in anticipation of this situation, actual watch standing training under supervision should be initiated well before the ship goes into ROH. Potential watchstanders should be given the opportunity to gain experience in operating the various systems on a planned basis. Tasks T-1 (Implement PQS Watch Qualification Program), T-3 (Identify Personnel Resources), and T-4 (Establish Watch Qualification Progression) are prerequisites to a good Hands-On Watch Qualification Program. With these three programs in process, steps in establishing the Hands-On Watch Qualification Training Program are:

3.1 Include in the training plan (developed under Task T-3) for each man scheduled to remain with the ship through ROH, actual watch standing under supervision at the watch station to which he will be assigned. Schedule at least one

two-hour watch every two days in addition to the man's regular watch standing duties. Continue this schedule until the requirements of PQS have been met or until the ship enters ROH.

3.2 Pay particular attention to lighting-off, securing, and steaming auxiliary operations in anticipation of PEB/LOE requirements.

TASK T-11 - ASSEMBLE TRAINING MATERIALS

1. Purpose

To provide guidance to ship's force in assembling materials required to carry out the onboard training.

2. References

None

3. Method

3.1 Identify onboard training that will require implementation. Review Tasks T-3, T-4 and T-5.

3.2 Review the training schedule and list the training materials suggested for use in carrying out the training courses.

3.3 Determine the quantity of training materials required for the training courses based on the number of people to be trained under the schedule and the need for individual copies of training aids where such is appropriate.

3.4 Determine the onboard quantity of each required training aid. Where quantities are not sufficient, initiate action to acquire the necessary quantities.

TASK T-12 – CONDUCT ONBOARD TRAINING AND COMPLETE WATCH
QUALIFICATIONS

1. Purpose

To provide guidance to ship's force in the conduct of onboard training.

2. References

(a) COMCRUDESPACINST 1500.1, Shipboard Training Manual

3. Method

Initiation or accomplishment of Tasks T-1 through T-11 will result in substantial onboard training and watch qualification well before the beginning of ROH, and will provide the basis for a comprehensive training program during ROH. This task is identified for the accomplishment of training leading to successful LOEs. It requires careful scheduling and adherence to schedules in order that a maximum of training is accomplished in a minimum time. Steps to this end are:

3.1 Using the training plans developed for each man under Task T-3, consolidate training requirements by type and identify common and unique requirements.

3.2 Establish training schedules in coordination with off-ship training schedules and leave schedules.

3.3 Develop a training completion check-off chart by division or other suitable organizational element, listing on this chart each man and his training schedule. Post in division spaces.

3.4 Update the training chart and work to the schedule displayed for each man. If training is missed, reschedule as soon as possible.

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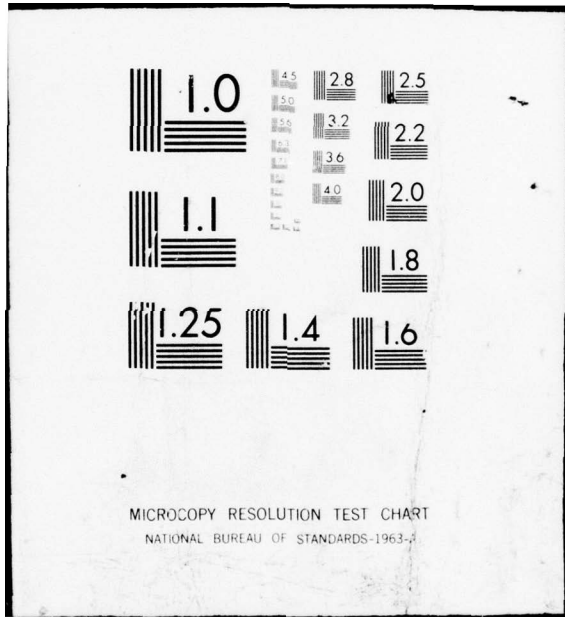
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3.5 No later than one month before each schedule LOE, establish a prelight-off training program involving simulated light-off and auxiliary operation using actual shipboard machinery and equipment and actual watch stations as they are available. If not available onboard, arrange for use of other ships of the same type operating in the area. Prepare questions and answers for use in exercising personnel at the watch stations. Require that each watchstander answer the prepared questions properly and that he place his hands on the proper valve wheels and other control devices, indicate the direction and amount he would turn or move them, and tell what the effect would be. This program of simulated operation will serve as a refresher course for those watchstanders who have had experience in the various watches involved in lighting off and steaming auxiliary, and as an introductory program for those potential watchstanders who have not had such experience.

TASK T-13 - PREPARE FOR MTT ASSIST VISIT

1. Purpose

To provide guidance to ship's force regarding the visit of the Mobile Training Team (MTT).

2. References

None

3. Method

The MTTs are currently scheduled to visit ships approximately eight weeks prior to the first LOE. The purpose of this visit is to function as the PEB would in the review of training programs and bring out problem areas or discrepancies which can be corrected or properly noted prior to the actual LOEs. The MTT will direct much of its attention to the completeness and effectiveness of the ship's training program. Accordingly, steps to be taken regarding this visit are:

3.1 Ensure that documentation is available to support each decision relating to training programs and tasks.

3.2 Ensure that training records are up to date and that training is proceeding on schedule.

3.3 If deficiencies in personnel resources or training capabilities exist, ensure that action taken to correct deficiencies is reflected in ship's outgoing correspondence, message and training files.

3.4 If time permits, have each watch section run at least one dock trial. Check with the shipyard and obtain permission to run dock trials before scheduling this operation. Ensure that all departments of the ship and the shipyard are coordinated and that all dock trial safety precautions are observed.

TASK T-14 - CONDUCT HANDS-ON HOT-PLANT TRAINING

1. Purpose

To provide guidance to ship's force in Hands-On Hot-Plant training after each LOE and subsequent operation of the plant.

2. References

- (a) COMCRUDESPACINST 1500.1, Shipboard Training Manual
- (b) Chief of Naval Education and Training, Note 3500, 6 March 1974
- (c) Bureau of Naval Personnel Manual, NAVPERS 94100A-2, PQS
Implementation Procedures Aboard Ship

3. Method

Hands-On Hot-Plant training must resume after actual light-off of each plant. Initial training will be under auxiliary conditions from the time of actual light-off through the end of the overhaul. The basic program initiated under Task T-10 should resume with emphasis on new systems and equipment which may have been installed during overhaul. In addition, training in preparations for getting underway should be initiated. Basic steps in this effort are:

3.1 Using EOSS, prepare a complete scenario for all actions from auxiliary steaming conditions to readiness for getting underway.

3.2 Exercise all sections of the underway watch in preparation for getting-underway on a "dry run".

3.3 Demonstrate watch section competence in "dry run" operations with the machinery plant ready in all respects for underway operations. Exercise each watch in actual light-off, bringing steam to the main throttles, spinning the main engines, and then securing back to auxiliary conditions.

TASK M-1 – DEVELOP AND IMPLEMENT VALVE MAINTENANCE PROGRAM

1. Purpose

To develop and establish a Valve Maintenance Program.

2. References

- (a) COMCRUDESPACINST 3540.11A, 1200 PSI Engineering Management Manual, Chapter 12

3. Method

Reference (a) provides adequate guidance for establishing a satisfactory Valve Maintenance Program for CRUDESPAC ships. This program includes provision for progressive valve maintenance and overhaul during the life of the ship. However, in preparation for ROH periods it is suggested that additional steps be taken, based on the program of reference (a), to ensure development of an orderly valve overhaul effort during such periods. Suggested steps are:

3.1 On the basis of known conditions or as the result of Pre-Overhaul Tests and Inspections (POT&I), identify all valves requiring overhaul.

3.2 Divide valves requiring overhaul into two categories:

3.2.1 Valves that can be overhauled by ship's force. These valves should be classified as either "critical for LOE" or "non-critical". The "critical" valves should be overhauled first in the event a shortage of time precludes finishing all valves before LOE.

3.2.2 Valves that must be overhauled by an industrial activity. Basic considerations dictating overhaul by an industrial activity are:

3.2.2.1 Welded-in valves that must be removed for overhaul and which require radiography to prove adequacy of installation welding.

3.2.2.2 Valve repairs that require special tools or skills not provided or available within the ship allowance and current or projected onboard manning.

3.3 Ensure that the valves identified for shipyard overhaul are noted on the POT&I reports so that they will appear in the SARP. Overhaul of these can then be monitored by using the shipyard progress reports or by entering them in SFOMS using a dummy work center for the shipyard and tracking them to assure timely return and reinstallation prior to PEB/LOE.

3.4 Record all valves requiring maintenance/overhaul, including those that are the shipyard's responsibility, in the Work Center Deficiency and Out of Commission Log (COMCRUDESPACINST 3540.11A, Chapter 11). As valves are removed for repair, they should be properly tagged out (COMCRUDESPACINST 3540.11A, Chapter 6) helping to assure complete systems integrity at the end of the overhaul. An additional benefit of the valve inventory will be a list of label plates required to be manufactured by the shipyard or tender.

3.5 Make entries for all valves requiring maintenance/overhaul that are ship's force responsibility in the SFOMS by space/system/quantity, and work center responsibility. The division officers and work center supervisors will then be able to monitor progress of the total valve overhaul program to assure timely completion prior to each LOE. Provide for SFOMS entries to permit monitoring of special valves being overhauled by the shipyard.

3.6 Establish and train a team in correct valve maintenance procedures. This team will then be responsible for overhauling all valves assigned to ship's force that require maintenance during the ROH. A priority list in sequence by space and by system should be established for the valves to be overhauled. If possible, a

separate area should be established for valve overhaul only, so that a production line technique can be established for parts replacement, grinding, preservation, packing and reassembly. Valve maintenance should continue in accordance with reference (a) as an ongoing program after ROH.

3.7 Protect valves after overhaul and prior to reinstallation by storing in water-tight plastic bags with the identification tag visible. After reinstallation, if work is still ongoing in a space, valves can be protected from damage and dirt by wrapping them in fire retardent paper. Do not use plastic bags after reinstallation since exposure to heat causes them to melt.

TASK M-2 – DEVELOP AND IMPLEMENT INSTRUMENT CALIBRATION PROGRAM

1. Purpose

To provide additional guidance to the Engineering Department in implementing the Instrument Calibration Program in CRUDESPAC ships so that LOE requirements can be properly met.

2. References

- (a) COMCRUDESPACINST 3540.11A, 1200 PSI Engineering Management Manual, Chapter 5.

3. Method

Reference (a) establishes requirements, general procedures, and responsibilities involved in the establishment of an Instrument Calibration Program on CRUDESPAC ships. Each Engineering Department officer and lead petty officer should be familiar with the details of these instructions. In implementing this program the following steps are suggested.

3.1 Training and qualification of ship's force personnel by IMA or MIRCS to act as the ship's Navy Field Calibration Activity (FCA) should be accomplished as soon as possible.

3.1.1 Designate trainees for the various areas of calibration requirements (e.g., pressure, temperature, and mechanical parameters) using Phase B and Phase D calibration packages.

3.1.2 Request the depot mechanical instrument repair and calibration shops to provide the necessary instructions for calibration procedures on items not listed in NAVAIR 17-35 MTL-1.

3.2 Develop a master list of all installed gages and thermometers by space and system within that space. This list can be developed using system diagrams and verified by physical inventory. This list can then be submitted to PMS for preparation of a 3-M guidelist.

3.3 Enter on the master list a description of each gage and thermometer, its range of indication, and critical (red arrow) pressures or temperatures.

3.4 Indicate calibration requirements for each instrument. As a minimum, requirements should include designated calibration authorities and required frequency of calibrations.

3.5 Establish divisional responsibility for maintaining up-to-date information on last date of calibration, next scheduled calibration, requirements for replacement or repair, and any other pertinent data.

3.6 From the master list prepare and provide working lists to division officers for those instruments for which each has been assigned responsibility. Lists should be further broken down and responsibility assigned by leading petty officers.

3.7 Establish initial status accounting as soon as possible and determine calibration requirements based on information available. In cases where no record of the last calibration exists, the instrument should be considered in need of calibration. Requisitions should be submitted at the earliest possible date for replacement of missing instruments, broken thermometers, and gages that are so damaged that early repair is not possible.

3.8 Develop an instrument tagout procedure and protection system similar to that provided for valves (Chapter 6, reference (a)). When an instrument is broken or its reliability is doubtful, its significance as a measure of operational safety must be carefully considered. If the instrument measures a parameter that must be kept

within specified limits to ensure safe operations, consideration must be given to placing the system out of commission until reliable instrumentation is provided.

3.9 On the basis of the results of the instrument status accounting, prepare ship's force and shipyard work lists for inclusion in the SARP and SFOMS.

3.10 Initiate the calibration program using the ship's field calibration activity. Calibration should proceed on a priority basis, starting with those instruments critical to each LOE. As each instrument is calibrated, a calibration label should be attached to the instrument in conformance with reference (a).

3.11 As each instrument is calibrated, prepare a Calibration Record Card containing the following information:

System and instrument location in the system

Instrument description

Calibration date

Date of next scheduled calibration

The Calibration Record Cards can be used to set up a tickler file, to develop work plans by time period, and to provide the basis for developing 4790/2K forms.

TASK M-3 – DEVELOP AND IMPLEMENT BILGE, BULKHEAD, AND FOUNDATION
PRESERVATION PROGRAM

1. Purpose

To establish a Bilge, Bulkhead and Foundation Preservation Program on an orderly, ongoing basis.

2. References

- (a) COMCRUDESACINST 3540.11A, 1200 PSI Engineering Management Manual, Chapter 10
- (b) NAVSHIPS Technical Manual 0901-000-0002, Chapter 9190, Preservation of Ship in Service

3. Method

As a starting point for implementation of this program, personnel involved should be familiar with the detailed requirements of reference (a) and with the requirements of NSTM relating to preparation and painting of various kinds of surfaces found onboard ship. Development of the program is outlined in the following steps:

- 3.1 Accomplish general "deep cleaning" of all engineering spaces. Designate one or more specific days for this purpose.
- 3.2 During these cleaning days, note and record the condition of surface preservation of all decks, bulkheads, overheads, piping systems, machinery, and equipment as either satisfactory or unsatisfactory.
- 3.3 Based on divisional responsibility, prepare lists of the systems, equipment, and machinery contained in each engineering space and indicate the state of preservation. Enter indications of unsatisfactory condition in the appropriate work center deficiency logs.

3.4 Include in the POT&I reports the requirement to paint out all bilges so that a decision can be made at the WDC as to whether there are sufficient funds to have the shipyard accomplish this job.

3.5 From the general condition lists, prepare priority listings of preservation requirements. As a general approach, it has been found most helpful to clean and preserve starting at the top and proceeding downward. Accordingly, priority lists should be arranged in this sequence in each space involved.

3.6 Start work on the top priority items, and set up a preservation schedule with attainable goals. If a space is in such condition that the task of preservation is overwhelming to the personnel normally responsible for that space, use preservation teams made up of personnel from all divisions (departmental teams). Ensure that all divisions may avail themselves of this service by priority sequencing of the work that requires help from other divisions.

3.7 After the top priority spaces are placed in a satisfactory state of cleanliness and preservation, establish preservation teams within each work center. Personnel should be assigned to the preservation team on a monthly basis and should rotate within the work center.

3.8 Continue the preservation program during ROH. Continually emphasize the need to adhere to the standards of cleanliness of reference (a), and do not permit a shipyard overhaul period to be an excuse to ignore cleanliness requirements. Liaison with shipyard personnel working in the spaces during ROH will help in getting them to exercise caution while in the space and to conduct housekeeping when they have finished their work shift.

3.9 Upon completion of ROH, conduct a comprehensive inspection of the Engineering Department spaces, update the preservation program priority list, and keep the program ongoing.

TASK M-4 - DEVELOP AND IMPLEMENT FLANGE AND STRAINER SHIELD
INSTALLATION PROGRAM

1. Purpose

To provide a procedure for ship's force personnel in complying with the requirements for flammable liquid piping system flange and strainer shield installation.

2. References

- (a) NAVSHIPS Technical Manual 0901-000-0002, Chapter 9480, Piping Systems, Section 9489.90, Protective Covers
- (b) NAVSHIPS 0948-102-2010, Fuel and Lube Oil Strainer Shield Design Guidance, Volumes 1 and 2.

3. Method

In accordance with references (a) and (b), flange shields are required on all flanges for lines carrying flammable liquids (e. g., fuel, lube, and hydraulic fluids). In addition shields are required on all duplex strainers and vents for flammable liquid carrying systems. To satisfy these requirements the following steps are necessary:

3.1 Review the following system diagrams for an estimate of the required flange shields:

- 3.1.1 Fuel oil filling and transfer system
- 3.1.2 Fuel oil service suction and discharge system
- 3.1.3 Lube oil filling, purifying, and transfer system
- 3.1.4 Lube oil service system

3.2 Verify system diagrams by physical inspection and note flange shield sizes and quantity required. This should be accomplished when the valve lists are made for these systems in Task M-1.

3.3 Note additional flange shield requirements associated with certain equipment (e.g., main turbine LO sump vent line flanges and auxiliary equipment LO lines).

3.4 Check condition of the installed shields and add the required number and size necessary to replace those found deficient. Some common deficiencies with flange shields are:

3.4.1 Not made of the approved aluminized glass cloth in accordance with reference (a)

3.4.2 Cocked or unsecured

3.4.3 Saturated with fuel or lube oil

3.4.4 Not tagged to indicate the need to repair leaks immediately and to wash shields thoroughly with methyl chloroform if oil soaked. (This tagging is not required with aluminized glass shields.)

3.4.5 Flange shields too small; not covering bolt holes.

3.5 Note missing or damaged flange shields in the Work Center Discrepancy Log until corrected.

3.6 Identify the duplex strainers in the fuel oil/lube oil systems on board, normally found on:

3.6.1 Main engine lube oil systems

3.6.2 Fuel oil service systems

3.6.3 Ship's service turbogenerator lube oil and governor control systems

3.6.4 Forced draft blower lube oil systems

3.6.5 Main feed pump lube oil systems

3.7 Ensure that shields are installed on all applicable duplex strainers and that they will contain a lube oil/fuel oil spray, or direct that spray down and away from operating personnel and hot surfaces in accordance with reference (b).

3.8 Record strainer shield deficiencies in the Work Center Discrepancy Log until satisfactory shields are installed.

TASK M-5 - CONDUCT DAMAGE CONTROL AND FIRE FIGHTING EQUIPMENT
MAINTENANCE

1. Purpose

To emphasize the need for early management attention to maintenance of damage control and fire-fighting equipment.

2. References

- (a) NAVSHIPS Technical Manual 0901-000-0002, Chapter 9930, Fire-Fighting, Ship
- (b) COMCRUDESPACINST 3540.11A, 1200 PSI Engineering Management Manual, Chapter 7
- (c) COMCRUDESPACINST 9880.17A, Force Repair Party Manual, Chapter 1, Paragraph 103.

3. Method

A review of reference (a) indicates that the maintenance procedures described therein are satisfactory for assuring the standards required by TYCOM and acceptable to PEB. Additional requirements for electrical damage control equipment are to be found in references (b) and (c). It is imperative that the Damage Control Assistant and all DCPO's ensure that the required damage control equipment is in its proper location and in proper working order at all times.

TASK M-6 – CONDUCT BOILER WATER/FEEDWATER TEST AND TREATMENT
EQUIPMENT MAINTENANCE

1. Purpose

To emphasize the importance of maintaining all boiler water/feedwater equipment in top condition.

2. References

(a) NAVSHIPS Technical Manual 0901-000-0002, Chapter 9560

3. Method

A review of reference (a) indicates that this chapter contains the required information to keep the test and treatment equipment up to the required standards and provides the Federal Stock Numbers for ordering replacement equipment and chemicals.

TASK M-7 – PRESERVE, LAG, AND STENCIL PIPING

1. Purpose

To provide a systematic method of ensuring that all pipe and line preservation, lagging, and stenciling is properly performed.

2. References

None

3. Method

The general procedure for identification of requirements and development of a program to accomplish the preservation of piping installations is established under Task M-3. Two additional requirements involved in pipe work are the lagging or insulating of hot and cold pipelines and stenciling to identify the fluid in the line and the direction of flow. It is essential to personnel safety and operational efficiency that hot pipelines be adequately lagged and that pipeline fluid identity and direction of flow be apparent by visual inspection. The following steps in these areas are suggested:

3.1 Lagging

3.1.1 Develop lagging deficiency lists for each space by system, and enter the requirements in Work Center Deficiency Logs. Damaged lagging should be recorded as soon as it is observed. Submit lists for shipyard repair or replacement during overhaul or restricted availability.

3.1.2 Make notations of lagging which has been removed or damaged by shipyard personnel. The shipyard is responsible for replacing or repairing such lagging.

3.1.3 Assign responsible petty officers to each space to ensure all lagging work is accomplished prior to each LOE.

3.2 Painting and Stenciling

3.2.1 When removal of lagging or painting of piping is planned, existing fluid identification and flow direction must be removed or covered. To facilitate subsequent stenciling, a tag describing the fluid carried and the direction of flow should be prepared and attached to the pipeline. If spray painting is to be used, the tag should be folded and stapled in such a way that careless spraying will not obliterate its message.

3.2.2 Upon completion of general painting, fluid identity and flow direction should be stenciled on the pipeline.

TASK M-8 - VALIDATE COSAL

1. Purpose

To emphasize an area of preoverhaul preparation that can have an important impact on the success of LOE material readiness.

2. References

- (a) NAVSHIPINST 4720.6F, Ship Life Cycle Support Manual

3. Method

The COSAL must be validated by the ship's force or other activity, such as the Ship Equipment Configuration Accounting System (SECAS), at least six months prior to overhaul. This validation will have a direct bearing on the proper logistic support for overhaul of equipment by ship's force. If thoroughly executed, it will prevent unnecessary delays in obtaining parts during the ROH.

TASK M-9 - UPDATE CSMP

1. Purpose

To ensure that the CSMP is updated in time and with sufficient information to assist in the development of the POT&I Plan and ultimately a satisfactory SARP.

2. References

- (a) COMCRUDESPAC message 211858Z Mar 73, subject: MDCS Reporting Requirements
- (b) COMCRUDESPAC letter 9510 series, Routine Overhaul Preparations and Planning

3. Method

Updating the Current Ship's Maintenance Project (CSMP) is a continuing effort by ship's force. Using the instructions of reference (a), ship's force should complete an update of the CSMP at least six months prior to ROH start. A concerted effort must then be made to record all known discrepancies in the CSMP in complete Work Request format (Form 4790.2K). This updating is particularly important when an automatic data processing summary of the work requests is made prior to the POT&I. The forms should be in complete and accurate format and require only integration with the POT&I work items to make a complete work package for preparation of the SARP. If properly performed, this task will result in significant time and effort savings in development of a firm work package by the ship's force, shipyard, and type commander.

TASK M-10 - CONDUCT POT&I

1. Purpose

To ensure that all required repairs are identified and listed so that they will be incorporated into the SARP and thereby be corrected before the LOEs.

2. References

- (a) COMCRUDESPAC letter 9510 series, Routine Overhaul Preparations and Planning

3. Method

3.1 A total POT&I Plan should be made available to ship's force at least six months ahead of the ROH start date. The POT&I is normally conducted from the sixth to fourth month before ROH. This span of two months is to allow ship's force to conduct its portion of the POT&I in advance of the shipyard, and have sufficient time to request assistance from other sources in the tests and inspections where ship's force skills or manning are inadequate.

3.2 The detailed perusal of maintenance logs and historical records, the performance of in-depth inspections, and the testing of systems and equipment to operational parameters will provide an adequate determination of plant condition. Supplementing the POT&I with accurate and well-kept system and equipment records will aid in the timely and accurate preparation of the overhaul package. This task requires some initial attention from eight to six months before overhaul, followed by full attention to the POT&I from the sixth month until the completion of both the ship's force and shipyard POT&I items.

3.3 The extreme importance of the thoroughness and accuracy of the POT&I must be stressed because of its direct impact on the completeness of the overhaul

package and the effect on the Work Definition Conference (WDC). Only by dedicated efforts of the ship's force and the industrial activity in conducting the POT&I will the means be available at the WDC to make the required funding and work assignment decisions.

TASK M-11 - DEVELOP SHIP'S FORCE WORK PACKAGE

1. Purpose

To call attention to the early preparation required for the development of a complete ship's force work package.

2. References

None

3. Method

This task can and should be started as early as five months before overhaul and completed during the three months preceding the start of overhaul. The ship's force portion of the work package will be developed from the CSMP, results of the POT&I, proposed SARP, and subsequent screening actions taken at the Work Definition Conference, as well as the other ship's force programs such as the valve, gage and thermometer, and preservation programs. Many tasks are known early in the pre-overhaul period, and the preparation of accurate work requests at this time will aid in the development of a more realistic manpower budget for SFOMS and a stronger bargaining position at the WDC.

TASK M-12 - DEVELOP SFOMS-OPTAR MATERIAL LIST

1. Purpose

To bring attention to the need to order required materials for the ROH and LOE as early as possible.

2. Reference

- (a) COMCRUDESPAC message 242110Z Jun 74; FY 75 Quarterly OPTAR Assignments and Funding Guidance

3. Method

The list for Ship's Force Overhaul Materials System-Operational Target (SFOMS-OPTAR, previously called Project 20) materials should be developed from the fifth to the second month before ROH. The list should be carefully planned to identify materials actually required. Those small items required in large quantity in the final grooming period prior to the LOEs should also be considered. A sample list of such items is shown in Task M-14. After the WDC this list should be finalized and the materials ordered.

TASK M-13 - DEVELOP PROPOSED SARP

1. Purpose

To identify the SARP as the most important document affecting the ship's force efforts in preparing for successful LOEs.

2. References

None

3. Method

The proposed SARP will be developed by using ship's force inputs, ORDALTS, NAVSHIPS and Type Commander alterations, shipyard and Type Commander routines, CSMP, and the results of the POT&I. It is important to ensure that the CSMP and POT&I are as complete as possible and that the ship has provided complete information on all known work items. Making the proposed SARP a definitive package will permit quicker and firmer decisions at the Work Definition Conference concerning work responsibility and will minimize last-minute additions.

TASK M-14 - REVIEW AND ACQUIRE "PEB/LOE KIT"

1. Purpose

To allow ship's force to properly plan for the acquisition of materials required for LOEs.

2. References

- (a) COMCRUDESPAC letter FF4-5 4710/WPC 72 Ser 421A/113, 29 Jan 74
- (b) COMCRUDESPAC message 24211DZ Jun 74, subj: FY 75 Quarterly OPTAR Assignments and Funding Guidance

3. Method

3.1 The SFOMS-OPTAR material list (Task M-12) and the "PEB kit" should be correlated to ensure that all required items are listed, ordered, received, and safely stored until ready for use. Adequate amounts of such items as flange shields, deck screws, and miscellaneous nuts and bolts will prevent delays during the final grooming period before each LOE.

3.2 The PEB Kit is a list of small items required in large quantity in the final grooming period prior to each LOE. The following is a list of such items:

Deck plate screws, drills, taps

Valve wheels, ID tags, engraving tools

Gages and thermometers

Stencil stickers

Warning plates

Safety and operating instructions

Flange covers

Assorted bolts and nuts

SP phone outlets, caps and chains, cables, and 115 Vac receptacles

Relief valve lifting levers

Light shields, reflectors, and light bulbs

Gage face plates, snap rings, rubber grommets

Mounting rings and screws, calibration tags

TASK M-15 – INTEGRATE SF AND SY WORK INTO SFOMS

1. Purpose

To emphasize the importance of establishing an integrated work monitoring process for the total ship's force overhaul effort and the LOE preparations.

2. References

None

3. Method

This task should start as soon as ship's force is familiar with SFOMS and before the WDC, which occurs approximately two months prior to the start of overhaul. At this time the majority of ship's force work is known, and it can be entered into the SFOMS. As soon as the proposed start and completion dates of shipyard jobs are known, ship's force can integrate its jobs and the key shipyard jobs into the SFOMS. This integration should be done at the earliest possible date to ensure proper planning for this work.

TASK M-16 - ORDER SFOMS-OPTAR MATERIAL

1. Purpose

To emphasize the importance of material required to accomplish the ship's force overhaul effort and ordering this material in advance of the ROH.

2. References

- (a) COMCRUDESPAC message 242110Z, Jun 74, FY 75 Quarterly OPTAR Assignments and Funding Guidance

3. Method

Since procurement lead times for all materials are becoming longer, SFOMS-OPTAR materials should be ordered as soon as funds become available, but not later than two months prior to ROH, so they will be available when needed. A sound program of receiving, storing, and following-up on delayed items is required to prevent any work delays, particularly during the period just prior to each LOE.

TASK M-17 - PREPARE ISSUED SARP

1. Purpose

To bring attention to the process of finalizing the SARP as it impacts on other tasks in the area of PEB/LOE preparations.

2. References

None

3. Method

The Issued SARP will incorporate the changes to the proposed SARP made at the WDC and will act as a contractual document between the type commander and the overhauling activity for repairs, Type Commander and shipyard routine work items, and shipalts. It will be the responsibility of the ship's force to complete their portion of the work package as identified in the issued SARP. The issued SARP will be published prior to the start of the overhaul, and the overhauling activity will maintain it as a working document by promulgating changes that are agreed upon by the SY and the TYCOM.

TASK M-18 – MONITOR SF AND SY WORK PROGRESS

1. Purpose

To emphasize the importance of monitoring the progress of overhaul efforts and, in particular, those items that are critical to the successful completion of each LOE.

2. References

None

3. Method

This task will start with ship's force work before the overhaul and continue throughout the entire overhaul, with a milestone at each LOE. SFOMS will be the primary tool used to monitor the progress of the ship's force overhaul jobs and key shipyard jobs; particular attention being given to those jobs which will affect the ship's readiness for each LOE. A responsible petty officer should be assigned to monitor progress of key shipyard jobs. The Ship Superintendent will also be a key figure in the progression of the shipyard work and will be the primary go-between in solving problems as they arise between ship's force and shipyard. Work center supervisors will be responsible for providing a weekly update on all jobs to the SFOMS coordinator.

TASK M-19 – DEVELOP AND CONDUCT SELECTIVE SYSTEM/EQUIPMENT TEST
PROGRAM

1. Purpose

To provide guidance to ship's force in developing a post-repair test program to verify the readiness of ship's machinery systems/equipments for PEB/LOE.

2. References

- (a) NAVSHIPS Technical Manual 0901-000-0002, Applicable Chapters
- (b) Applicable Machinery and Equipment Technical Manuals
- (c) Planned Maintenance System/Maintenance Requirement Cards

3. Enclosure

- (1) Test Index

4. Method

The primary objective of any machinery system/equipment test program is to demonstrate that the machinery in question is in a satisfactory condition for operation within specified parameters. A test program for a ship that has undergone ROH has a secondary objective: to demonstrate that the repairs have been made correctly and completely. Steps in developing a system of monitoring the progress of a test program for machinery system/equipment for PEB/LOE are as follows:

4.1 Obtain a set of guidance test procedures for the ship type from PERA(CRUDES).

4.2 Request a set of test data for the ship from the overhaul shipyard.

4.3 Identify all machinery systems/equipment listed in enclosure (1) on which repairs are scheduled for accomplishment by ship's force or shipyard. List each machinery system/equipment and component on a chart, allowing at least 1-inch columns with the following headings (abbreviated as necessary):

USS _____
ENGINEERING DEPARTMENT
TEST STATUS CHART

<u>Column Number</u>	<u>Heading</u>
1	Item Name
2	Test Procedure Number
3	Test Responsibility (SF or SY)
4	Ship Inspection (Name)
5	Test Procedure Available
6	<i>New Test Procedure Required</i>
7	Ready for Test (Date)
8	Schedule Start, LOE Test
9	Schedule Completion, LOE Test
10	Actual Start, LOE Test
11	Actual Completion, LOE Test
12	Test Unsatisfactory
13	Rescheduled
14	LOE Test Completed
15	Trouble

4.4 Make up a test master list for posting in the Log Room or other suitable location.

4.5 Make up a Test Status Chart for each division.

4.6 Use this chart as follows.

4.6.1 Columns 1-4 are self-explanatory.

4.6.2 Column 5 - Determine whether a guidance test procedure has been prepared by PERA (CRUDES). If it has, enter the procedure number in the space. If it has not, leave this space blank and place a red X in column 15. Also, place a red X in column 6. Report the deficiency to PERA (CRUDES). PERA will provide guidance test procedures where possible.

4.6.3 Column 6 - Upon receipt of the new test procedure, delete the red X's in columns 6 and 15 and enter the number in column 2.

4.6.4 Column 7 - When the system, machinery component, or equipment is ready for test, place an X in this column.

4.6.5 Column 8 - In coordination with the Ship Superintendent for shipyard work and with Work Center Supervisors for ship's force work, establish a projected test schedule for each test listed. Enter the scheduled start date in column 8. If the date is missed, draw a red circle around it and place a red X in column 15.

4.6.6 Column 9 - Proceed as in column 8. A test may be started on time but not completed on time. Treat each date separately, marking the chart in red as appropriate.

4.6.7 Columns 10 and 11 - Enter actual start and completion dates. When testing is complete, remove the red X from column 17; leave red circle in column 8.

4.6.8 Column 12 – If any test is unsatisfactory and corrective work extends the actual completion date beyond the scheduled completion date, place a red X in this column and a red X in column 15. Remove red X in column 15 only when test is complete.

4.6.9 Column 13 – If the start date must be rescheduled; enter the new date in column 13 and circle the scheduled start and completion date. Use columns 10 and 11 to show actual dates.

4.6.10 Column 14 – Upon completion of that portion of the test procedure for an LOE (all tests which may be accomplished without main steam), place a green X in column 14.

4.6.11 Column 15 – This column is the trouble indicator column. Any test situation which is not proceeding in accordance with plan should be highlighted by a red X in this column. Thus at a quick glance the general situation is evident. *Red X items should be given intensive management attention to ensure elimination of the trouble.*

4.7 Assign one officer, assisted by one petty officer, to maintain the Test Master Chart in the Log Room. Require division officers to maintain their charts in conspicuous locations in their spaces.

4.8 Use trouble item information from the chart at the periodic Ship Superintendent's meetings and at ship's force meetings to ensure special attention is being given to these items.

4.9 Do not, for expediency, compromise any test requirements in order to meet important schedule dates. Keep the ISIC advised of the status of testing as the date of each LOE approaches.

4.10 In the absence of formally prepared shipyard test procedures, develop procedures for ship use based on references (a), (b), and (c). However, assistance should be requested from the Shipyard Design Division before resorting to preparation of test procedures by ship's force.

ENCLOSURE 1

TO TASK M-19

TEST INDEX

TEST INDEX

Test Number	Title	Testing Responsibility	Sched. Start Date	Sched. Comp. Date	Mn/Hrs	Prerequisite Events
200U500	Readiness for Boiler Light-Off					
221F101	Main Boilers Boilers Uptakes & Casings Burners Soot Blowers					
231F800	Main Turbines and Reduction Gear Attached Lube Oil Pump Flexible Coupling High Pressure Turbine Low Pressure Turbine Reduction Gear					
241FC01	Shaft Turning Gear (Main Reduction Turning Gear)					
241FC01	Main Shaft Thrust Bearings and Spring Bearings					
243FE00	Stern Tube Syntron Seals					
251F401	Forced Draft Blowers Main FDB Port FDB					
252F100	Automatic Combustion System Automatic Combustion Control Differential					

TEST INDEX

Test Number	Title	Testing Responsibility	Sched. Start Date	Sched. Comp. Date	Mn/Hrs	Prerequisite Events
252F100	(Continued) Feed Water Control Recirculation					
253F700	Main Steam System Hangers Insulation Piping Relief Valves Valves					
253F703	Remote Valve Operating Gear					
254310E	Auxiliary Condenser Air Ejector Air Ejector Condenser Auxiliary Condenser Valves: Discharge Suction					
254F808	Gland Exhausters and Condensers Auxiliary Ship's Service Turbo-Generator					
254FA01	Main Condenser Air Ejector Air Ejector Condenser					

TEST INDEX

Test Number	Title	Testing Responsibility	Sched. Start Date	Sched. Comp. Date	Mn/Hrs	Prerequisite Events
254FA01	(Continued) Main Condenser Valves: Discharge Suction					
255310C	Auxiliary Condensate Pump					
255F303	Main Feed Pumps Pump and Turbine					
255F308	Main Feed Booster Pumps Pump and Motor					
255F30G	Main Condensate Pump Pump and Motor					
255F30J	Deaerating Feed Tank					
255F30K	Condensate System Hangers Piping Relief Valves Valves					
255F30K	Feed System Feed Water Tanks Hangers Insulation Relief Valves Valves					

TEST INDEX

Test Number	Title	Testing Responsibility	Sched. Start Date	Sched. Comp. Date	Mn/Hrs	Prerequisite Events
255F30L	Fresh Water Drain Tank Pump (Low Pressure Drain Tank Pump)					
2563100	Auxiliary Circulating Water Pump					
256FB03	Main Circulating Pump Pump and Motor					
256FB09	Salt Water Circulating System Hanger Piping Valves					
261F501	Fuel Oil Service Pump Pump and Motor					
261F507	Fuel Oil Service System Fuel Oil Drain Inspection Tank Fuel Oil Heaters Fuel Oil Tank Heaters Hangers Insulation Piping Relief Valves Valves					
262FD00	Lube Oil Service Transfer and Purifying System Hangers Lube Oil Coolers					

TEST INDEX

Test Number	Title	Testing Responsibility	Sched. Start Date	Sched. Comp. Date	Mn/Hrs	Prerequisite Events
262FD00	(Continued) Lube Oil Tanks Piping Relief Valves Valves					
262FD01	Lube Oil Pumps Pump and Motor					
262FD07	Lube Oil Purifier					
311310C	Ship's Service Turbo-Generator Generator Turbine					
3123301	Emergency Generator Circulation Pump Diesel Engine and Generator Piping System					
436M500	Propulsion Alarm, Safety and Warning Systems					
437M600	Ship's Propulsion Order and Indicating System					
521T800	Fire Pumps Pump and Motor					
529TD09	Bilge and Fuel Oil Tank Stripping Pump					

TEST INDEX

Test Number	Title	Testing Responsibility	Sched. Start Date	Sched. Comp. Date	Mn/Hrs	Prerequisite Events
531TK03	Distilling Plant Brine Overboard Educator Distillate Pump Feed Pump (Salt Water) Salinity Cell Salt Water Heater Drain Pump					
534F101	Boiler Blowdown Piping System					
534TH00	Steam Drain Collecting System Hangers High Pressure Drain System Low Pressure Drain Collecting Tank Low Pressure Drain System Piping Relief Valves Valves					
534TH00	Auxiliary Steam System Hangers Insulation Piping Relief Valves Valves					
534TH01	Auxiliary Exhaust and Escape System Hangers Insulation Piping					

TEST INDEX

Test Number	Title	Testing Responsibility	Sched. Start Date	Sched. Comp. Date	Mn/Hr	Prerequisite Events
534TH01	(Continued) Relief Valves Valves					
534TH03	Gland Seal and Vent System Gland Seal Regulators Hangers Piping Relief Valves Valves					
541TD00	Fuel Oil Filling, Stripping and Transfer System System					
541TD09	Fuel Oil Transfer Pump					
550TF01	High Pressure Air Compressor					
550TF03	Low Pressure Air Compressor					
551TF00	Low Pressure/Automatic Combustion Control Air System In Machinery Spaces Hangers Piping Relief Valves Valves					

TASK M-20 - ACCOMPLISH ABC SYSTEM QUALIFICATIONS

1. Purpose

To qualify the Automatic Boiler Control (ABC) system prior to the LOEs, allowing sufficient time for the proper scheduling and completion of the system test program and the necessary ship's force training.

2. References

- (a) Applicable ABC system technical manuals

3. Method

3.1 The ABC system is one of the more critical and complex shipboard systems. It should be maintained and operated by fully qualified personnel only. The removal, repair, reinstallation, testing and checkout of the ABC system during overhaul should be assigned to the shipyard or manufacturer. All qualifications of the ABC system should be accomplished at least six weeks prior to the LOEs.

3.2 It will be the job of the Engineer Officer to keep apprised of the status of the overhaul of the ABC system. Should any delay become evident which could impact on the LOEs, the Type Commander must be informed. The Type Commander can then take the necessary actions to increase the shipyard priority in the overhaul of the system or delay the LOEs.

3.3 Qualification of the ABC system will be accomplished by the Engineer Officer at the time the shipyard or manufacturer tests and checks out each boiler ABC system.

TASK M-21 - CONDUCT POST-ROH CSMP UPDATE

1. Purpose

To provide an orderly method by which the Current Ship's Maintenance Project (CSMP) can be updated to reflect repairs accomplished during ROH.

2. References

None

3. Method

Updating the CSMP to reflect repairs accomplished during ROH requires an item-by-item review of all deferred maintenance action items in the CSMP at the time the overhaul commenced, deletion of those items accomplished or that are certain to be accomplished during the ROH, insertion of those new items identified during overhaul that will not be accomplished, preparation of revised or new 4790.2K forms as appropriate, and making the required entries in the 3M system and in the Work Center Discrepancy Log. The following steps for this process are suggested.

3.1 At the beginning of the ROH have the 3M coordinator correlate all work items in the Issued SARP and the ship's force work list with the pre-ROH version of the CSMP.

3.2 Establish the remaining items as the tentative CSMP for each work center.

3.3 Require weekly reports of completed job orders from the work center supervisors for shipyard and ship's force work items. As the completed work items are received by the 3M coordinator, he should check them off against the SARP and send a completed deferred action report to the proper 3M processing office.
processing office.

3.4 If supplementary repair requests are submitted and approved or new maintenance items are included in the ship's force work list for accomplishment during ROH, place these items on the tentative CSMP work center lists.

3.5 As the end of the ROH approaches, endeavor to identify those work items in both the shipyard and ship's force categories that may not be completed during ROH. Group these items separately in a Suspense File.

3.6 During the last week of the ROH, establish the status of the ship's force work items and reenter into the CSMP those items that are not completed and will not be completed by the end of ROH.

3.7 Schedule a final work items status meeting with the Ship Superintendent on the last day of the overhaul and validate the status of all shipyard work items remaining in the Suspense File.

3.8 Revise deferred maintenance requirement descriptions as appropriate for those work items that were not completed and reenter them in the CSMP.

TASK M-22 – CONDUCT POST-ROH COSAL UPDATE

1. Purpose

To provide an orderly method of updating the Consolidated Ship's Allowance List (COSAL) to reflect changes to ship's machinery systems/equipments during ROH.

2. References

None

3. Method

3.1 Updating the COSAL to reflect changes during ROH in ship's machinery systems/equipments that affect the allowance of spare and repair parts requires close liaison with the shipyard. The objective is to ensure that there is exact correlation between the equipment installed in the ship and ship's COSAL. Discrepancies will result in the wrong spare and repair parts being carried and consequent inability to make repairs that may become necessary. If the COSAL was properly validated before the beginning of the overhaul, the job of updating should not prove difficult. Changes will occur due to the following actions:

3.1.1 Machinery beyond repair may be replaced by similar machinery made by a different manufacturer with a different CID/APL number.

3.1.2 A similar replacement may occur because of an alteration.

3.1.3 New machinery or equipment may be installed as the result of an alteration. The shipyard is responsible for ensuring that the allowance list is correlated with the actual installation in the ship and ship's force should ensure that this is done. The following steps are suggested to accomplish this:

3.1.3.1 Review all repair items and identify all items that could result in replacement and require spare part support. Make appropriate notations on the work item descriptions regarding the possibility of substitutions.

3.1.3.2 As the work item is completed, physically check to determine whether or not the item returned to the ship is the same as that removed. If it is not, determine the proper EIC number and the corresponding CID/APL number. Report these to the ship's Supply Officer and to the Ship Superintendent. Consider the work item to be incomplete and do not sign it off as complete, regardless of the physical state of the installation involved, until you receive positive assurance that the correct CID/APL has been introduced into the COSAL and that supply support action has been taken to provide the specified parts. In addition, ensure that action is taken to remove the old CID/APL from the COSAL and that parts no longer required are removed from the ship.

3.1.3.3 Proceed in a similar manner in the case of alterations that result in the installation of new equipment requiring spare and repair parts support.

3.1.3.4 Upon receipt of corrected COSAL pages, check serial numbers, EIC numbers, and CID/APL numbers cited in the COSAL with those of the particular equipment installed. Report discrepancies to the shipyard involved and request corrective action. Provide information copies to PERA(CRUDES), squadron and division commanders, and COMCRUDESPAC.

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