# NAVAL SEA SYSTEMS COMMAND

JOINT FLEET MAINTENANCE MANUAL (JFMM)

VOLUME VII

CHAPTER 4

CONTRACT SPECIFICATION DEVELOPMENT

APPENDIX E

PROCEDURES FOR THE PREPARATION

AND USE OF

WORK ITEM SPECIFICATIONS FOR SHIP REPAIR

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## SECTION I

#### PURPOSE

A. The purpose of this document is to publish mandatory procedures for the preparation, utilization, and invocation of Work Items as directed by NAVSEAINST 9070.1 (Series) for repair and alteration of U.S. Navy ships and craft. This Appendix may be revised periodically at meetings of the Standard Specification for Ship Repair and Alteration Committee (SSRAC) to reflect changes in policy and procedure adopted by the Committee. Revised editions of this Appendix will be available on the SSRAC web site at http://www.navsea.navy.mil/Home/RMC/CNRMC/OurPrograms/SSRAC.aspx

### SECTION II

#### DEFINITIONS

- A. Work Item (4E Spec) An individual set of work requirements written in a standard format to accomplish a specific alteration or repair.
- B. Specification (Schedule) The set of Work Items contained in a Job Order for repair and alteration of vessels.
- C. Specification Package The Work Items, reference data, and all contractual requirements.
- D. Standard Items Mandatory and non-deviational.
  - 1. Standard Items (SIs) Items that establish uniform methods and standards for routine requirements normally invoked in ship repair Work Items. These items are invoked whenever applicable without modification. SIs are approved and maintained by the SSRAC.
  - 2. Local Standard Items (LSIs) Items that meet the criteria of SIs but are approved by the Naval Supervisory Authority (NSA) on a case basis for local or port specific requirements such as local environmental requirements or heavy weather plans. LSIs shall not be used in coastwide bidding or extended solicitations. LSIs are numbered sequentially in the 099-XX series (i.e., 099-XXJA for a Southeast RMC LSI).
- E. Templates Work Items that can be modified and used for single or multiple ship classes.
  - 1. Standard Work Templates (SWTs) Work templates that are prepared for specific repairs, alterations, or to provide support for work frequently occurring in ship repair utilized across ship classes.
    - User activity may add/delete requirements or may use "Intentionally Left Blank" for non-applicable reference(s) or requirement(s) as shown in Section VII-B.
    - User activity shall fill in all blanks or use "Intentionally Left Blank" if non-applicable as shown in Section VII-B.
  - 2. Class Standard Work Templates (CSWTs) Work templates that are prepared for specific repairs, alterations, or to provide support for work frequently occurring in ship repair utilized on a specific class of ship.

- a. User activity may add/delete requirements or may use "Intentionally Left Blank" for non-applicable reference(s) or requirement(s) as shown in Section VII-B.
- User activity shall fill in all blanks or use "Intentionally Left Blank" if non-applicable as shown in Section VII-B.
- 3. Local Work Templates (LWTs) Work templates that are prepared to provide instruction or support for work frequently occurring in ship repair that is unique to a specific geographic location.
  - User activity may add/delete requirements or may use "Intentionally Left Blank" for non-applicable reference(s) or requirement(s) as shown in Section VII-B.
  - b. User activity shall fill in all blanks or use "Intentionally Left Blank" if non-applicable as shown in Section VII-B.
- F. The Master Specification Catalog Maintenance Office (MSCMO) is responsible for approving and maintaining CSWTs and SWTs. LWTs are approved and maintained at the local level.
  - 1. The use of the applicable CSWTs or SWT 077-001 in preparation of Hazardous Waste Work Items is non-deviational and mandatory. User activity shall fill in applicable blanks only.
  - 2. The use of the applicable CSWTs or SWT 992-031 in preparation of Cleaning and Pumping Work Items is mandatory.
    - 2.a User activity may add/delete requirements or may use "Intentionally Left Blank" for non-applicable reference(s) or requirement(s) as shown in Section VII-B.
    - 2.b User activity shall fill in all blanks or use "Intentionally Left Blank" if non-applicable as shown in Section VII-B.

### SECTION III

### PROGRAM OBJECTIVES

- A. In order to reduce the Total Ownership Costs (TOC) of preparing specifications, while maintaining quality standards and enabling execution savings through standardization, a program is necessary that will:
- Make specification preparation less time consuming and aid the planner or surveyor in Work Item preparation.
  - 2. Form the basis for a uniform training program for new personnel.
- Improve the overall quality of Work Items to enhance understanding of requirements and to reduce the cost of work.
  - 4. Present a uniform policy for ship repair nationwide.
- Provide definite Quality Assurance (QA) requirements to ensure quality and reduce the surveillance burden of inspection personnel.
- Allow temporary detail of personnel to another activity in peak workload periods without significant retraining.
- Provide the necessary degree of standardization required to input and retrieve data via automated data processing centers.
- B. NAVSEA directed that a committee of key personnel from the various user activities be formed to establish standardization policy and to prepare procedures for specification preparation, and to develop high quality Work Items for certain recurring repairs. This committee, Standard Specification for Ship Repair and Alteration Committee (SSRAC), was established by NAVSEAINST 9070.1 (Series). These standardized items and Work Items:
- Are technically correct, contractually enforceable, and of sufficient scope to be of use at various activities for a broad range of requirements.
- Are as self-contained as feasible to allow invocation at each activity without reference to numerous additional documents.
- Avoid the use of instructions, work practices, or terminology not common to all activities.
  - 4. Use the same format and phraseology.
- C. Each activity shall aggressively pursue this mandatory program and shall routinely provide suggested revisions and modifications to the SSRAC where use has proven these changes necessary or advisable. SSRAC meetings are scheduled annually. Agenda items to be considered by the SSRAC shall be

proposed by interested activities 4 months prior to the scheduled meeting. The nominating activity shall forward proposed changes/additions to the SSRAC for consideration 60 days prior to the scheduled meeting utilizing the proposal form provided by the SSRAC.

D. SSRAC products are available for viewing or downloading on the Worldwide Web at http://www.navsea.navy.mil/Home/RMC/CNRMC/OurPrograms/SSRAC.aspx

### SECTION IV

### STANDARDIZED ITEMS AND WORK ITEMS

- The specification standardization concept is used to promote a program to promulgate and utilize the best procedures to be employed in developing Work Items as defined below:
- 1. Standard Items (SIs) are items that establish uniform methods and standards for routine requirements normally invoked in ship repair Work Items. These items are invoked whenever applicable without modification.
- a. There are 2 categories of SIs from the standpoint of utilization. A Category I SI, when invoked, is applicable to the entire Job Order without further reference in the individual Work Item. A Category II SI, when applicable, shall be invoked in each Work Item.
- (1) A Standard Item may be assigned as Category I by the SSRAC if its requirements are either (a) safety (personnel or equipment) or environmental related, (b) administrative or managerial (non-trade) in nature, or (c) readily discernible, by shipcheck or listed references, based on the scope of repairs specified in a Work Item. A SI may be assigned as Category I by the SSRAC if it is applicable to only a unique class of ship or location of work and it meets the safety or administrative criteria above. Category I Standard Items shall stand alone and require no utilization guidance or phraseology. The official source for Standard Items is the SSRAC web site at http://www.navsea.navy.mil/Home/RMC/CNRMC/OurPrograms/SSRAC.aspx
- 2. Local Standard Items (LSIs) are items that meet the criteria of SIs but are approved on a case basis for local area use only. LSIs shall not be used in coast-wide bidding or extended solicitations. LSIs are numbered sequentially in the 099-XXXX series (i.e., 099-XXSE for a Southeast Regional Maintenance Center LSI). Approval of LSIs will be made at the local level.
- B. Changes or additions to SIs are identified by showing added or changed verbiage in bold Italics. Deletions to SIs are identified by a vertical line in the right-hand margin beside the deletion. New or completely revised SIs are identified by a vertical line in the right-hand margin beside the ITEM NO, DATE, and CATEGORY lines, e.g.:

ITEM NO: 009-01 DATE: <u>01 AUG 2008</u> CATEGORY: I

C. SIs and invoking phraseology (Section A of Annex B) developed at the SSRAC meeting shall be invoked in all new procurements issued after receipt from the SSRAC Chairman, provided that the receipt of the SIs supports the planning timetable for use.

- D. Newly developed or revised Standard Phraseology (Sections B-G of Annex B) shall be utilized upon receipt.
- E. Annex A contains an invoking guide for Category I Standard Items. This Annex shall be updated after each SSRAC meeting and shall be published with the results of the meeting and copies of the Standard Items and new or revised Standard Work Templates.
- F. Annex B is a comprehensive listing of approved NAVSEA Standard Phraseology and is provided with notes and usage guidance for preparation of Work Items where a standard phrase is appropriate to describe the work requirement. Additions, deletions, or modifications to Annex B will be made by the SSRAC and a new Annex B will be published after each SSRAC meeting. Other changes deemed necessary by the SSRAC Chairman will be promulgated by correspondence for later incorporation into Annex B. Issues relative to the interpretation of standard phrases will be forwarded to the Chairman of the SSRAC with supporting documentation and recommendations for review prior to effecting contract modifications at the local level. Changes required by such a review will be promulgated by the SSRAC Chairman.
- G. Utilization of Standard Phraseology for invoking Category II Standard Items (Section A of Annex B) is mandatory. Standard Phraseology in Sections B through G of Annex B shall be utilized when applicable.
- H. Planner's Notes should be used to explain "fill in the blank" information on SWTs, CSWTs and LWTs. Planner's Notes may also be used to provide other types of information that may be of value to the Planner, for example:

When accomplishing generator repairs, separate Work Item shall be invoked using 311-022 template to accomplish testing.

Verify and update drawings and revisions.

### SECTION V

### WORK ITEM PHILOSOPHY

- A. Work Items are technical documents that convert work requirements to clear, concise, well-defined, and contractually sound terms. Each becomes a legally binding contractual document that is the determining factor as to what the Government will receive from the contractor accomplishing the work. Each must provide sufficient information to the contractor to define precisely the minimum requirements of the Government and be free of language open to diverse interpretations.
- B. Work Items normally describe what to do rather than how to accomplish the work. There are instances where the Government desires that the work must be accomplished in a specific manner. In these instances the procedures must be clearly defined, but should not be so worded that they unreasonably restrict competition.
- C. Work Items must be written in a logical sequence of work operation whenever possible (i.e., remove, disassemble, inspect, report, repair, assemble, install, and test).
- D. Each Work Item must clearly define the work requirements and be as self-contained as possible to enable the user to understand the requirements without having to research a myriad of reference data. The Work Item requirements must include the minimum specific tests and inspections that must be accomplished by the contractor to ensure that the desired quality is achieved.
- E. Work Items should be limited to the requirements necessary to achieve the desired result and should not upgrade equipment and installations to exceed original design requirements without approval of the customer. Work Items shall not alter the military characteristics of any ship or in any other manner require repairs or modifications to equipment or systems that would normally be considered to be under the purview of the Fleet Modernization Program (A and K ALTS) or Type Commander Alterations Equivalent to a Repair (AER - D and F ALTS) without prior approval of NAVSEA.

# SECTION VI

## FORMAT

A. The following format shall be utilized in the preparation of SIs and LSIs:

# NAVSEA or SUPSHIP or REGIONAL MAINTENANCE CENTER STANDARD ITEM or LOCAL STANDARD ITEM

	<u>FY-</u>
	ITEM NO:
	DATE:  CATEGORY:
1.	SCOPE:
	1.1 Title: (When the length of a title continues past one line, the beginning of the subsequent lines will be indented to the first character of the first line, as demonstrated here.)
2.	REFERENCES:
	2.1 (Standard Items shall be listed first, if referenced in the Item.)
	2.2 (When the length of a reference continues past one line, the beginning of the subsequent lines will be indented the same as the first line, as demonstrated here.)
3.	REQUIREMENTS:
	3.1
	3.2
	3.2.1
	3.2.1.1
4.	NOTES:
	4.1 None. *
*	In the event there are no $\underline{\text{NOTES}}$ , the word None shall appear in 4.1.
	# of # ITEM NO:

SHI	P: _			ITEM NO:	
COF	AR:			PCN:	
	_(	(Delete	line if not required)		
* ( * !			(IF APPLICABLE) LWT as applicable)	CMP:	(IF APPLICABLE)
			PPLICABLE)	PLANNER:	
1.	SCOF	<u>PE</u> :			
	1.1	Title:		equent lines	nues past one line, the will be indented to the first emonstrated here.)
	1.2	Locati	on of Work:		
		1.2.1	(If only one, use 1.2	.1 or Not Ap	plicable)
		1.2.2		be indented	ne line, the beginning of the to the first character of the )
	1.3	Identi	fication:		
		1.3.1	Quantity ( ), (If or	nly one, use	1.3.1 or Not Applicable)
		1.3.2		be indented	ne line, the beginning of the to the first character of the )
	1.4	The Equation	uipment, Space or Docur able provisions of the ing Manual, DOD 5220.22	ment is clas National In	mponents, Spaces and Documents: sified and subject to the dustrial Security Program 179-6400). (Omit when not
		NOTE: not al	<del>-</del>	paragraph ar	e to be listed. Attachments ar
		1.4.1	<del>-</del>	ginning of t	e) (When the length continues he subsequent lines will be f the first line, as
			#	of #	ITEM NO:

SHI	P: _								
		1.4.2	Equipment: (0 past one line indented to the demonstrated has been sentenced.)	, the beginn he first cha	ing of	the subse	equent li	ines will	
		1.4.3	Documents: (0 past one line indented to the demonstrated has been sentented by the contract of	, the beginn he first cha	ing of	the subse	equent li	ines will	
2.	REFE	RENCES:							
	2.1	(Standa	ard Items shall	l be listed	first,	if refere	enced in	the item	)
	2.2	beginn	the length of a ing of subseque as demonstrated	ent lines wi					
3.	REQU	REMENT	<u>s</u> :						
	3.1								
		3.1.1							
	3.2								
		3.2.1							
			3.2.1.1						
		3.2.2							
	3.3								
		owing fo Phrase	ormat shall be B30).	used to ide	ntify	repair paı	cts in pa	aragraph	3 (use
	AL NTITY UIRED	NAME OF PAI	<u>RT</u>	PIECE NO.	REF.	FIGURE DRAWING 1	PAI		
				# of #			ITEM NO	): 	

SHIE	₽: _							
4.	NOT	ES:						
	4.1	None. *						
		4.1.1						
	4.2							
*	In	the event	there are no $\underline{\text{NOT}}$	ES, the	word N	one sh	all appear in 4.1.	
5.	GOVI	ERNMENT F	URNISHED MATERIAL	(GFM):				
5.1	LLT	<u>M</u> :						
5.1.	.1	None.**	* * *					
5.2	PUSI	H MATERIA	<u>L</u> :					
5.2.	.1	None.**	* * *					
5.3	KIT	red mater:	IAL:					
5.3.	. 1	None.**	* * *					
**	In	the event	there is no $\underline{\text{GFM}}$ ,	the wo	ord None	shall	appear.	
***	In	the event	there is $\underline{GFM}$ , the	e follo	wing fo	rmat s	hall be used in 5.	
5.1	LLT	<u>M</u> :						
	Ć	TOTAL QUANTITY PROVIDED	NAME OF PART		PIECE NO.	REF.	NATIONAL STOCK NO.	PARA
5.1.	. 1							
5.2	PUSI	H MATERIA	<u>L</u> :					
	<u> </u>	TOTAL QUANTITY PROVIDED	NAME OF PART		PIECE NO.	REF.	NATIONAL STOCK NO.	PARA
5.2.	. ⊥							
				# of	· #		ITEM NO:	

SHIP:										
5.3 <u>KI</u>	5.3 <u>KITTED MATERIAL</u> :									
	TOTAL QUANTITY PROVIDED	NAME OF PART		PIECE	REF.	NATIONAL STOCK NO.	PAF NO.			
5.3.1										
NOTE:	PARA NO. part/mate	Identify what rial.	basic p	aragrap	h in b	ody of Work	Item require	s the		
			# of	#		ITEM NO	o:	_		
a 12 c	C. SIs, LSIs, templates, and locally prepared Work Items shall be prepared in a 12 character per inch (CPI) font, with a left, right, top, and bottom margin of one inch.									

### SECTION VII

#### INSTRUCTIONS FOR PREPARATION AND UTILIZATION OF WORK ITEMS

## A. WRITING STANDARD ITEMS AND LOCAL STANDARD ITEMS:

- 1. The heading of each SI or LSI shall be in accordance with Section VI.A. The FY, ITEM NO., DATE, and CATEGORY shall be assigned to each SI by the SSRAC, or by the SUPSHIP or REGIONAL MAINTENANCE CENTER as applicable for LSIs. The date shall be the date of issue of an SI or LSI when changed or reviewed (even when no change was made). The FY shall be changed to show the fiscal year of use. This will always determine the latest version of the particular SI or LSI.
- 2. The remainder of SIs and LSIs shall follow the criteria of Section VII.B.2.a and B.3 through B.5, except SUPSHIP/RMC references are not to be used for SIs.

# B. WRITING WORK ITEMS AND TEMPLATES:

- 1. The heading portion of SWTs, CSWTs, LWTs, and Work Items shall be completed as follows, using capitalization throughout:
- a. SHIP Name and hull number of ship or number of each boat or craft.
- b. COAR Customer Order Acceptance Record (COAR) is a locally assigned 5-digit number. The first 2 digits identify the funding category. The last 3 digits are the same as the specification package number and reflect the Availability Identification Number of the ship, boat or craft.
  - c. FILE NO The SWT, CSWT, or LWT file number if applicable.
- d. REVISED Day, abbreviated month, and year (DD MMM YYYY) of either original issuance date or revision date, for example 06 APR 1995 (applies to templates only).
- e. ITEM NO The item number shall be assigned in accordance with Section VII C.
- f. PCN The Project Control Number, or PCN, is the identifying number of the applicable work authorization document. This can be the SWLIN number and the applicable line item(s), number(s), the job control number(s) (JCN) from the OPNAV 4790/2K form, Ship's Maintenance Action Form (SMAF), or a number which will identify the source from which the authorized work requirements are being written. Do not resolve space limitations by inserting PCN data in any Work Item paragraph.
- q. CMP The Class Maintenance Plan is the identifying number assigned to the maintenance action, which the Work Item accomplishes. The first 3 digits of the CMP generally follow the ESWBS numbering system.

- h. PLANNER Last, First name of each person contributing to the preparation of the Work Item.
- 2. Paragraph 1 shall be SCOPE. The SCOPE paragraph shall be completed as follows:
- a. Subparagraph 1.1 The word "Title" shall appear first, followed by a colon. A brief title will then follow in noun, verb order. Give a brief description of equipment using common shipboard terminology, followed by a semicolon, and work to be done. Title shall be singular. The completion of this paragraph is mandatory. Examples are as follows:

### REPAIR TITLES:

Main Feed Pump; repair Surface Search Radar; install Bake Oven; repair Dry Cleaning Plant; repair (OPTION ITEM)

## SHIP ALTERATION TITLES:

ShipAlt CG47-00123K, Title; accomplish ShipAlt DD963-00456K, Title; accomplish ShipAlt DDG993-00789K, Title; accomplish

# ALTERATION EQUIVALENT TO REPAIR (AER) TITLES:

CG47 Class AER 123, Title; accomplish DD963 Class AER 456 (01/97), Title; accomplish DDG993 Class AER 789 (02/97), Title; accomplish

- b. Subparagraph 1.2 The words "Location of Work" followed by a colon shall appear first.
- (1) Subparagraph 1.2.1 A compartment designation shall be listed when applicable. Appropriate deck and frame designations shall also be used. Examples are as follows:

Forward Engine Room (B-1-E) Main Deck, Frame 115 Auxiliary Machinery Room No. One (5-67-0-E) Communications Center (02-73-0-C) JP-5 Pump Room (5-132-0-E)

Where several locations are involved, each will be listed in a separate subparagraph. Care must be exercised in the description of the Location of Work, as this, too, is a critical part of the contract, which frequently is the only basis for determining the applicability of the work requirements. The phrase "Throughout the Ship" shall be used to avoid inadvertent omissions for work requirements that are in fact widely dispersed. This phrase, however, shall not be used when a concise and explicit location can be

readily identified. The security classification of the spaces shall only be listed in subparagraph 1.4. If this paragraph is not utilized, indicate such by inserting the words "Not Applicable" after subparagraph 1.2.1. Examples are as follows:

> Throughout the Ship Not Applicable

- c. Subparagraph 1.3 The word "Identification" followed by a colon shall appear first.
- (1) Subparagraph 1.3.1 Describe existing equipment to be worked on, to be permanently removed, or to be removed and replaced. Equipment is defined as, "all non-expendable items needed to outfit/equip an individual or organization, i.e., a ship" (see JOINT PUB 1-02, Department of Defense Dictionary of Military and Associated Terms dated 12 April 2001). If existing equipment can be identified by manufacturer, model, serial number, APL number, or equipment designation, i.e., AN/SPS-10E, and serial number, then it shall be listed. If existing equipment to be identified does not lend itself to number identification then describe the item to be worked or replaced, e.g., Lifeline Stanchions, Firemain Piping, etc. Insert the word "Quantity" followed by the appropriate number and 2-letter abbreviation of unit of issue (e.g., EA, PC, BX, KT, FT, SF, etc.) in parentheses preceding the equipment or item identification, i.e., Quantity (10 EA), Quantity (25 FT) or Quantity (25 SF), etc. If this paragraph is not utilized, indicate such by inserting the words "Not Applicable" after subparagraph 1.3.1. Examples are as follows:

Quantity (One EA), Liner, IC/E46-6, Part No. 50857-501 Quantity (One EA), Propeller, Right-Hand, Mfr: Bird-Johnson Co., APL 834010072

d. Subparagraph 1.4 - Shall be used only when access to classified spaces, equipment, or documents is required. The security classification (e.g., SECRET, CONFIDENTIAL, etc.) of the space, equipment, or document shall be shown parenthetically in upper case letters, following its unclassified title. For spaces, appropriate deck and frame designations shall also be used. For example:

> NOTE: All entries for this paragraph are to be listed. Attachments are not allowed.

- 1.4.1 Spaces:
  - 1.4.1.1 Sonar Control Room (01-140-0-C) (CONFIDENTIAL)
  - 1.4.1.2 CIC (01-158-0-C) (CONFIDENTIAL)
- 1.4.2 Equipment:
  - 1.4.2.1 XXX (CONFIDENTIAL)

### 1.4.3 Documents:

# 1.4.3.1 XXX (CONFIDENTIAL)

## 3. Paragraph 2 shall be REFERENCES.

- a. The indiscriminate use of references in Work Items serves only to confuse the users, makes the actual work requirements vague, and does not promote the concept of providing clear and contractually sound Work Items. Conversely, the omission of required reference data does not promote this concept either. Therefore, references must be used when required, but they should always be thoroughly researched and then used selectively. Ideally, what is desired is a Work Item which includes no textual references and which contains all necessary data; a Work Item that stands alone.
- b. The General Specifications for Overhaul of Surface Ships (GSO) is a primary source for technical requirements for alterations and for the refurbishment and repair of existing ship's equipment and components; therefore, it shall be considered when preparing Work Items.
  - c. The following general rules apply for references:
- (1) With the exception of Category II Standard Items which, when listed in paragraph 3 REQUIREMENTS or 4 NOTES, are always 2.1, list | applicable references in paragraph 2 in the order in which they appear in the body of the Work Item. Do not list references that are not referred to in the body of the Work Item.
- (2) In the event that there are no references, the word "None." is to follow 2.1.
- (3) Basic Government specifications (including the GSO NSTMs, etc.), standards, or NAVSEA Standard Plans shall be referenced without prefix zeroes or suffix letters or numbers which identify revisions or amendments, i.e., MIL-STD-XXX, followed by the title. For example:

MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated Piping Components for Naval Surface Ships

S9AAO-AB-GOS-010, General Specifications for Overhaul of Surface Ships (GSO)

# S9086-RK-STM-010/CH-505, Piping Systems

(a) Equipment Technical Manuals and Drawings which are not NAVSEA Standard Plans shall be identified by group number, drawing number, latest revision letter (A, B, C, etc.) only if applicable (do not use Rev  $\emptyset$ , or Rev ), and title as it appears in the drawing title block, with the exception of capitalization. Capitalize the first letter of each word. For example:

252-5351151 Rev L, Propulsion Control System, Circuit K-GT, Cabling Diagram

- (b) Revision numbers and/or revision date of these types of references shall not be included when preparing Standard Items (SIs).
- (4) References shall be limited to applicable technical data such as Standard Items, drawings, equipment technical manuals, Military Standards (MIL-STDs), Test Memos, and NAVSEA approved Preservation Process Instructions (PPIs). Technical data means recorded information (regardless of the form or method of the recording) of a scientific or technical nature (including computer databases and computer software documentation). This term does not include computer software or financial, administrative, cost or pricing, or management data or other information incidental to contract administration. The term includes recorded information of a scientific or technical nature that is included in computer databases. For these purposes, technical data includes the characteristic of a particular science, trade or profession.
- (a) Titles for all references shall be as they appear on the reference with the exception of capitalization and words such as "Naval Ships Technical Manual". Capitalize the first letter of each word, with the exception of minor words or conjunctions (the, of, etc.). For example:

NAVMED P-5010-6, Manual of Naval Preventive Medicine, Chapter 6, Water Supply Afloat

S9086-T8-STM-010/CH-593, Pollution Control vice S9086-T8-STM-010/CH-593, Naval Ships Technical Manual Chapter 593 Pollution Control

- (b) In the event a reference has been deleted after a Work Item has been developed, the planner may use the following format:
  - 2. Intentionally Left Blank
- (c) Reference format for 4720 Material Summaries shall be as the File No. and title appears on the 4720 cover sheet. Reference format for Design Memos, Planning Memos, and Test Procedures shall be as follows:

DM 10-09, MARMC, Title DM 97-07 Rev C, SWRMC, Title PM 390-51, SERMC, Title PM 230-01 Rev B, SPAS, Title 24310-7-020, Title of Test Procedure/Test 24510-5-001 Rev B, Title of Test Procedure/Test

(d) For references available on compact disk, insert the source CD volume number in parentheses after the title. For example:

SE000-01-IMB-010, Navy Installation and Maintenance Book (NIMB), Section VI, Electronics Installation and Maintenance Book - General Maintenance (Source CD: N0002400003)

- (5) Instructions, Notices, Naval Messages, and letters with financial, administrative, management data or other information incidental to contract administration shall not be included as references.
- (6) Documents such as federal regulations outside the Department of Defense and public laws shall not be referenced except where it is necessary to show the contractor that there are public laws and regulations with which he must comply but are outside the scope of the MSR agreement and the requirements of that particular Work Item.
- (7) When using Naval Ship's Technical Manuals (NSTM) and GSO as references, ensure that only applicable portions are referenced. For example:
- 2. S9AA0-AB-GOS/010/GSO, General Specifications for Overhaul of Surface Ships (GSO)
- 3. Remove existing and install new flanged take down joint assembly in accordance with Section 506d of 2. .
  - 2. S9086-T8-STM-010/CH-593, Pollution Control
- 3. Accomplish sanitary and hygienic procedures of Paragraph 593-4.2.3 through 593-4.2.4.1.3 of 2. .
- (8) PMS-400 approved 4720/3 Material Identification Documents for ShipAlts, AERs, or repair kits may be listed in paragraph 2 as a reference. The reference shall be used to identify the GFM for the identified ShipAlt, AER, or repair process in paragraph 5 of the Work Item. (See Section VII, B.3.c.)
- d. If short enough (single page or less), the reference material shall be lifted out or paraphrased and written in the body of the Work Item, both for clarity of the requirements and for building a Work Item that can stand alone.
- e. In considering data for use as a reference, data shall be thoroughly researched to determine that:
  - (1) It will not begin a chain of unnecessary references.
- (2) If restricted for use, that written authorization is obtained prior to using proprietary clauses.
  - (3) It is the latest version or revision of the subject data.
  - (4) It is available in reproducible form for distribution.
  - (5) It is absolutely essential to accomplish the required work.

- f. The security classification of a classified reference shall be shown parenthetically in upper case letters, following its unclassified title.
- g. The method for using SIs and LSIs as references is to list in paragraph 2 REFERENCES, as follows:
- (1) SIs or LSIs, regardless of the number that are used as references in a particular Work Item, are listed as "Standard Items" in paragraph 2.1, and specifying the particular SI or LSI number in paragraph 3 REQUIREMENTS or paragraph 4 NOTES.
- h. MIL-SPECs are not listed in paragraph 2 as references. They shall be included in the REQUIREMENTS paragraph of the Work Item.
- i. Care must be exercised when invoking references. Three degrees of contractor compliance may be required and enforced depending on the invoking statement:
- (1) When it is desired to direct a contractor to accomplish work strictly in accordance with the reference, the invoking phraseology **shall** be:
  - (a) " in accordance with 2. ", or
  - (b) "Accomplish the requirements of 2. ", or
  - (c) " conforming to 2. ".
- (2) When the reference data is only partially applicable, the invoking phraseology **shall** be: "\_\_\_\_ in accordance with 2.\_\_", and then list the exceptions in a subparagraph.
- (3) When strict compliance is not required and the reference is only listed for information and guidance, the invoking phraseology shall be: " , using 2. for guidance". However, it can become a catch-all and its use **shall** be held to a minimum.
- (4) When a Work Item references Class and Hull specific configuration and Ship Alteration information, planning activity shall validate that reference information (Ship Alteration drawings, LARS, "as built drawings", Test Procedures, etc.) used is correct via the assigned Class Planning Yard.
- j. SUPSHIP/RMC/SURFMEPP References. When material to be used as a reference is too complex or lengthy to be lifted out and included in the body of the Work Item and the material is not appropriate to use directly as a reference, then the material shall be lifted out and rephrased as needed to be used as a SUPSHIP/RMC/SURFMEPP Reference.
- (1) SUPSHIP/RMC/SURFMEPP References shall be issued with a cover sheet attached to the reference material showing SUPSHIP (City)/RMC/SURFMEPP Reference , Rev , and date issued.

- (2) The originating SUPSHIP/RMC/SURFMEPP shall be responsible for maintaining a master file of SUPSHIP/RMC/SURFMEPP References and revised versions. Revisions to SUPSHIP/RMC/SURFMEPP References shall be identified as Rev A, Rev B, etc.
- (3) The use of SUPSHIP/RMC/SURFMEPP References shall be limited to those cases where no other recourse exists to adequately specify work requirements in a Work Item. The modified versions of these appendices would be identified as SUPSHIP/RMC/SURFMEPP References. Likewise, certain portions of NSTMs would be identified for use in a Work Item as a SUPSHIP/RMC/SURFMEPP References.
- 4. Paragraph 3 shall be REQUIREMENTS. The REQUIREMENTS paragraph of the Work Item is that portion which must detail the minimum work and material requirements not already invoked by Standard Items. Quality assurance requirements are also inserted in this section. Any additional specific tests and reports required must be delineated.
- a. Category II SIs shall be invoked to the maximum extent possible when preparing Work Items and Templates.
- b. The Standard Phraseology of Annex B shall be used in preparing Work Item requirements (see Section IV F).
- c. When abbreviations and acronyms are used, the complete phrase should be written out the first time it is used in a Work Item, followed by the abbreviation or acronym in parentheses. After that, the abbreviation or acronym may be used throughout the Work Item. Abbreviations or acronyms commonly used in the naval ship repair industry need not be defined.
- d. Subparagraph 3.1 of the REQUIREMENTS shall be used to require the contractor to remove and install interferences for only those systems listed in 3.1 of Category I Standard Item 009-23.
- e. Sentence structure of REQUIREMENTS in Work Items shall be verb, noun format, giving for each item the item identification, location, and compliance requirements. A lead paragraph shall include phraseology that begins with a verb and refers to paragraphs 1.2 and 1.3 within the sentence structure where applicable (e.g., 3.1 Remove existing and install new the equipment listed in 1.3 and located in 1.2, using 2.2 for guidance).
- (1) In paragraph 3, once you have identified the location and equipment listed in 1.2 and 1.3, it is not necessary to repeat that identification throughout the requirements, unless different actions are being accomplished.
- f. Repair and overhaul of equipment and systems, as authorized by TYCOM, shall be implemented in the REQUIREMENTS paragraph by a description of the work to be accomplished. The written sequence of work requirements shall normally be in chronological sequence of work accomplishment. Each subparagraph shall express a complete thought in clear, concise language that

is contractually sound. Wording that is ambiguous shall not be used. Accept or reject *criterion* for use by Quality Assurance inspectors must be definitive.

- g. For complex Work Items that would be cumbersome and cause confusion if normal chronological work sequence were employed, an alternative trade or component breakdown method may be employed. This method addresses each trade or component's work requirements separately, either in consecutive subparagraphs of the REQUIREMENTS or in several consecutively numbered Work Items. When this method is used, the normal time sequence of work within the trade or component is maintained.
- The mandatory parts to be replaced shall be listed, including the quantity required, 2-letter abbreviation of unit of issue (e.g., EA, PC, BX, KT, etc.), the manufacturer's part number or plan number and piece number as listed in the equipment technical manual or plan. GFM shall be listed in paragraph 5. Common shelf item parts to be replaced, i.e., fasteners, gaskets, cotter pins, O-Rings, and seals, shall be identified by noun name in paragraph 3 of the Work Item without further identification as to manufacturer's part number or piece number.
- i. In the event a requirement has been deleted after a Work Item has been developed, the planner may use the following format:

## 3. Intentionally Left Blank

- j. After a Work Item is issued, any changes implemented in the Work Item resulting from a Request for Contract Change (RCC), Condition Report (CR), Inspection Report (IR), etc., shall be prepared in accordance with Section VII.
- k. Inspections and tests that are not already required by Standard Items shall be identified by (I)(Q) or (V) symbols inserted in a Work Item to establish a point in the sequence of accomplishment of work, at which time the repair activity shall inspect/verify and document the inspection or test. Inspections and tests requiring Government notification shall be identified by (G) symbols inserted in a Work Item to establish a point in the sequence of accomplishment of work at which time the SUPERVISOR shall be notified to permit observation of the specific inspection or test. The (I)(Q) and (V) inspections and (G) notifications are included in the requirements paragraph of the Work Item by inserting the appropriate symbol(s) in parentheses, e.g., (I), followed by the specific inspection/test within quotation marks, e.g., "HYDROSTATIC TEST", in upper case letters at the left margin immediately preceding the paragraph with the inspection/test. For example:

# (I)(G) "HYDROSTATIC TEST"

When the inspection requirements [(I)(Q) and (V)] or notifications [(G)] are identified in the Standard Item, they shall not be identified again in the Work Item.

(1) Symbols are defined as:

- (I) inspections require verification and documentation by a separate individual, other than the person who has accomplished the work, who is qualified as an inspector and currently certified where required by the technical documents (e.g., NBPI, NACE, nondestructive testing, electrical cableway inspections, etc.).
- (V) inspections require verification by either the qualified tradesperson, trade supervisor, or inspector.
- (Q) inspections require verification and documentation by a qualified Technical Representative in accordance with NSI 009-90 and associated PCP requirements.
- (G) is a symbol inserted in a Work Item to establish a point in the sequence of accomplishment of work at which time the SUPERVISOR shall be notified to permit observation of a specific inspection or test by the Government.
- (2) The following criteria shall be used for identification of inspections and tests requiring annotation with (I), (V), or (G) symbols:
  - Manufacture, installation, and repair (welding, brazing, (a) machining, or lapping) of Level I fittings or components:
    - Inspections performed for all acceptance (I)(G) testing (e.g., hydrostatic testing, drop tests, seat leakage tests, joint tightness tests) used for certification of work completed
    - Inspections performed to verify final torque of (I) pressure boundary parts and fasteners used in Level I components
    - Inspections performed to verify permanent Level (I)(G) I markings at installation/assembly
    - Inspections performed for post-(I) machining/manufacture of any Level I part/component
    - Inspections for ball valve stack heights, valve (I) blue checks, and inspections performed on any sealing surface when work is performed using controlled assembly
    - Inspections performed to verify Level I (I)(G) pressure boundary parts replacement
    - Mechanical measurements used to verify wall (I) thickness of Level I components

	<ul> <li>Cleanliness inspections when required by MIL- STD-1330 (oxygen, nitrogen, and hydrogen systems)</li> </ul>	(I)(G)
	Receipt inspection of Level I material	(I)
	Nondestructive Testing VT	(I)
	<ul> <li>Nondestructive Testing MT/PT/UT (Final Only)</li> </ul>	(I)(G)
	RT Film Interpretation	(I)(G)
(b)	Welding/brazing of P-1, P-LT, P-3a piping systems or GA-1, A-2, A-3, A-LT, M-1, T-1 welding, and P-2 steam $_{\rm S}$	
	<ul> <li>Inspections performed for all acceptance testing (e.g., hydrostatic testing, drop tests, seat leakage tests, joint tightness tests) used for certification of work completed</li> </ul>	(I)(G)
	<ul> <li>Mechanical measurements used to verify wall thickness of Level I components</li> </ul>	(I)
	<ul> <li>Cleanliness inspections when required by MIL- STD-1330 (oxygen, nitrogen, and hydrogen systems)</li> </ul>	(I)(G)
	<ul> <li>Fit-up inspection of Class P-3a joints on steam piping</li> </ul>	(I)
	Nondestructive Testing VT	(I)
	<ul> <li>Nondestructive Testing MT/PT/UT (Final Only)</li> </ul>	(I)(G)
	RT Film Interpretation	(I)(G)
(C)	Welding on ship/craft listed in Attachment A of SI 009 hull or structure when required by the fabrication do	
	<ul> <li>Inspections performed for all acceptance testing (e.g., hydrostatic testing, drop tests, structural boundary tests) used for certification of work completed</li> </ul>	(I) (G)
	Nondestructive Testing VT	(I)
	<ul> <li>Nondestructive Testing MT/PT/UT (Final Only)</li> </ul>	(I)(G)
	RT Film Interpretation	(I)(G)
(d)	Weight handling equipment manufacture and repair:	
	<ul> <li>Inspections performed for all acceptance testing (e.g., static load testing, drop tests, pull tests, weight tests) used for certification of work completed</li> </ul>	(I)(G)
	Nondestructive Testing VT	(T)

	<ul> <li>Nondestructive Testing MT/PT (Final Only)</li> </ul>	(I)(G)
	<ul> <li>Nondestructive Testing UT (Final Only)</li> </ul>	(I)(G)
	RT Film Interpretation	(I)(G)
(e)	Corrective maintenance within the certified boundaries (as defined in NSTM 589):	of cranes
	<ul> <li>Inspections performed for all acceptance testing (e.g., static load testing, drop tests, pull tests, weight tests) used for certification of work completed</li> </ul>	(I)(G)
	Nondestructive Testing VT	(I)
	Nondestructive Testing MT/PT	(I)(G)
	<ul> <li>Nondestructive Testing UT (Final Only)</li> </ul>	(I)(G)
	RT Film Interpretation	(I)(G)
	<ul> <li>Weight testing to certify or recertify shipboard cranes when repairs are performed.</li> </ul>	(I)(G)
(f)	Maintenance on aircraft launch and recovery equipment:	
	<ul> <li>Inspections performed for all acceptance testing (e.g., hydrostatic testing, drop tests, seat leakage tests, joint tightness tests) used for certification of work completed</li> </ul>	(I)(G)
	Nondestructive Testing VT	(I)
	<ul> <li>Nondestructive Testing MT/PT/UT (Final Only)</li> </ul>	(I)(G)
	RT Film Interpretation	(I)(G)
(g)	Preservation of critical surfaces:	
	<ul> <li>Surface preparation, conductivity/chloride tests, and film thickness inspections (including profile, holiday, and stripe coat inspections) of surfaces identified in Standard Item 009-32</li> </ul>	(I)(G)
	Environmental readings	(V)
(h)	Preservation of non-critical surfaces:	
	<ul> <li>Surface preparation and film thickness inspections (including profile, holiday, and stripe coat inspections) of surfaces not identified as critical in Standard Item 009-32</li> </ul>	(I)
	• Environmental readings	(V)

- (i) Final testing, final alignment, process control, and work acceptance of mechanical, electrical, and structural work not covered above, and major safety related inspections:
  - Any final test that is used as the verification (V) (G) that all work has been performed satisfactorily (e.g., final hydrostatic tests and final operational test). This does not include final assembly or dimensional verifications
  - All final alignments (I)(G)
  - Any process requiring a Process Control (V) (G) Procedure (PCP) in accordance with Standard Item 009-09, not covered in paragraph 4.i.(1)(c) above
  - Any final work acceptance inspections of (V) (G) compartments and tanks (e.g., tank closures and compartment turnovers)
  - Visual inspection of the installed waterproof (I)(G) membrane
  - Safety inspections prior to entry into tanks, (I)(G) voids, and cofferdams which contain Motor Gasoline (MOGAS) or other immediately dangerous to life or health (IDLH) atmospheres
- ( j ) Other inspections or tests:
  - Any inspection/test that is not covered above (V)and reports are not required to be submitted to the Government
- (3) When modifications are written to the original Work Items, (I) and (V) inspections and (G) notifications shall be inserted where required.
- (4) Where additional Government oversight is deemed necessary by the SUPERVISOR to ensure contract compliance in a specific problem area, a (G) may be added to an inspection or test currently not requiring Government notification in the criteria identified above.
  - (5) Never use (G) alone; must be preceded by an (I) or (V).
- 1. Reports Written reports are necessary in order to record results of inspections, tests, and work accomplished. The planner should keep in mind that reports are costly to generate and to process. Reports should only be required in Work Items when necessary. Do's and don'ts for reports are as follows:
- (1) Do require a report for machinery history with condition identified readings.

- (2) Do require a report when a unique piece of equipment has had many problems.
  - (3) Do require a report listing unsatisfactory conditions.
- (4) Do require machinery closing reports if not recorded on test memos or data sheets.
- (5) Don't require a report to track contractor progress on a job.
- (6) Don't require a report following a test and/or inspection (except where recorded test data is necessary).
- (7) Don't require a report for each piece of equipment. Have the contractor submit a report in matrix format when criteria are the same for each item. (Example: Five motors being overhauled in accordance with Standard Item 009-17.)
- (8) Don't require a report just so you will know the item is being worked.
- m. Process Control Procedure (PCP) requirements not already required by Standard Items shall also appear in the REQUIREMENTS paragraph. Invoking the requirement to develop Process Control Procedures shall be invoked only where contractual compliance of the product cannot be ensured by inspections and tests. Reference shall be made to applicable standards or specifications that govern the process to be controlled. Any requirements that should be addressed by the procedure shall be explicitly identified in NSI 009-09 requirements. The following additional requirement applies for PCPs:
- (1) PCPs shall be written for all non-nuclear surface ship systems and equipment listed in the most current version of CNRMC Instruction 4700.5 Series (Guidance and Policy for Surface Ship Critical Systems and other Work Requiring Process Control Procedures).
- 5. Paragraph 4 of the Work Item shall always be NOTES and shall contain information or explanations that do not lend themselves to inclusion in the REQUIREMENTS. These notes shall not place requirements on the contractor.

# SAMPLE NOTES

- 4.1 This is an LOA item.
- 4.2 Known source for butterfly valves:

Flow-Technology, Inc. 49 Century St. Jacksonville, FL 32211 Telephone (904) 721-1968

6. Paragraph 5 shall be GOVERNMENT FURNISHED MATERIAL (GFM). All GFM listed in paragraph 5 shall be installed by the requirements invoked in paragraph 3. ALWAYS insert invoking paragraph number under the "PARA NO." heading, e.g.:

	TOTAL					
	QUANTITY	NAME	PIECE	REF.	NATIONAL	PARA
	PROVIDED	OF PART	NO.	NO.	STOCK NO.	NO.
5.2.1	One (EA)	Pump		2.		3.??

Major components or equipment with anticipated delivery dates after the commencement of the overhaul shall be noted with estimated delivery dates specified in the Work Items. This includes turnaround items in the Navy Refurbishment Program. Following each line item of GFM, indicate the paragraph number in which the material is required. Material should be made GFM if it is considered likely that the contractor will have difficulty in procuring it from his normal sources in a timely manner. Parts, which are not normally available outside of the Navy Supply System, should be made GFM. If necessary GFM is not available in the Naval Supply System, alternate plans of action will have to be devised.

- a. Categories of GFM listed in paragraph 5 are defined as follows:
  - (1) LLTM: Material whose delivery date exceeds 30 days.
- (2) PUSH: Alteration material provided by a program or program office.
  - (3) KITTED: Alteration material supplied by an outside activity.
- b. For activities utilizing the PMS-400 approved 4720/3 as a reference for ShipAlt/AER, or repair kits, the following GFM example is provided:

# 5.3 KITTED MATERIAL:

	TOTAL					
	QUANTITY	NAME	PIECE	REF.	NATIONAL	PARA
	PROVIDED	OF PART	NO.	NO.	STOCK NO.	NO.
5.3.1	One KT	Kit for		2		3.

- 7. The following types of material should be procured as GFM:
- a. Program material reserved for accomplishment of NAVSEA ShipAlts (Fleet Modernization Material).
- b. Mandatory replacement material stocked by the Navy to support designated ship Class Maintenance Plan.

- c. Material that cannot be procured and received by the contractor during the period from planned award to planned overhaul start.
  - d. Parts peculiar to the Navy.

# C. NUMBERING WORK ITEMS

1. For surface ships utilizing S9040-AC-IDX-010, Expanded Ship Work Breakdown Structure for All Ships & Ship/Combat Systems (ESWBS), the Work Item number shall contain 8 digits. The first 5 digits shall be assigned using the appropriate ESWBS number.

NOTE: In the case of alterations, the 4th and 5th digit shall be as follows:

- 80 for title D ALTS and AERs
- 90 for title K ALTS
- 00 for ORDALTS

The 6th, 7th, and 8th digits shall be for industrial control serialization, from 000 through 999. For example:

- a. A repair Work Item on propulsion boilers for a ship with 2 propulsion shafts shall be numbered 221-1X-XXX, where the first X is a 1 or 2 and the XXX is the industrial control serialization number.
- b. A similar Work Item as (a) above, but accomplished on a D alteration, shall be numbered 221-8X-XXX.
- c. A similar Work Item as (a) and (b) above that is divided into many work oriented items shall be numbered 221-XX-XXX, e.g., the 12th Work Item written on a propulsion boiler D alteration shall be numbered 221-8X-012.
- 2. SI numbers shall be assigned sequentially in the 009-XX series, such as 009-01, 009-09, ... 009-38. Local Standard Item numbers shall also be sequentially numbered, but in series 099-XX followed by the individual RMC designator letter, i.e. 099-XXSE, for a SERMC LSI.

# D. USE OF STANDARD WORK TEMPLATES AND CLASS STANDARD WORK TEMPLATES:

- 1. Whenever an applicable CSWT is available, it shall be used verbatim except as exempted in Paragraph 2 below. In the absence of a CSWT, an applicable SWT shall be used verbatim except as exempted in Paragraph 2 below.
- 2. Deviations from templates shall not be permitted except in the following cases:
- a. Adding or deleting entire REQUIREMENTS paragraphs to suit the authorized work.

- b. Filling in appropriate blanks with data to suit the technical requirements and the authorized work.
- c. When designated as non-deviational and mandatory or mandatory, the template shall be used as specified in Section II.
  - 3. The following procedure should be utilized in choosing a template:
    - a. Review the indices for basic subject matter.
- b. If available, select the item that most closely approximates the subject work requirements.
- c. Review to determine if the subject matter is the same as, or close enough to, the work requirement to allow its use.
- 4. The following procedure shall be used in converting templates to Work Items:
- a. Fill in the heading. File numbers and revision dates of templates shall remain in converted Work Items.
  - b. Fill in the applicable portions of paragraph 1.
  - c. Verify that the appropriate references are available and current.
- d. Review paragraph 3, REQUIREMENTS, and add or delete requirements and fill in the appropriate blanks with data, using standard phraseology of Annex B, to suit the authorized work.
- e. Review paragraph 4, NOTES, and add or delete subparagraphs as appropriate.
- f. Review paragraph 5, GOVERNMENT FURNISHED MATERIAL (GFM), and add or delete GFM to suit the authorized work.
- g. Review paragraph 2, REFERENCES, and add or delete references as required to suit any changes made in the REQUIREMENTS.
- 5. CSWTs shall be written to accomplish class specific repairs and modernization. In the preparation of CSWTs the following guidelines shall be used:
- a. The CSWT shall include work necessary to accomplish approved repairs and/or modernization of the equipment.
- (1) Technical Repair Standards (TRSs) may be used as a reference by identification of the specific section(s) to be used. The Planner shall ensure that the requirements are precise and do not invoke a string of possible additional work based on conditions identified.

- (2) Calibration, repair, or renewal of gages and other instrumentation shall be required. Generally, instruments costing less than 50 Dollars each should be removed and new instruments installed.
- (3) When not an interference, replacement with new insulation for disturbed, damaged, or missing insulation shall be required.
  - (4) Inspection and painting of the foundations shall be required.
- (5) Preservation of the equipment shall be required in accordance with Standard Item 009-32.
- (6) Inspection of the alignment of piping to the equipment flanges shall be required. Accomplishment of alignment by adjustment of the adjacent hanger is considered within the scope of the work. Refitting of pipe or flange and installation of new hangers should be handled as a contract change and treated as growth within scope for departure report and funding purposes. Note that alignment of steam piping frequently involves cold pull-up to align the system while in operation. Refer to the ship's plan for the cold pull-up data.
- b. The CSWT shall require disassembly of the equipment to the extent necessary to replace Planned Maintenance Material (listed in Appendix A of the TRS), and inspect sealing surfaces and pressure boundaries. Note that the TRS usually requires total disassembly of the unit. This may be unnecessary and, in fact, risky if shrink fits are involved and there is no indication of unsatisfactory fit or an obvious requirement to replace one of the parts (worn sleeve, cracked rotor, etc.). Likewise, Class 5 fit studs should not be removed from their setting unless necessary due to damaged threads or incorrect length. Replaced studs shall have an exposed thread length of not less than 2 and not more than 5 threads.
- c. The CSWT shall require a complete inspection of the disassembled unit in accordance with criteria in Appendix C of the TRS.
- d. The CSWT shall require that fasteners less than one inch diameter be replaced with new fasteners. Renewal of damaged and missing fasteners of one inch diameter or larger should be specified or be the subject of a contract change.
- e. The CSWT shall include the operational test of the equipment and shall invoke the applicable portion of the approved test procedure, if one exists. The Ship's Force shall be given responsibility for specific operational test prerequisites as well as for accomplishment of the operational test if within their capability and no contractor interface is involved. Specific test prerequisites that are the contractor's responsibility because of specific work shall be specified in the CSWT.
- f. Hydrostatic tests of pump or turbine casings shall not be specified unless weld repairs have been accomplished.

q. The CSWT shall require visual inspection of the entire pressure boundary and rotating parts, including a liquid penetrant inspection of a specific area (e.g., 200 square inches) and determination of wall thickness of a specific area (e.g., 100 square inches) by ultrasonic inspection. The specific areas should be described as eroded or corroded areas, high stress areas, such as inlet and discharge nozzles and areas in which visual inspection indicates an apparent crack. The TRS may require magnetic particle inspection of ferrous parts.

# E. GENERAL REQUIREMENTS AND CRITERIA

- 1. When attachments are used, the attachments shall be identified, at the top of each page, centered in uppercase letters, by the word ATTACHMENT followed by a letter designation, such as ATTACHMENT A or ATTACHMENT B. Attachments shall never be utilized as a REFERENCE in any Work Item. Rarely will more than 2 or 3 attachments be required for any given Work Item. Each attachment will contain the Work Item number on each page and each page shall be numbered. The total number of pages in the Attachment shall be included in the total number of pages in the Work Item. For example, the footer on the attachment of a 3-page Work Item with a one-page attachment would read Page 4 of 4. In most instances, only one footer will be required.
- 2. Underscoring is limited to the heading, basic paragraph titles, and headings when listing repair parts or GFM as shown in Section VI.
- 3. Subparagraphing is limited to 4 digits (example 3.1.1.1). Each subparagraph is limited to a single thought or work sequence.
- 4. Page numbering shall be sequential in each Work Item and total pages indicated (e.g., 1 of 3, 2 of 3) in the lower center of the page. The item number shall be indicated in the lower right corner of each page.
- 5. File numbers are assigned to templates for SUPSHIP/RMC reference purposes only. These numbers are located in the upper left section of page one. (Section VI refers)
- 6. The revision date of templates shall be indicated in the upper left section of page one. (Section VI refers)
- 7. The first page of LEVEL I Work Items shall be stamped LEVEL I, at the top, in minimum one-half inch letters.
- 8. The numeral "1" shall not be used but always be written as "one" or "One" as applicable. All numbers above one shall be written as a numeral, i.e., 2, 3, 4, etc, except when the number is at the beginning of a sentence. This rule does not apply to references.
- 9. The first page of Critical System Work Items shall be stamped CRITICAL SYSTEM, at the top, in minimum one-half inch letters.
- F. COMMON WORK ITEM ERRORS. There is no substitute for good judgment and forethought on the part of the Work Item author. The task of writing

definitive work requirements is complicated by the fact that no matter how technically correct the Work Item is, if the wording can be misunderstood or causes confusion, the Work Item is not a satisfactory contractual document. Paragraphs 1 through 6 list wording to be avoided in Work Item writing. These paragraphs attempt to highlight some of the mistakes commonly made in wording Work Items.

- 1. Ambiguous requirements. Ambiguities normally occur because of poor sentence structure and result in 2 or more interpretations of what is required. Contractors will invariably choose the least expensive interpretation. An example of an ambiguous requirement is: Install 12 storage bins (2ftx2ft) in the GSM (4-107-2) and dry provision (4-107-1)storerooms. Does this require a total of 12 or 24 bins?
- 2. Non-definitive requirements. Non-definitive requirements occur when accept or reject criteria is not included in the requirements. Some examples are:
  - a. Check bearing temperature and vibration.
  - b. Support new pipe with adequate hangers.
  - c. Prove gaskets and bolting satisfactory.
  - d. Close up as original.

Requirements for inspections and tests shall include definitive accept or reject criteria required for contractor and SUPSHIP/RMC Quality Assurance evaluations.

- 3. Non-definitive phrases. Use of non-definitive phrases results in either non-definitive requirements or cancels the effect of stated requirements. Examples are:
  - a. As applicable
  - b. In accordance with latest requirements
  - c. Or other recognized methods
  - d. As practicable
  - e. As necessary
  - f. Or other suitable method
  - g. Check for proper values
- 4. Catch-all phrases. The tendency is to use catch-all phrases to cover unforeseen conditions or developments and thereby avoid a contract modification. In reality, use of these methods is more costly to the Government than an occasional contract modification because the contractor

will include contingency money in his bid for catch-all phrases. Examples are:

- a. Included, but not limited to
- b. As required
- c. Any and all or Each and every
- d. When and where necessary
- e. Etc.
- 5. Arbitrary statements. Statements that assign arbitrary authority to an activity or individual. Examples are:
  - a. Where directed by the Ship's Force
  - b. To the satisfaction of the SUPSHIP/RMC representative
  - c. In accordance with NAVSEA directives
  - d. As directed by the NAVSSES (NAVSEC) representative
- 6. Arbitrary Authority. The contractor is not required to meet the expectations of:
  - a. The on-scene surveyor
  - b. The Commanding Officer's representative

## G. DO'S AND DON'TS

- DO use clear, simple language, free of terms subject to variation in interpretation.
  - DO define unusual technical terms.
- DO write for the understanding of those who will have to use your product.
- DO give specific and sufficient requirements and directions so that the users will not be in doubt as to what is required.
- DO make each Work Item as detailed as necessary to describe the work to be accomplished.
- DO use "shall" when the provision is mandatory; "may" when expressing a non-mandatory provision; "will" when expressing a simple future tense or to express a declaration of purpose on the part of the Government.
  - DO make positive, concise statements that cannot be misinterpreted.

- DO verify that reference material is available and applicable.
- DO use attachments to improve clarity.
- DO become familiar with available background and reference material before preparing Work Items. It will aid in drafting a good Work Item. Include only those essential references in the Work Item itself.
- DO convey the information as if you did not understand who would do the job or where it would be done. Release a job only with the knowledge that it can be satisfactorily accomplished as you intended with no further communication.
- DO describe in clear, concise, and complete language exactly what you expect the contractor to do. This is what you are willing to pay for and this, and only this, is what you can expect him to deliver.
- DO provide a manday and material pool when frontloading Work Items "as designated by the SUPERVISOR".
- DO use "when directed by the SUPERVISOR" when the start date in a frontload statement is not known.
  - DO use spellcheck on all Work Items.
- DO use the word "Each" rather than use of a plural for (i.e., use "each label plate" vice "label plates", "each surface" vice "surfaces", and "each mating surface" vice "mating surfaces")
  - DON'T use colloquialisms.
- DON'T use non-definitive statements such as "as required" or "as directed".
- use statements that assign arbitrary authority to an activity or DON'T individual.
- use catch-all phrases such as "as necessary", "excessive" or "as DON'T required".
- use extraneous words like "thoroughly clean" or "extreme care is to be taken". Say "clean" (and indicate criterion/criteria).
- use redundancy in an attempt to clarify or emphasize. Make each statement stand by itself.
- put multiple thoughts in a single subparagraph. Keep each subparagraph short, concise and complete, expressing a single thought or requirement.

- use such words as "proper" or "adequate" to signify a degree of acceptance. Include definitive acceptance or rejection criterion/criteria.
- DON'T try to salvage a poor sentence or Work Item by indiscriminately jamming in words. Rewrite.
- DON'T issue a Work Item with unresolved problems; you may be providing misquidance and misdirection.
- use attachments or references to avoid writing requirements into the Work Item.
- impose unrealistic requirements on the contractor. Exercise care in developing Work Items to ensure that requirements are always capable of being performed.
- use symbols as abbreviations or to define dimensions (except when used in drawing titles). For example: % for percent, & for and, " for inch, ' for foot. Spell it out: 30 percent, and, One FT, 2 FT, 24 inches.
- DON'T call it plate in one sentence and plating in other sentences or cable in one sentence and wire in other sentences. Say it the same way throughout the same Work Item. Be consistent.
- DON'T use the numeral 1 alone except in numbering paragraphs and references. Write it out as "One" or "one" as applicable.
- DON'T include anything in the Work Item that is not necessary to describe the desired product.
- use test requirements such as 1-1/2 times the working pressure. Instead say test at 150 PSIG. Give definitive test criterion/criteria.
- DON'T direct the contractor to provide and install required to provide material not specifically listed as GOVERNMENT FURNISHED MATERIAL (GFM).
- direct the contractor to "replace with material in kind" or "replace with material same as existing". The existing material could be the cause of the failure. Specify the material to be used.
- DON'T write open and inspect type Work Items unless directed by the work request.
- DON'T change the intent of the work request by writing more or less than what is called for.
- use "quantity" descriptions in paragraph 3 when called out in DON'T paragraph 1.3.
- list known sources of material/services unless you have verified a quote from the source.

duplicate Standard Item requirements within the Work Items. DON'T

### H. GLOSSARY OF PREFERRED TERMS

1. The following is a list of preferred terminology that should be used.

PREFERRED	NOT	PREFERRED

Accomplish the requirements Accomplish the work ... or Comply

with

Accomplish Conduct ... or Perform (Conduct may be

used for an operational test)

Remove Drain

Remove existing and install Replace ... or Unship new

Disconnect Unbolt

Preserve Paint

Inspect Check

Fabricate Make

Measure Take

Shall be Is to be

(Specify a Quantity) All

Verify Demonstrate ... Prove

Ensure Assure ... or Insure

Listed Identified

#### Identified Found

Through Thru

5,000 dollars 5000 dollars ... or \$5000

1,000 1000 ANNEX A

TO

APPENDIX 4-E

OF

CHAPTER 4 TO

VOLUME VII

JOINT FLEET MAINTENANCE MANUAL (JFMM)

#### 1. INVOKING GUIDE

a. Category I SIs: A determination shall be made as to which of these are applicable to a specific Job Order. The applicable SIs are invoked for a specific Job Order by inclusion in the IFB/RFP Schedule and listed in the index of Work Items which is included in each specification package.

ITEM NO.	TITLE	USAGE/COMMENTS
009-01	General Criteria; accomplish	Invoke for all solicitations.
009-02	Environmental Compliance Reports for Material Usage at Naval Facility; accomplish	Invoke when work is being accomplished at a Naval facility where environmental compliance requirements are not specified locally.
009-03	Toxic and Hazardous Substance control	Invoke for all solicitations.
009-04	Quality Management System; provide	Invoke for all solicitations.
009-06	Maintaining Protection and Cleanliness from Non-Radioactive Operations; accomplish	Invoke for all solicitations.
009-07	Confined Space Entry, Certification, Fire Prevention and Housekeeping; accomplish	Invoke for all solicitations on manned vessels.
009-08	Shipboard Fire Protection; accomplish	Invoke for all solicitations on manned vessels.
009-10	Asbestos-Containing   Material (ACM); control	Invoke for all solicitations.
009-19	Provisioning Technical Documentation (PTD); provide	Invoke when hull, mechanical, electrical/electronic equipment or components are being furnished by the contractor.
009-20	Government Property; control	Invoke for all solicitations.
009-21	Logistics and Technical Data; provide	Invoke when equipment is being installed new or replaces existing equipment or when equipment is being permanently removed from ship.
009-23	<pre>Interference; remove   and install</pre>	Invoke for all solicitations.

ITEM NO.	TITLE	USAGE/COMMENTS
009-24	Authorization, Control, Isolation, Blanking,   Tagging, and Cleanliness; accomplish	Invoke for all solicitations.
009-29	Asbestos-Free Pipe Hanger Liner Material; install	Invoke for installation of asbestos-free pipe hanger liner material.
009-34	Fire Protection of Unmanned Vessel at Contractor Facility; accomplish	Invoke when work is being accomplished on unmanned vessels at Contractor's facility.
009-39	Technical Manual Contract Requirement (TMCR) for a New Technical Manual for Commercial Equipment/Component; accomplish	Invoke for all solicitations.
009-40	Requirements for Contractor Cranes, Multi-Purpose Machine and Material Handling Equipment at <b>a</b> Naval Facility; <b>provide</b>	Invoke when work is being accomplished at a Naval facility.
009-60	Schedule and Associated Reports for Availabilities Over 9 Weeks in Duration; provide and manage	Invoke for availabilities over 9 weeks in duration.
009-61	Shipboard Use of Fluorocarbons; control	Invoke for all solicitations.
009-65	Polychlorinated Biphenyls (PCBs); control	Invoke for all solicitations.
009-67	<pre>Integrated Total Ship Testing; manage</pre>	Invoke for all CNO availabilities.
009-69	Heavy Weather/Mooring Plan; provide	Invoke for all solicitations.

ITEM NO.	TITLE	USAGE/COMMENTS
009-70	Confined Space Entry, Certification, Fire Protection, Fire Prevention and Housekeeping for Unmanned Vessel; accomplish	Invoke when work is being accomplished on unmanned vessels.
009-72	Physical Security at <b>a</b> Private Contractor   Facility; accomplish	Invoke when work is being accomplished at contractor's facility.
009-73	Shipboard Electrical/ Electronic Cable Procedure; accomplish	Invoke for all solicitations requiring electrical work.
009-74	Occupational, Safety and Health <b>Plan</b> ; accomplish	Invoke for all solicitations.
009-79	Government Owned Material (GOM) Status; report	Invoke for all solicitations.
009-80	Ship Facilities; maintain	Invoke for availabilities when ship's crew remains onboard.
009-81	Compartment Closeout; accomplish	Invoke for CNO scheduled availabilities and non-CNO scheduled availabilities greater than or equal to 9 weeks in length, when a formal compartment closeout schedule is not otherwise implemented.
009-82	<pre>Installation of Equal   Component Vice Specified Component; report</pre>	Invoke for all solicitations.
009-89	Contractor Furnished Anode (Purchase and Inspection); accomplish	Invoke when inspecting/installing new anodes.
009-93	Emergency Planning and Community Right-to-Know Act (EPCRA) and Pollution Prevention Act (PPA) Information; provide	Invoke when work is being accomplished where EPCRA/PPA reporting requirements are not specified locally.

ITEM NO.	TITLE	USAGE/COMMENTS
009-94	General Environmental Work at Contractor   Facility; accomplish	Invoke when work is being accomplished at the contractor's facility.
009-97	Shipbuilding and Ship Repair Operations National Emission Standard for Hazardous Air Pollutants (NESHAPS) for Surface Coatings Information; provide	Invoke for all solicitations.
009-99	Ship Departure Report; provide	Invoke for all solicitations.
009-100	Ship's Stability;   maintain	Invoke for all solicitations for CG-47 and DDG-51 Class ships.
009-101	Ship Transit and Berthing; accomplish	Invoke when work is being accomplished at the contractor's facility (for ships over 100 feet in length).
009-102	Alteration Verification; provide	Invoke for all solicitations that contain ship modernization Work Items.
009-103	Weight and Moment Change Data; provide	Invoke when work being accomplished will result in weight and moment changes.
009-106	Work Authorization Form Coordinator (WAFCOR); provide	Invoke for all solicitations.
009-108	Aircraft Carrier Transit and Berthing; accomplish	Invoke for aircraft carriers when work is being accomplished at the contractor's facility.
009-109	Non-SUBSAFE Work on   SUBSAFE-Certified Vessel; accomplish	Invoke for all SUBSAFE certified vessels.
009-110	Non-Nuclear Work on <b>a</b>   Nuclear Vessel; accomplish	Invoke for all work on nuclear vessels.
009-111	Schedule and Associated Reports for Availabilities 9 Weeks or Less in Duration; provide and manage	Invoke for availabilities 9 weeks or less in duration.

ITEM NO.	TITLE	USAGE/COMMENTS		
009-117	Combat Systems Light- Off; support	Invoke for solicitations requiring a Combat Systems Light-Off.		
009-118	CG Deck Loading; accomplish	Invoke for all solicitations for CG-47 Class ships.		
009-120	Fact Finding and Critique of Unplanned Event; manage	Invoke for all solicitations.		
009-122	Temporary Padeye; install and remove	Invoke for all solicitations.		

ANNEX B

TO

APPENDIX 4-E

OF

CHAPTER 4 TO

VOLUME VII

JOINT FLEET MAINTENANCE MANUAL (JFMM)

#### ANNEX B

#### NAVSEA STANDARD PHRASEOLOGY

- 1. Discussion. The standard phraseology herein is promulgated as NAVSEA Standard Phraseology. Each user activity shall utilize this standard phraseology to ensure reliable and consistent reproduction of the wording contained herein. An efficient way to ensure this goal is to store new phraseology in a permanent memory form such as on computer systems media or other means. When a phrase is required it will be reproduced from the stored memory. This reproduction will ultimately save considerable labor in the production process and will immediately improve accuracy and reduce the need for extensive proofreading of Work Items.
- 2. Changes. Additions, deletions, or modifications to this standard phraseology shall be made by submitting the recommended change to the SSRAC for consideration at the annual meeting. The following basic guidelines shall be applied when evaluating new proposed phrases.
- A. Phrases shall be applicable for all user activities and, therefore, should not be limited to a particular class of ship. However, when phrases do apply to a particular class of ship, it should be noted (e.g., F15b).
- B. Phrases should be limited to a minimum number of sentences. Phrases containing numerous sentences will be referred for consideration as a template.
- C. The sentence structure shall be grammatically applicable for singular and plural situations. To achieve this, the word "each" should be utilized in lieu of having to pluralize words within the phrase every time repairing, replacing, removing, installing, testing, etc., of more than one unit needs to be addressed.
- D. Each phrase shall express a complete thought, in clear, concise language which is contractually sound as required by Appendix 4-E, Section VII, paragraph B-4(f). Conciseness is a key area of concern.
- E. Sentence structure of phrases shall be verb, noun format as required by Appendix 4-E, Section VII, paragraph B-4(e).
- F. Each phrase shall identify compliance requirements as required by Appendix 4-E, Section VII, paragraph B-4(e).
- G. Ambiguous wording shall not be used as indicated in Appendix 4-E, Section VII, paragraph B-4(f).
- H. Do not refer to the word "paragraph" when referring to another part of the Work Item (except for Attachments). For example:
  - "3. Remove the equipment listed in 1.3."

I. All references to NAVSEA or NAVSUP drawings or technical manuals should start with the drawing or technical manual number and omit the word NAVSEA or NAVSUP. The above will facilitate the recall of a numerical listing of references by drawing/technical manual number. For example:

S9086-VG-STM-010/CH-634, Deck Coverings

- J. Minimize the number of blanks contained within phrases which must be filled in by the planner/surveyor.
- 3. Organization. The standard phraseology presented below is organized into 7 sections and, with the exception of Section C, each phrase within each section is assigned a unique identification number. The 7 sections are identified by the letter designation of the section, followed by a unique number. The 7 sections are as follows:
  - A. Standard phraseology for invoking Category II Standard Items, for use in various disciplines. Use of this section is mandatory.
  - B. Standard phrases for general use in various disciplines.
  - C. Not used (incorporated in Appendix 4-E).
  - D. Standard phrases for use in structural disciplines.
  - E. Standard phrases for use in mechanical disciplines.
  - F. Standard phrases for use in electronic and electrical disciplines.
  - G. Standard phrases for use in the piping disciplines.
- 4. Instructions. Guidance instructions are also provided where appropriate. The guidance instructions and notes are listed first, then the phrase and the phrase number. If any guidance instructions or notes are applicable to the blanks, these will appear before the phrase. Standard phrases, which cannot stand alone or phrases where optional uses are permitted will generally contain a note. The phrases herein, which include the words "using 2. for quidance." shall be deleted when quidance is not available. The words "in accordance with 2. " shall be substituted when 2. requirements are mandatory.

#### STANDARD PHRASEOLOGY

#### SECTION A

1. This section of standard phraseology contains the approved standard phrases to be used when invoking Category II Standard Items. The Standard Item number and title are provided at the top of each phrase or group of phrases associated with the Standard Item list.

SI

009-05 TEMPORARY ACCESSE; ACCOMPLISH

Note: USE 009-12 PHRASEOLOGY IF WELDING, FABRICATION,

OR INSPECTION FOR INSTALLATION OF A TEMPORARY ACCESS

IS REQUIRED FOR THIS WORK ITEM.

<u>USE 009-25 PHRASEOLOGY IF A STRUCTURAL BOUNDARY TEST</u>

(e.g., COFFERDAM, VACCUM BOX, AIR HOSE, WATER HOSE)

IS REQUIRED FOR THIS WORKITEM.

Accomplish the requirements of 009-05 of 2.1 for .

A5a

Accomplish the requirements of 009-05 of 2.1.

A5b

009-09 PROCESS CONTROL PROCEDURE (PCP); PROVIDE AND ACCOMPLISH

Accomplish the requirements of 009-09 of 2.1 for .

Α9

009-11 INSULATION AND LAGGING; ACCOMPLISH

NOTE: NOT TO BE USED FOR INTERFERENCE REPLACEMENTS COVERED BY

009-23. USE A-11a TO INSTALL NEW PIPING, MACHINERY, AND

HULL INSULATION AND LAGGING.

CONSIDERATION SHALL BE GIVEN TO HIGH TRAFFIC AREAS AS

DEFINED IN 3.16 OF MIL-STD-769.

USE 009-12 PHRASEOLOGY IF WELDING, FABRICATION, OR INSPECTION FOR INSTALLATION OF NEW FASTENERS IS REQUIRED

FOR THIS WORK ITEM

## USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR INSTALLATION OF NEW INSULATION, LAGGING, AND REUSABLE COVERS ARE REQUIRED FOR THIS WORK ITEM.

Accomplish	the requir	ements of 009-11 of 2.1 for
Alla		
Accomplish	the requir	ements of 009-11 of 2.1.
A11b		
009-12	WELD, FABR	ICATE, AND INSPECT; ACCOMPLISH
	NOTE:	A12b SHALL BE A SUBPARAGRAPH OF A12a IF MORE THAN A VISUAL INSPECTION IS REQUIRED.
		USE 009-09 PHRASEOLOGY IF A PROCESS CONTROL PROCEDURE (PCP) FOR SPECIFIC WELDING, BRAZING, AND INSPECTION OPERATIONS IS REQUIRERED FOR THIS WORK ITEM.
-	-	ements of 009-12 of 2.1, including Table, One through
A12a		
	NOTE:	A12b SHALL BE USED ONLY AS A SUBPARAGRAPH TO A12a.  THIS PHRASE CANNOT BE USED TO SPECIFY NDT REQUIREMENTS  NOT ASSOCIATED WITH WELDING OR BRAZING. SEE B25 AND  B26.
Accomplish	nondestruc	tive testing in accordance with Line
A12b		
		ements of 009-12 of 2.1, including Table, One through, for
A12c		

009-13	METER; REPAIR		
	NOTE: USE B50 AS A SUBPARAGRAPH TO A13a.		
	the requirements of 009-13 of 2.1 for each listed in, for guidance.		
A13a			
Calibrate a	and adjust each new meter in accordance with 009-13 of 2.1.		
A13b			
009-14	GAGE, SWITCH AND THERMOMETER; REPAIR		
	NOTE: USE B50 AS A SUBPARAGRAPH TO A14a.		
Accomplish	the requirements of 009-14 of 2.1 for each		
A14a			
Calibrate a with 009-14	and adjust each new gage, switch and/or thermometer in accordance of 2.1.		
A14b			
009-15	ROTATING MACHINERY; BALANCE		
Accomplish	the requirements of 009-15 of 2.1 for each rotating assembly.		
A15			
009-16	ELECTRONIC EQUIPMENT; REPAIR		
	NOTE: INSERT EQUIPMENT TECHNICAL MANUAL IN REFERENCES.		
	USE B50 AS A SUBPARAGRAPH TO A16.		
	the requirements of 009-16 of 2.1 for the listed in, for guidance.		
A16			

009-17 ROTATING ELECTRICAL EQUIPMENT; REPAIR INSERT EQUIPMENT TECHNICAL MANUAL IN REFERENCES. NOTE: USE 009-15 PHRASEOLOGY IF BALANCING OF THE ROTATING ASSEMBLY FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM. USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM. USE 009-58 PHRASEOLOGY IF SHAFT ALIGNMENT FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM. Accomplish the requirements of 009-17 of 2.1 for the equipment listed in 1.3. , using 2. for guidance. A17 009-18 MAGNETIC MATERIAL; CONTROL NOTE: INVOKE FOR ALL MINESWEEPING AND CRAFT. Accomplish the requirements of 009-18 of 2.1 for . A18a Accomplish the requirements of 2.1. A18b 009-25 STRUCTURAL BOUNDARY TEST; ACCOMPLISH Accomplish the requirements of 009-25 of 2.1 for a running air test of  $\cdot$ . Allowable leakage: None. A25a NOTE: USE A25b FOR TANKS, VOIDS, AND COFFERDAMS. THE ALLOWABLE DROP OUNCES PER SQUARE INCH FOR WIRING TRUNK AND OTHER SPACES ARE 5 AND 2 RESPECTIVELY. Accomplish the requirements of 009-25 of 2.1 for a completion air test of . Test pressure shall be PSIG. Maintain test pressure for 15

minutes for temperature stabilization prior to start of test. Hold test pressure for 10 minutes. Allowable drop in pressure: None.		
A25b		
	NOTE:	SALT WATER SHALL BE SPECIFIED FOR USE ON WOOD.
		ements of 009-25 of 2.1 for <b>a</b> hose test leakage: None.
A25c		
		ements of 009-25 of 2.1 for <b>a</b> vacuum box test   leakage: None.
A25d		
		ements of 009-25 of 2.1 for an air hose, water hose, or Allowable leakage: None.
A25e		
		ements of 009-25 of 2.1 for a chalk test of each paired in
A25f		
009-26	DECK COVER	ING; ACCOMPLISH
	NOTE:	IDENTIFY CORRECT ATTACHMENT ACCORDING TO TYPE OF DECK COVERING INVOLVED.
		USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR DECK COVERING IS REQUIRED FOR THIS WORK ITEM.
Accomplish	the requir	ements of 009-26 of 2.1, including Attachment
A26a		
		ements of 009-26 of 2.1, including Attachment, for , in each location listed in

A26b

Accomplish	the require	ments of 009-26 of 2.1 for
A26c		
009-27	MATERIAL ID ACCOMPLISH	ENTIFICATION AND CONTROL (MIC) FOR LEVEL I SYSTEM;
	NOTE:	USE 009-09 PHRASEOLOGY IF A PROCESS CONTROL
		PROCEDURE (PCP) FOR LEVEL I WORK IS REQUIRED FOR THIS WORK ITEM.
Accomplish	the require	ments of 009-27 of 2.1.
A27		
009-30	BOILER SAMP	LE TUBE; INSPECT
Accomplish	the require	ments of 009-30 of 2.1.
A30		
009-31	BOILER WATE	RJET CLEANING; ACCOMPLISH
Accomplish	the require	ments of 009-31 of 2.1.
A31		
009-32	CLEANING AN	D PAINTING REQUIREMENTS; ACCOMPLISH
		USE A32a WHEN MAIN ITEM IS PRESERVATION AND THE TABLES IN 009-32 PROVIDE A CHOICE. USE A32b FOR OTHER PRIMARY PRESERVATION WORK AND TOUCH-UP. SPECIFY DEGREE OF PRESERVATION, i.e., FOUNDATION, NEW AND DISTURBED SURFACES.
	•	USE 009-26 PHRASEOLOGY IF A SLIP RESISTANT DECK COVERING IS REQUIRED FOR THIS WORK ITEM.
	the require _, for	ments of 009-32 of 2.1, including Table,
A32a		

Accomplish	the require	ements of 009-32 of 2.1 for
A32b		
		ements of 009-32 of 2.1, including Table,, for
A32c		
Accomplish	the require	ements of 009-32 of 2.1 for new and disturbed surfaces.
A32d		
009-33	ROTATING EI	LECTRICAL EQUIPMENT; REWIND
	NOTE:	INSERT EQUIPMENT TECHNICAL MANUAL IN REFERENCES.
		USE 009-15 PHRASEOLOGY IF BALANCING OF THE ROTATING ASSEMBLY FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM.  USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM.  USE 009-58 PHRASEOLOGY IF SHAFT ALIGNMENT FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM.  USE 009-113 PHRASEOLOGY IF WORK ON WINDINGS FOR A SEALED INSULATION SYSTEM (SIS) IS REQUIRED FOR THIS WORK ITEM.
	the require _ for guidar	ements of 009-33 of 2.1 for equipment listed in 1.3, nce.
A33		
009-36	CONTROLLER;	REPAIR
	NOTE:	INSERT EQUIPMENT TECHNICAL MANUAL IN REFERENCES.

USE B50 AS A SUBPARAGRAPH TO A36.

# USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR A CONTROLLER IS REQUIRED FOR THIS WORK ITEM.

		ements of 009-36 of 2.1 for each controller listed for guidance.
A36		
009-37	GENERAL PR	OCEDURE FOR WOODWORK; ACCOMPLISH
	NOTE:	INVOKE IN WORK ITEMS REQUIRING WOOD REPAIRS/NEW INSTALLATIONS.
		USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR BULKHEAD SHEATHING SANDED SURFACES IS REQUIRED FOR THIS WORK ITEM.
	the requir	rements of 009-37 of 2.1 for
A37a		
	NOTE:	A37b SHALL BE USED ONLY AS A SUBPARAGRAPH TO A37a.  INVOKE A37b WHEN ACCOMPLISHING REPAIRS/NEW  INSTALLATIONS OF DECK PLANK CAULKING SEAMS.
Ensure cau	lking compo	ound for each deck plank seam is
A37b		
009-38	BOILER , C	ATAPULT ACCUMULATOR, AND REBOILER DRY LAY-UP; ACCOMPLISH
Accomplish	the requir	ements of 009-38 of 2.1 for
A38		
009-41	TECHNICAL MANUAL CONTRACT REQUIREMENT (TMCR) FOR A TOPICALLY STRUCTURED TECHNICAL MANUAL; <b>ACCOMPLISH</b>	
	NOTE:	USE FOR NEW MILITARY TECHNICAL MANUALS FOR NON-COMPLEX EQUIPMENT BEING PROCURED TO MILITARY SPECIFICATIONS.
Accomplish	the requir	rements of 009-41 of 2.1.
A41		

009-42		MANUAL CONTRACT REQUIREMENT (TMCR) FOR UPDATING MANUAL; <b>ACCOMPLISH</b>
	NOTE:	USE FOR UPDATING EXISTING NAVSEA TECHNICAL MANUALS (INCLUDING SHIP'S SELECTED RECORD DATA) TO REFLECT CHANGES IN HARDWARE CONFIGURATION.
Accomplish	the requir	ements of 009-42 of 2.1.
A42		
	ENGINEERING PLANT PRODUCTION COMPLETION DATE (PCD), LIGHT-OFF ASSESSMENT (LOA) SUPPORT; PROVIDE	
Accomplish	the require	ements of 009-43 of 2.1.
A43		
	NOTE:	FOR STANDARD ITEMS 009-45, 009-46, 009-47, 009-48, 009-50, 009-51, 009-52, 009-53, 009-55, AND 009-96, VALVE REMOVAL AND REINSTALLATION SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.
009-45	TAPERED PL	UG VALVE; REPAIR
	<u>NOTE</u> :	A45b AND A45c SHALL BE SUBPARAGRAPHS TO A45a.
		FOR SHOP REPAIR AND TEST.
		TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.
_	_	ements of 009-45 of 2.1 for each plug valve listed for guidance.
A45a		
<b>Ensure</b> the	seat tight:	ness test pressure is PSIG.
A45b		
<b>Ensure</b> the	test medium	m is

009-46	BUTTERFLY	VALVE, SYNTHETIC AND METAL SEATED; REPAIR
	NOTE:	A46b AND A46c SHALL BE SUBPARAGRAPHS TO A46a.
		FOR SHOP REPAIR AND TEST.
		TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.
		ements of 009-46 of 2.1 for each butterfly valve listed for guidance.
A46a		
<b>Ensure</b> the	seat tight	ness test pressure is PSIG.
A46b		
<b>Ensure</b> the	test mediu	m is
A46c		
009-47	GATE VALVE	; REPAIR
009-47		; REPAIR  A47b AND A47c SHALL BE SUBPARAGRAPHS TO A47a.
009-47		
009-47		A47b AND A47c SHALL BE SUBPARAGRAPHS TO A47a.
Accomplish	NOTE: the requir	A47b AND A47c SHALL BE SUBPARAGRAPHS TO A47a.  FOR SHOP REPAIR AND TEST.  TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM. SHALL NOT BE
Accomplish	NOTE: the requir	A47b AND A47c SHALL BE SUBPARAGRAPHS TO A47a.  FOR SHOP REPAIR AND TEST.  TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM. SHALL NOT BE USED FOR HIGH PRESSURE STEAM VALVES.  ements of 009-47 of 2.1 for each gate valve listed
Accomplish in, t	NOTE: the requirusing 2	A47b AND A47c SHALL BE SUBPARAGRAPHS TO A47a.  FOR SHOP REPAIR AND TEST.  TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM. SHALL NOT BE USED FOR HIGH PRESSURE STEAM VALVES.  ements of 009-47 of 2.1 for each gate valve listed
Accomplish in, t	NOTE: the requirusing 2	A47b AND A47c SHALL BE SUBPARAGRAPHS TO A47a.  FOR SHOP REPAIR AND TEST.  TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM. SHALL NOT BE USED FOR HIGH PRESSURE STEAM VALVES.  ements of 009-47 of 2.1 for each gate valve listed for guidance.

009-48	PRESSURE S	EAL BONNET VALVE <b>SHOP</b> REPAIR; <b>ACCOMPLISH</b>
	NOTE:	A48b AND A48c SHALL BE SUBPARAGRAPHS TO A48a.
		FOR SHOP REPAIR AND TEST.
		TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.
		ements of 009-48 of 2.1 for each pressure seal bonnet, using 2 for guidance.
A48a		
<b>Ensure</b> the	seat tight	ness test pressure is PSIG.
A48b		
<b>Ensure</b> the	test mediu	m is
A48c		
009-49	PRESSURE S	EAL BONNET VALVE IN-LINE REPAIR; ACCOMPLISH
	NOTE:	FOR IN-LINE REPAIR.
		OPERATIONAL TEST OF THE VALVE SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.
		ements of 009-49 of 2.1 for each in-line pressure seal n, using 2 for guidance.
A49		
009-50	HORIZONTAL	SWING CHECK VALVE; REPAIR
	<u>NOTE</u> :	A50b SHALL BE A SUBPARAGRAPH TO A50a.
		FOR SHOP REPAIR AND TEST.
		TEST MEDIUM FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.

## SHALL NOT BE USED FOR SCUPPER VALVES.

Accomplish the requirements of 009-50 of 2.1 for each check valve listed in, using 2 for guidance.		
A50a		
<b>Ensure</b> the	e test medi	um is
A50b		
009-51	GLOBE, GL	OBE ANGLE, AND GLOBE STOP CHECK VALVE; REPAIR
	NOTE:	A51b AND A51c SHALL BE SUBPARAGRAPHS TO A51a.
		FOR SHOP REPAIR AND TEST.
		TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.
		SHALL NOT BE USED FOR HIGH PRESSURE STEAM VALVES.
		rements of 009-51 of 2.1 for each globe valve listed for guidance.
A51a		
<b>Ensure</b> the	e seat tigh	tness test pressure is PSIG.
A51b		
<b>Ensure</b> the	e test medi	um is
A51c		
009-52	RELIEF VA	LVE; REPAIR
	NOTE:	A52b-A52d SHALL BE SUBPARAGRAPHS TO A52a.
		FOR SHOP REPAIR AND TEST.
		TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS AND VALVE LIFTING SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.

## SHALL NOT BE USED FOR BOILER SAFETY VALVES OR BALANCED DESIGN RELIEF VALVES.

		ements of 009-52 of 2.1 for each relief valve listed for guidance.
A52a		
<b>Ensure</b> the	test medium	n is
A52b		
<b>Ensure</b> the	seat tight	ness test pressure is PSIG.
A52c		
<b>Ensure</b> the	lifting pre	essure is PSIG.
A52d		
009-53	BOLTED BONI	NET STEAM VALVE <b>SHOP REPAIR; ACCOMPLISH</b>
	NOTE:	A53b AND A53c SHALL BE SUBPARAGRAPHS TO A53a.
		FOR SHOP REPAIR AND TEST.
		TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.
		ements of 009-53 of 2.1 for each bolted bonnet steam, using 2 for guidance.
A53a		
<b>Ensure</b> the	seat tight	ness test pressure is PSIG.
A53b		
<b>Ensure</b> the	test medium	n is
A53c		
009-54	BOLTED BONI	NET STEAM VALVE <b>IN-LINE</b> REPAIR; <b>ACCOMPLISH</b>

OPERATIONAL TEST OF THE VALVE, INCLUDING BYPASS VALVE, SHALL BE SPECIFIED IN WORK ITEM. Accomplish the requirements of 009-54 of 2.1 for each in-line bolted bonnet steam valve listed in , using 2. for guidance. A54 009-55 REGULATING/REDUCING VALVE; REPAIR NOTE: A55b-A55c SHALL BE SUBPARAGRAPHS TO A55a. FOR SHOP REPAIR AND TEST. TEST MEDIUM AND TEST PRESSURE FOR VALVE INLET AND REGULATED PRESSURE/TEMPERATURE SHALL BE SPECIFIED IN THE INVOKING WORK ITEM. A55a-A55c SHALL BE USED FOR PRESSURE REGULATORS/REDUCERS ONLY. Accomplish the requirements of 009-55 of 2.1 for each pressure regulating/reducing valve listed in \_\_\_\_\_, using 2.\_\_ for guidance. A55a **Ensure** the inlet/regulating or reducing pressure is PSIG to PSIG. A55b **Ensure** the test medium is . A55c NOTE: A55e-A55f SHALL BE SUBPARAGRAPHS TO A55d. A55d-A55f SHALL BE USED FOR TEMPERATURE REGULATORS ONLY. Accomplish the requirements of 009-55 of 2.1 for each temperature regulating/reducing valve listed in \_\_\_\_\_, using 2.\_\_ for guidance.

NOTE:

FOR IN-LINE REPAIR.

<b>Ensure</b> the	regulated temperature is degrees Fahrenheit.
A55f	
The test me	edium is
A55f	
009-56	MAIN PROPULSION BOILER WET LAY-UP; ACCOMPLISH
Accomplish	the requirements of 009-56 of 2.1 for
A56	
009-57	REDUCTION GEAR SECURITY; ACCOMPLISH
	NOTE: A57 TO BE INVOKED AS 3.1 IN WORK ITEMS WHERE REDUCTION GEAR SECURITY IS AFFECTED.
	USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR NEW AND DISTURBED SURFACES IS REQUIRED FOR THIS WORK ITEM.
Accomplish	the requirements of 009-57 of 2.1.
A57	
009-58	PUMP AND DRIVER SHAFT ALIGNMENT; ACCOMPLISH
	NOTE:  A58 TO BE INVOKED ANY TIME THE ROTOR OF A PUMP OR DRIVER (MOTOR/TURBINE) IS DISTURBED FOR REPAIR OR REPLACEMENT.
Accomplish	DRIVER (MOTOR/TURBINE) IS DISTURBED FOR REPAIR OR
Accomplish	DRIVER (MOTOR/TURBINE) IS DISTURBED FOR REPAIR OR REPLACEMENT.
	DRIVER (MOTOR/TURBINE) IS DISTURBED FOR REPAIR OR REPLACEMENT.
A58	DRIVER (MOTOR/TURBINE) IS DISTURBED FOR REPAIR OR REPLACEMENT.  the requirements of 009-58 of 2.1 for

## A59a

## Accomplish the requirements of 009-59 of 2.1.

A591	
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009-62 BOILER HANDHOLE AND MANHOLE SEAT AND PLATE; INSPECT
Accomplish the requirements of 009-62 of 2.1 for
A62
009-63 LUBRICATING OIL AND HYDRAULIC FLUID; ANALYZE
NOTE: A63b SHALL BE A SUBPARAGRAPH TO A63a.
SPECIFY QUANTITY AND TYPE OF SAMPLE.
Accomplish the requirements of 009-63 of 2.1.
A63a
Test and analyze samples.
A63b
NOTE: A63c WILL BE A SUBPARAGRAPH TO A63a-A63b, AS APPLICABLE.
SPECIFY THE LOCATION FROM WHICH SAMPLES OF LUBRICATING OR HYDRAULIC FLUIDS ARE TO BE TAKEN.
Obtain a sample from in accordance with ASTM D 4057.
A63c
009-64 SYNTHETIC FIRE-RESISTANT HYDRAULIC FLUID; CONTROL
NOTE: INVOKE FOR WHEN WORKING WITH MIL-H-19457 AND SYNTHETIC
FIRE-RESISTANT HYDRAULIC FLUID IS USED.
Accomplish the requirements of 009-64 of 2.1 for

## Accomplish the requirements of 009-64 of 2.1.

A	6	4	r

009-68	BOLTED BON	NET VALVE; REPAIR
	NOTE:	FOR IN-LINE REPAIR.
		OPERATIONAL TEST OF THE VALVE SHALL BE SPECIFIED IN THE INVOKING WORK ITEM.
-	-	ements of 009-68 of 2.1 for each in-line bolted bonnet, using 2 for guidance.
A68		
009-71	PIPING SYS	TEM; <b>TEST</b>
	NOTE:	INVOKE A71a FOR NON-PRESSURIZED SYSTEMS ONLY.
Accomplish	the requir	ements of 009-71 of 2.1 for new and disturbed piping.
A71a		
	NOTE:	A71b-A71e ARE FOR USE WHERE THE OPERATING PRESSURE TEST IS ALLOWED BY NSTM CH-505. TEST PRESSURE AND TEST MEDIUM SHALL BE LISTED.
Accomplish system.	the requir	ements of 009-71 of 2.1 for new and disturbed piping
A71b		
Ensure hydr	costatic te	st pressure is PSIG, usingin accordance with
A71c		
	NOTE:	A71d-A71e ARE FOR USE IN FEEDWATER AND ELECTRONIC COOLING WATER PIPING SYSTEMS WHERE CONDUCTIVITY LEVELS REQUIRE MONITORING.

Accomplish system.	the requir	ements of 009-71 of 2.1 for new and disturbed piping
A71d		
	<u>NOTE</u> :	FOR REFERENCE USE S9086-GX-STM-020/CH-220, BOILER WATER/FEEDWATER TEST AND TREATMENT.
		st pressure <b>is</b> PSIG, using feedwater conforming to or 220-22.20, and 220-22.21 and 220-22.22 of 2
A71e		
	NOTE:	A71h-A71j ARE FOR USE WHERE THE HYDROSTATIC TEST IS REQUIRED BY NSTM CH-505. TEST MEDIUM AND SYSTEM IDENTIFICATION SHALL BE LISTED.
_	=	ements of 009-71 of 2.1 for hydrostatic test, using PSIG, for new and disturbed piping systems.
A71h		
_	=	ements of 009-71 of 2.1 for hydrostatic test, using G, for new and disturbed piping systems.
A71i		
	<u>NOTE</u> :	FOR REFERENCE USE S9086-GX-STM-020/CH-220, BOILER WATER/FEEDWATER TEST AND TREATMENT.
	shall confo	rm to Paragraphs 220-22.18 or 220-22.20, and 220-22.21
A71j		
	NOTE:	USE A711 FOR AIR TEST OF PIPING SYSTEMS WHERE WATER WOULD BE DETRIMENTAL.
-	-	ements of 009-71 of 2.1 for new and disturbed clean, dry air or nitrogen at PSIG.

NOTE: FOR USE WITH VCHT SYSTEMS (PORTIONS UNDER VACUUM).

A711

Accomplish the requirements of 009-71 of 2.1 for a visual tightness test of
the Vacuum, Collection, Holding and Transfer (VCHT) Sewage System to at least
24 inches of Hg (vacuum) for at least 10 minutes, with less than 10 percent
drop.

A71m NOTE: FOR STRENGTH, POROSITY AND MECHANICAL JOINT TIGHTNESS TESTS OF HYDRAULIC AND LUBRICATING OIL SYSTEMS. Accomplish the requirements of 009-71 of 2.1 for \_\_\_\_\_ test, using system fluid at \_\_\_\_ PSIG, for new and disturbed \_\_\_\_ piping systems. A71n 009-75 CIRCUIT BREAKER; REPAIR NOTE: INSERT EQUIPMENT TECHNICAL MANUAL IN REFERENCES. USE B50 AS A SUBPARAGRAPH TO A75. Accomplish the requirements of 009-75 of 2.1 for \_\_\_\_\_, using 2.\_\_ for guidance. A75 009-76 WAVEGUIDE AND RIDGID COAXIAL LAY-UP; ACCOMPLISH Accomplish the requirements of 009-76 of 2.1 for \_\_\_\_\_. A76 009-77 COFFERDAM INSTALLATION; ACCOMPLISH NOTE: A PROCESS CONTROL PROCEDURE (PCP) IS REQUIRED FOR COFFERDAM INSTALLATION; 009-09 PHRASEOLOGY SHALL BE INCLUDED FOR THIS WORK ITEM. Accomplish the requirements of 009-77 of 2.1 for \_\_\_\_. A77a Accomplish the requirements of 009-77 of 2.1. A77b

009-78 PASSIVE COUNTERMEASURES SYSTEM (PCMS) MATERIAL; REPAIR NOTE: USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR NEW AND DISTURBED SURFACES IS REQUIRED FOR THIS WORK ITEM. Accomplish the requirements of 009-78 of 2.1. A78 009-83 WIRE ROPE ASSEMBLY; FABRICATE INVOKE FOR AVAILABILITIES WHEN WIRE ROPE RIGGING IS NOTE: REPAIRED/ALTERED. Accomplish the requirements of 009-83 of 2.1 for . A83a Accomplish the requirements of 009-83 of 2.1. A83b 009-84 THREADED FASTENER REQUIREMENTS; ACCOMPLISH Accomplish the requirements of 009-84 of 2.1 for . A84a Accomplish the requirements of 009-84 of 2.1. A84b 009-85 GOVERNMENT SPONSORED PLANNING YARD/CONFIGURATION DATA MANAGER (CDM) ON-SITE REPRESENTATIVE FACILITY; PROVIDE Accomplish the requirements of 009-85 of 2.1. A85

009-86	RECOVERY AND TURN-IN OF OZONE DEPLETING SUBSTANCE (ODS); ACCOMPLISH			
	NOTE:	INVOKE WHEN WORKING ON FLUOROCARBON OR HALON-CONTAINING SYSTEM.		
Accomplish	the requir	rements of 009-86 of 2.1 for		
A86a				
Accomplish	the requirements of 009-86 of 2.1.			
A86b				
009-87	CHEMICAL D	DISINFECTION PROCEDURE; ACCOMPLISH		
	<u>NOTE</u> :	INVOKE WHEN WORKING ON POTABLE WATER SYSTEMS.		
Accomplish	the requir	rements of 009-87 of 2.1 for		
A87a				
Accomplish	the requir	rements of 009-87 of 2.1.		
A87b				
009-88	COLLECTION, HOLDING AND TRANSFER (CHT) AND MOTOR GASOLINE (MOGAS) TANKS, SPACES, AND PIPING, INCLUDING SEWAGE OR (MOGAS) - CONTAMINATED TANKS, SPACES, AND PIPING; CERTIFY			
	<u>NOTE</u> :	A PROCESS CONTROL PROCEDURE (PCP) IS REQUIRERED TO SUPPORT A STEP BY STEP PROCEDURE OF HOW THE CERTIFICATION PROCESS WILL BE ACCOMPLISHED; 009-09 PHRASEOLOGY SHALL BE INCLUDED FOR THIS WORK ITEM.		
Accomplish	the requir	rements of 009-88 of 2.1 for		
A88a				
Accomplish	the requir	rements of 009-88 of 2.1.		
A88b				
009-90	TECHNICAL	REPRESENTATIVE; PROVIDE		
	NOTE:	GENERALLY TECHNICAL SUPPORT SHOULD BE PROVIDED BY THE SUPERVISOR. THE TECHNICAL REPRESENTATIVE SHOULD ONLY		

## BE REQUESTED WHEN:

- 1. TECHNICAL DOCUMENTATION IS NOT AVAILABLE TO THE  $\frac{\text{SUPERVISOR (i.e., SUPERVISOR DOES NOT HAVE THE}}{\text{PROPRIETARY DATA).}}$
- $\underline{\text{2. THE SUPERVISOR DOES NOT HAVE SUFFICIENT PERSONNEL TO}}$  SUPPORT OVERSIGHT OF MAINTENANCE BEING PERFORMED.
- 3. SPECIAL TOOLS OR EQUIPMENT ARE REQUIRED.
- 4. THE SUPERVISOR DOES NOT HAVE PERSONNEL WITH THE KNOWLEDGE OR EXPERTISE TO SUPPORT THE MAINTENANCE BEING PERFORMED.
- 5. PLANNER SHALL IDENTIFY WHAT SERVICES THE TECHNICAL REPRESENTATIVE IS TO PROVIDE (I.E., TECHNICAL DOCUMENTATION, OVERSIGHT OF MAINTENANCE SUPPORT, SPECIAL TOOLS AND/OR EQUIPMENT).

Accomplish	the requirements of 009-90 of 2.1 for	1
A90		I 
009-91	PROPELLER IN-PLACE INSPECTION; ACCOMPLISH	
Accomplish	the requirements of 009-91 of 2.1 for equipment listed in	
A91		
009-92	RESILIENT MOUNT; INSTALL	1
	NOTE: INSERT EQUIPMENT TECHNICAL MANUAL.	
	USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR DISTURBED SURFACES IS REQUIRED FOR THIS WORK ITEM.	
=	the requirements of 009-92 of 2.1 for equipment listed in, for guidance.	
A92		

009-95 MECHANICALLY ATTACHED FITTING (MAFs); INSTALL

1

INVOKE WHEN REPAIRS/ALTERATIONS ARE DONE ON PIPING NOTE: Accomplish the requirements of 009-95 of 2.1 for ... A95a Accomplish the requirements of 009-95 of 2.1. A95b 009-96 BALL VALVE; REPAIR NOTE: A96b AND A96c SHALL BE SUBPARAGRAPHS TO A96a. FOR SHOP REPAIR AND TEST. TEST MEDIUM AND TEST PRESSURE FOR SEAT TIGHTNESS SHALL BE SPECIFIED IN THE INVOKING WORK ITEM. Accomplish the requirements of 009-96 of 2.1 for each ball valve listed in , using 2. for guidance. A96a **Ensure** the seat tightness test pressure is PSIG. A96b **Ensure** the test medium is . A96c 009-104 VIBRATION TESTING AND ANALYSIS; ACCOMPLISH Accomplish the requirements of 009-104 of 2.1. A104 009-105 THERMAL SPRAYED COATING FOR MACHINERY COMPONENT REPAIR; ACCOMPLISH USE WHEN THERMAL SPRAY COATING (EXCEPT ALUMINUM) NOTE: MACHINERY COMPONENTS. SPECIFY THE TYPE OF COATING MATERIAL AND EITHER WIRE SPRAY OR POWDER SPRAY PROCESS.

USE 009-27 PHRASEOLOGY IF MATERIAL IDENTIFICATION AND

# CONTROL (MIC) IS REQUIRED FOR THIS WORK ITEM.

		ements of 009-105 of 2.1 for the listed in 1 shall be, using the spray process.
A105		
009-107	PIPING SYS	TEM CLEANLINESS RESTORATION (NON-NUCLEAR); ACCOMPLISH
	NOTE:	THIS STANDARD SHALL BE USED WHEN <b>PIPING SYSTEM</b> CLEANLINESS IS LOST. WHEN PRACTICAL, SHIPBOARD CLEANING SHALL BE MINIMIZED OR ELIMINATED BY COMPONENT AND SUBASSEMBLY CLEANING AFTER FABRICATION AND BEFORE INSTALLATION ABOARD SHIP. PLANNER SHALL IDENTIFY WHICH PIPING SYSTEM REQUIRES CLEANING.
		USE 009-09 PHRASEOLOGY IF A PROCESS CONTROL PROCEDURE
		(PCP) IS REQUIRED FOR THIS WORK ITEM.
Accomplish flushing _	=	ements of 009-107 of 2.1 for cleaning and
A107a		
	NOTE:	A107b SHALL BE A SUBPARAGRAPH TO A107a. PLANNER SHALL SPECIFY CLEANLINESS LEVEL II OR LEVEL III AS IDENTIFIED IN SECTION 505j2. OF GSO FOR PIPING SYSTEM BEING CLEANED.
<b>Ensure</b> Gene	eral Cleani:	ng shall be Level
A107b		
009-112	Prevention accomplish	of Radiographic-Inspection Ionizing-Radiation Hazard;
	<u>NOTE</u> :	INVOKE FOR AVAILABILITIES WHEN WORK INVOLVES RADIOGRAPHIC INSPECTION.
Accomplish	the requir	ements of 009-112 of 2.1 for
A112a		
Accomplish	the requir	ements of 009-112 of 2.1 for.

009-113 ROTATING ELECTRICAL EQUIPMENT WITH A SEALED INSULATION SYSTEM (SIS); REWIND NOTE: USE 009-15 PHRASEOLOGY IF BALANCING OF THE ROTATING ASSEMBLY FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM. USE 009-32 PHRASEOLOGY IF CLEANING AND PAINTING FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM. USE 009-58 PHRASEOLOGY IF SHAFT ALIGNMENT FOR ROTATING ELECTRICAL EQUIPMENT IS REQUIRED FOR THIS WORK ITEM. Accomplish the requirements of 009-113 of 2.1 for the equipment listed in 1.3. , using 2. for guidance. A113 009-114 MOLD REMEDIATION; ACCOMPLISH Accomplish the requirements of 009-114 of 2.1. A114 BEARING REBABBITTING; ACCOMPLISH 009-115 NOTE: USE 009-09 PHRASEOLOGY IF A PROCESS CONTROL PROCEDURE (PCP) FOR REBABBITTING EACH BEARING IS REQUIRED FOR THIS WORK ITEM. Accomplish the requirements of 009-115 of 2.1 for each bearing listed in \_\_\_\_\_. A115 AUXILIARY AND WASTE HEAT BOILER SODIUM NITRATE WET LAYUP; 009-116 ACCOMPLISH Accomplish the requirements of 009-116 of 2.1 for A116

#### 009-121 SHIP ASSESSMENT/INSPECTION; ACCOMPLISH

NOTE: SUPPORT SHOULD BE PROVIDED BY THE SUPERVISOR. THE TECHNICAL REPRESENTATIVE SHOULD ONLY BE REQUESTED WHEN:

- 1. TECHNICAL DOCUMENTATION IS NOT AVAILABLE TO THE SUPERVISIOR (i.e. SUPERVISOR DOES NOT HAVE THE PROPRIETARY DATA).
- 2. THE SUPERVISIOR DOES NOT HAVE SUFFICIENT PERSONNEL TO SUPPORT OVERSIGHT OF THE ASSESSMENT/INSPECTION.
- 3. SPECIAL TOOLS OR EQUIPMENT ARE REQUIRED.
- 4. THE SUPERVISOR DOES NOT HAVE PERSONNEL WITH THE KNOWLEDGE OR EXPERTISE TO SUPPORT THE ASSESSMENT/INSPECTION.

Accomplish	the requirements of 009-121 of 2.1 for
A121a	
Accomplish	the requirements of 009-121 of 2.1.
A121b	
009-123	FIBER OPTIC COMPONENT; REMOVE, RELOCATE, REPAIR, AND INSTALL
Accomplish	the requirements of 009-123 of 2.1 for
A123	

#### STANDARD PHRASEOLOGY

# SECTION B

1. This section of standard phraseology is for general use in all disciplines.

NOTE:	SHALL BE USED WHEN THE EXCEPTIONS LISTED IN 3.1 OF 009-23 ARE TO BE REMOVED/INSTALLED AS INTERFERENCES.
Remove and install	as interferences where required.
в2	
be applied for 10 mir	load test of the A test load of pounds shall nutes. Remove the test load and inspect and e for evidence of damage or permanent deformation.
В3	
B4 Systems and	Specifications, SSPC Painting Manual, Volume 2
NOTE:	USE B4 FOR REFERENCE FOR PHRASES B5a-B5h.
	SOLVENT CLEANING SPECIFICATION COVERS THE PROCEDURE REQUIRED FOR THE REMOVAL OF OIL, GREASE, DIRT, SOIL, SALTS, AND CONTAMINANTS BY CLEANING WITH SOLVENT, VAPOR, ALKALI, EMULSION, OR STEAM.
Solvent clean Specification SSPC-SI	Accomplish the requirements of Surface Preparation 2-1 of 2
B5a	
NOTE:	HAND TOOL CLEANING SPECIFICATION COVERS THE PROCEDURE AND DEGREE OF CLEANLINESS REQUIRED FOR THE REMOVAL OF LOOSE RUST, LOOSE MILL SCALE, AND LOOSE PAINT BY HAND CHIPPING, HAND SCRAPING, HAND SANDING, HAND BRUSHING, OR BY A COMBINATION OF THESE METHODS.
Hand tool cleanSpecification SSPC-SH	Accomplish the requirements of Surface Preparation P-2 of 2
B5b	

NOTE:

POWER TOOL CLEANING SPECIFICATION COVERS THE PROCEDURE AND DEGREE OF CLEANLINESS REQUIRED FOR THE REMOVAL OF LOOSE RUST, LOOSE MILL SCALE, AND LOOSE PAINT WITH POWER WIRE BRUSHES, POWER IMPACT TOOLS, POWER GRINDERS, POWER SANDERS OR BY A COMBINATION OF THESE METHODS.

Power tool clean \_\_ . Accomplish the requirements of Surface Preparation Specification SSPC-SP-3 of 2. .

В5с

NOTE:

WHITE BLAST CLEANING SPECIFICATION COVERS THE PROCEDURE AND DEGREE OF CLEANLINESS REQUIRED FOR THE REMOVAL OF MILL SCALE, RUST, RUST SCALE, PAINT, AND FOREIGN MATTER BY THE USE OF ABRASIVES PROPELLED THROUGH NOZZLES OR BY CENTRIFUGAL WHEELS.

White blast clean \_. Accomplish the requirements of Surface Preparation Specification SSPC-SP-5 of 2. .

B5d

NOTE:

COMMERCIAL BLAST CLEANING SPECIFICATION COVERS THE PROCEDURE AND DEGREE OF CLEANLINESS REQUIRED FOR THE REMOVAL OF MILL SCALE, RUST, RUST SCALE, PAINT, AND FOREIGN MATTER BY THE USE OF ABRASIVES PROPELLED THROUGH NOZZLES OR BY CENTRIFUGAL WHEELS TO THE EXTENT THAT TWO-THIRDS OF EACH SQUARE INCH OF SURFACE AREA SHALL BE FREE OF VISIBLE RESIDUES AND THE REMAINDER SHALL BE LIMITED TO LIGHT DISCOLORATION, SLIGHT STAINING OR TIGHT RESIDUES.

Commercial blast clean . Accomplish the requirements of Surface Preparation Specification SSPC-SP-6 of 2. .

В5е

NOTE:

BRUSH-OFF BLAST CLEANING SPECIFICATION COVERS THE PROCEDURE AND DEGREE OF CLEANLINESS REQUIRED FOR THE REMOVAL OF LOOSE MILL SCALE, LOOSE RUST, AND LOOSE PAINT OR COATINGS BY THE USE OF ABRASIVES PROPELLED THROUGH NOZZLES OR BY CENTRIFUGAL WHEELS TO THE EXTENT THAT TIGHT MILL SCALE, TIGHTLY ADHERED RUST, TIGHTLY ADHERED PAINT, AND TIGHTLY ADHERED COATINGS ARE PERMITTED TO REMAIN.

Brush-off blast clean . Accomplish the requirements of Surface Preparation Specification SSPC-SP-7 of 2. .

B5f

NEAR-WHITE BLAST CLEANING SPECIFICATION COVERS THE NOTE: PROCEDURE AND DEGREE OF CLEANLINESS REQUIRED FOR THE REMOVAL OF MILL SCALE, RUST, CORROSION PRODUCTS, OXIDES, PAINT, OR OTHER FOREIGN MATTER BY THE USE OF ABRASIVES PROPELLED THROUGH NOZZLES OR BY CENTRIFUGAL WHEELS TO THE EXTENT AT LEAST 95 PERCENT OF EACH SQUARE INCH OF SURFACE AREA SHALL BE FREE OF VISIBLE RESIDUES AND THE REMAINDER SHALL BE LIMITED TO VERY LIGHT SHADOWS, VERY SLIGHT STREAKS, OR SLIGHT DISCOLORATIONS CAUSED BY RUST STAIN, MILL SCALE OXIDES, OR SLIGHT, TIGHT RESIDUES OF PAINT OR COATING THAT MAY REMAIN. Near-white blast clean . Accomplish the requirements of Surface Preparation Specification SSPC-SP-10 of 2. . B5g POWER TOOL CLEANING SPECIFICATION COVERS THE PROCEDURE AND DEGREE OF CLEANLINESS REQUIRED FOR THE REMOVAL OF RUST, MILL SCALE, PAINT, AND FOREIGN MATTER WITH POWER WIRE BRUSHES, POWER IMPACT TOOLS, POWER GRINDERS, POWER SANDERS, OR BY A COMBINATION OF THESE METHODS. Power tool clean to bare metal . Accomplish the requirements of Surface Preparation Specification SSPC-SP-11 of 2. . B5h Clean **each** exposed part free of , leaving no residue or injurious effects. В6 NOTE: THIS PHRASEOLOGY REQUIRES A SUBPARAGRAPH TO IDENTIFY QUANTITY AND TECHNICAL SPECIFICATION. Remove each bent and broken fastener and restore each damaged internal threaded part by welding, drilling, and tapping, or by the installation of threaded inserts. В7

Color , and Size \_\_\_\_.

quidance.

B13a

R13h

Ensure each Label plate conforms to MIL-DTL-15024, Type , Material ,|

Install each new label plate in accordance with 2. , using 2. for

# NOTE: PLANNER IS REQUIRED TO RESEARCH AND PROVIDE PERTINENT DATA IN NOTES SECTION OF WORK ITEM. Reference 2. is available from . For a copy of this reference, contact \_\_\_\_. B14 Submit one legible copy, in hard copy or approved transferrable media, of a report listing results of the requirements of to the SUPERVISOR. B15a NOTE: USE B15b WHEN REPORT IS REQUIRED BY A CERTAIN DATE FOR EFFECTIVE AVAILABILITY MANAGEMENT. Submit one legible copy, in hard copy or approved transferrable media, of a report listing results of the requirements of to the SUPERVISOR within \_\_\_\_ days of \_\_\_\_. B15b Submit one legible copy, in hard copy or approved transferrable media, of a report listing to the SUPERVISOR. B15c Submit one legible copy, in hard copy or approved transferrable media, of completed \_\_\_ to the SUPERVISOR. B15d Submit one legible copy, in hard copy or approved transferrable media, of completed 2. for each and a report listing results of the requirements of 3. to the SUPERVISOR. B15e NOTE: USE B15f WHEN A WORK ITEM REQUIRES THE SUBMISSION OF A REPORT, AND THE WORK HAS TO BE COMPLETED AND THE DATA IN THE HANDS OF THE NSA FOR REVIEW AND APPROVAL PRIOR TO THE UNDOCKING OF THE VESSEL. Submit one legible copy, in hard copy or approved transferrable media, of a report listing results of the requirements of \_\_\_\_\_ to the SUPERVISOR within one day after recording the data but no later than 96 hours prior to undocking. B15f

NOTE: B17b SHALL BE A SUBPARAGRAPH TO B17a.

FOR PACKING, CRATING, AND SHIPPING OF PROPULSION

EQUIPMENT, EITHER TURNAROUND OR REPLACEMENT, USE MILDTL-2845, PROPULSION SYSTEMS, BOAT AND SHIP; MAIN
SHAFTING, PROPELLERS, BEARINGS, GAUGES, SPECIAL TOOLS,
AND ASSOCIATED REPAIR PARTS; PRESERVATION, PACKAGING,
PACKING AND STORAGE OF, AS A REFERENCE.

Crate and secure	_ removed in 3 Packaging shall conform to 2
B17a	
Ship crated material	prepaid to and from:
B17b	
NOTE:	B17d SHALL BE A SUBPARAGRAPH TO B17c.
	ON EQUIPMENT WHICH IS (GFM) APA MATERIAL, EITHER TURNAROUND OR REPLACEMENT, USE SL460-AA-HBK-010, HANDBOOK FOR INSPECTION, PACKAGING, HANDLING, STORAGE AND TRANSPORTATION AS A REFERENCE WHEN B17c IS INVOKED, FOR PACKING, CRATING, AND SHIPPING OF EQUIPMENT.
Crate and secure	removed in 3 Packaging shall conform to 2
B17c	
Ship crated material	prepaid to and from:
B17d	
Visually inspect the completeness <b>before p</b>	removed equipment for general condition and
B17e	acking and clating.
Ship the equipment to after availability st	ensure arrival at the repair facility within days art date.
B17f	
Submit one legible co shipping document to	py, in hard copy or approved transferrable media, of the the SUPERVISOR.
B17g	

#### NOTE: B20b SHALL BE A SUBPARAGRAPH TO B20a.

ON EQUIPMENT WHICH IS NOT APA OR TURNAROUND, USE NAVSUP PUB. 484, PACKAGING PROCEDURES, AS A REFERENCE WHEN B20a IS INVOKED, FOR PACKING, CRATING, AND SHIPPING OF EQUIPMENT THAT HAS A KNOWN NAVY VALUE.

Crate and sec	ure removed in 3	Packaging shall conform to 2
B20a		
Ship crated m	aterial to:	
B20b		
NO	TE: B20d SHALL BE A SU	JBPARAGRAPH TO B20c.
	ASTM D 6039/D 6039 FOR LOADS NOT EXCE	OM APPLIES ONLY TO OPEN WOOD CRATES EEDING 4000 LBS.
Crate and sec	ure removed in 3	, conforming to ASTM D 6039/D 6039M
B20c		
Ship crated m	aterial to	
B20d		
	ect the removed equipment : before packing and crating	-
B20e		
Ship the equi	pment within days afte:	r the availability start date.
B20f		
NO	TE: USE B20g FOR MATER	RIAL TO BE TURNED OVER TO THE

SUPERVISOR.

Crate and secure the equipment listed in 1.3. Packing shall be equal to that used for the equipment provided by the Government. Crated equipment shall be turned in to the SUPERVISOR within 10 days after removal.

B20g

Crate and ship	prepaid to and from the following for:
B20i	
NOTE:	USE WHEN MAIN ITEM IS REMOVAL OF INSULATION AND LAGGING.
	FOR REFERENCE USE S9086-VH-STM-010/CH-635, THERMAL, FIRE, AND ACOUSTIC INSULATION.
	se of existing insulation and lagging from the systems and in 1.3, using 2 for guidance.
B21	
NOTE:	B15a SHALL BE A SUBPARAGRAPH TO B22.
in for stru	nt visual inspection with the SUPERVISOR of each listed actural integrity, deterioration, pitting, cracks, and areas cortion, and to determine required repairs.
B22	
NOTE:	B25b SHALL BE A SUBPARAGRAPH TO B25a.
	USE B25a-B25b FOR ULTRASONIC OR RADIOGRAPHIC TESTS. FOR REFERENCE USE T9074-AS-GIB-010/271, REQUIREMENTS FOR NONDESTRUCTIVE TESTING METHODS.
Accomplish	tests on in accordance with 2
B25a	
	e copy, in hard copy or approved transferrable media, of a esults of the requirements of 3 to the SUPERVISOR.
B25b	
NOTE:	B26b SHALL BE A SUBPARAGRAPH TO B26a.

USE B26a-B26b FOR LIQUID PENETRANT OR MAGNETIC PARTICLE TESTS. FOR REFERENCE USE T9074-AS-GIB-010/271, REQUIREMENTS FOR NONDESTRUCTIVE TESTING METHODS AND MIL-STD-2035, NONDESTRUCTIVE TESTING ACCEPTANCE CRITERIA.

reject criteria sha			ith 2 The acss of 2	
B26a				
Submit one legible report listing resu				
Remove and dispose	of from th	e		
в27				
Remove existing and	install new			
В28				
Install <b>each</b> new fa zinc plated for bel areas exposed to we	ow deck areas an	d Type One, (		
B29				
NOTE:	B30 SHALL BE U	SED WHEN LIS	TING MULTIPLE PAI	RTS, SUCH
NOTE:			TING MULTIPLE PAI WINGS AND TECHNIC	
NOTE: Remove existing, fi	AS THOSE IDENT	'IFIED IN DRA	WINGS AND TECHNIC	
	AS THOSE IDENT	'IFIED IN DRA	WINGS AND TECHNIC wing parts: FIGURE/	
Remove existing, fi TOTAL QUANTITY NAME	AS THOSE IDENT t, and install n PIECE	ew the follower.	WINGS AND TECHNIC wing parts: FIGURE/	CAL MANUALS PART
Remove existing, fi TOTAL QUANTITY NAME REQUIRED OF PART	AS THOSE IDENT t, and install n PIECE NO.  B31 IS INTENDE	ew the follower.  REF.  NO.  ED FOR, BUT N	WINGS AND TECHNIC wing parts: FIGURE/	PART
Remove existing, fi TOTAL QUANTITY NAME REQUIRED OF PART B30	AS THOSE IDENT  t, and install n  PIECE  NO.  B31 IS INTENDED  AND RADAR ANTE	ew the followers REF. NO.  ED FOR, BUT NEW ENNAS TO THEIR	wing parts:  FIGURE/ DRAWING NO.  MOT LIMITED TO, MOT FOUNDATIONS.	PART NO.
Remove existing, fi TOTAL QUANTITY NAME REQUIRED OF PART B30  NOTE: Install each new mo	AS THOSE IDENT  t, and install n  PIECE  NO.  B31 IS INTENDED  AND RADAR ANTE	ew the followers REF. NO.  ED FOR, BUT NEW ENNAS TO THEIR	wing parts:  FIGURE/ DRAWING NO.  MOT LIMITED TO, MOT FOUNDATIONS.	PART NO.
Remove existing, fi TOTAL QUANTITY NAME REQUIRED OF PART B30  NOTE:  Install each new mo 304, CRES.	AS THOSE IDENT  t, and install n  PIECE NO.  B31 IS INTENDED AND RADAR ANTE  unting fastener  s power and account in 3 to ensu on, in accordance	ew the follow REF. NO.  ED FOR, BUT NENNAS TO THEI conforming to mplish operative equipment	WINGS AND TECHNIC wing parts:  FIGURE/ DRAWING NO.  MOT LIMITED TO, M TR FOUNDATIONS.  D MIL-DTL-1222, The strength of functions to design the strength of the	PART NO.  OUNTING RADIO Type I, Grade  the signed

Accomplish an operational test of in accordance with 2	
B34a	
Accomplish the requirements of 2 for each	
B34b	
NOTE: B34d SHALL BE A SUBPARAGRAPH TO B34c.	
Accomplish an operational test of the new equipment installed in 3 each phase of operation for continuous hours each, using manufact instructions for guidance, and the following:	
B34c	
Verify conformance and operations capabilities in accordance with manufacturer's specifications.	
B34d	
NOTE: THIS SEGMENT SHALL ALWAYS BE USED ON PROGRAMMED	
TURNAROUND WORK ITEMS. CALENDAR DAYS ARE DERIVED COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE ROH DATE SET BY TYCOM.	
COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE	AND
COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE ROH DATE SET BY TYCOM.  Ensure the estimated dockside delivery date of the is days	AND
COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE ROH DATE SET BY TYCOM.  Ensure the estimated dockside delivery date of the is days start of availability.	AND
COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE ROH DATE SET BY TYCOM.  Ensure the estimated dockside delivery date of the is days start of availability.  B36	AND
COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE ROH DATE SET BY TYCOM.  Ensure the estimated dockside delivery date of the is days start of availability.  B36  Accomplish the requirements of 2	<u>AND</u> after
COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE ROH DATE SET BY TYCOM.  Ensure the estimated dockside delivery date of the is days start of availability.  B36  Accomplish the requirements of 2  B37a  NOTE: PHRASE B37b IS INTENDED FOR, BUT NOT LIMITED TO,	AND after USE
COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE ROH DATE SET BY TYCOM.  Ensure the estimated dockside delivery date of the is days start of availability.  B36  Accomplish the requirements of 2  B37a  NOTE: PHRASE B37b IS INTENDED FOR, BUT NOT LIMITED TO, WHEN ACCOMPLISHING SHIPALTS.	AND after USE
COMPARISON BETWEEN EQUIPMENT TURNAROUND SCHEDULE ROH DATE SET BY TYCOM.  Ensure the estimated dockside delivery date of the is days start of availability.  B36  Accomplish the requirements of 2  B37a  NOTE: PHRASE B37b IS INTENDED FOR, BUT NOT LIMITED TO, WHEN ACCOMPLISHING SHIPALTS.  Accomplish the requirements of 2 through 2, using 2 for guida	AND after USE

```
Remove equipment listed in 1.3, using 2.__ for guidance.
B38a
Remove equipment listed in 1.3 in accordance with 2. .
B38b
Remove equipment listed in 1.3. through 1.3. , using 2. for guidance.
B38c
Remove equipment listed in 1.3.__ through 1.3.__ in accordance with 2.__.
B38d
Remove equipment listed in 1.3.__, using 2.__ for guidance.
B38e
Remove equipment listed in 1.3.__ in accordance with 2.__.
B38f
Install equipment listed in 1.3.__ in accordance with 2. .
B38q
Remove and dispose of system fluids from the equipment listed in .
B39
Obtain the services of a engineer to provide engineering assistance
to .
В40
Scrape and spot-in each sealing surface to obtain a 360-degree continuous
```

Scrape and spot-in **each** sealing surface to obtain a 360-degree continuous \_\_\_\_ percent evenly distributed contact with no leakage path extending from the pressure boundary to the atmospheric boundary.

NOTE: B44b-B44d SHALL BE SUBPARAGRAPHS TO B44a.

FOR REFERENCE USE S6430-AE-TED-010, VOLUME I, TECHNICAL DIRECTIVE FOR PIPING DEVICES, FLEXIBLE HOSE ASSEMBLIES

Remove **each** existing and install new flexible hose assembly. Template from existing shipboard conditions.

B44a

NOTE: AN (I)(G) IS REQUIRED FOR TESTING FLEX HOSES.

 ${\it Ensure}$  each new hose assembly  ${\it is}$  in accordance with 2. .

B44b

Accomplish the requirements of Section 8 of 2. .

B44c

Install a new CRES identification tag on each flexible hose assembly engraved in accordance with Paragraph  $8.5\ \text{of}\ 2.$ 

B44d

Install new hose assemblies in accordance with Section 9 of 2. .

B44e

NOTE: B44g SHALL BE A SUBPARAGRAPH TO B44f.

USE WHEN NEW FITTINGS ARE UNAVAILABLE.

Reuse existing flexible hose end fittings where identified acceptable after inspection in accordance with Section 6, Paragraph 6.2 of 2. .

B44f

Submit one legible copy, in hard copy or approved transferrable media, of a report listing the identification tag test data for each hose assembly tested to the SUPERVISOR.

B44q

 $\frac{\text{NOTE}\colon}{\text{AND DECK.}} = \frac{\text{FOR REFERENCE, USE 803-1385866, PENETRATION BULKHEAD}}{\text{AND DECK.}}$ 

Install each new bulkhead and deck sleeve in accordance with 2. .

NOTE: DOLLAR AMOUNTS SHALL BE WRITTEN WITH COMMA, e.g., 5,000.
Provide mandays of labor and dollars of material to accomplish work not previously identified in the Work Item, as directed by the SUPERVISOR. If the total costs are less than the authorized manday and dollar amounts, remaining funds will be subject to recoupment. The contractor is not authorized to exceed these limits.
B48a
NOTE:  USE FOR GAS FREE CERTIFICATIONS OF ADJACENT TANKS OR SPACES OR PIPING SYSTEMS WHEN LOCATION OF REQUIRED HOT WORK CANNOT BE DETERMINED UNTIL COMPLETION OF PRELIMINARY AIR TEST AND VISUAL INSPECTION. DO NOT USE IF ADJACENT TANKS OR SPACES OR PIPING SYSTEMS ARE IDENTIFIED IN 1.2.
Provide mandays of labor and dollars of material to accomplish certifications ("Safe for Workers" and/or "Safe for Hot Work") of adjacent tanks, spaces, and piping systems when directed by the SUPERVISOR. Total cost greater or less than above manday and dollar amounts when authorized will be the subject of an equitable adjustment.
B48b
Install <b>each</b> flush insert in way of <b>each</b> removal, using new material of same type and thickness as adjacent structures  B49
NOTE:  B50 IS INTENDED FOR, BUT NOT LIMITED TO, USE AS A SUBPARAGRAPH TO A13a, A14a, A16, A36, AND A75.
Submit one legible copy, in hard copy or approved transferrable media, of a list of new parts installed, excluding parts specifically listed to be removed in this Work Item or invoked Standard Item, in place of those identified to be missing or defective, with documenting invoices or other substantiating data, to the SUPERVISOR. Total cost of new parts shall not exceed dollars without prior approval of the SUPERVISOR. Total cost greater or less than above dollar amount will be the subject of an equitable
adjustment.
adjustment. B50

	NOTE:	FILL IN NUMBER OF TIMES CLIN IS NEEDED. USE B52a FOR EQUIPMENT. USE B52b WHEN LOCATION AND IDENTIFICATION ARE BOTH NEEDED.
		ements of Contract Line Item Number (CLIN) ( EA) ted in 1.3
B52a		
		ements of Contract Line Item Number (CLIN) ( EA) in 1.3, in location listed in 1.2
Accomplish forB52c		ements of Contract Line Item Number (CLIN) ( EA)
Accomplish	the requir	ements of Contract Line Item Number (CLIN) ( EA).
B52d		
	NOTE:	FOR SURFMEPP USE, PROVIDE ENGINEERING DATA TO UPDATE REQUIRED CMP TASK RECORDS.
listing re	sults of th	py, in hard copy or electronic media, of a report e requirements of to the SURFMEPP Systems Engineer he SUPERVISOR.
B53a		
SURFMEPP S	ystems Engi	neering address:
B53b		
SURFMEPP S	ystems Engi	neering C230
Norfolk Na	val Ship Ya	rd, Building M-22
Portsmouth	, VA 23709-	5000
(757) 967-	3454	
Email: SUR	FMEPP.syste	msengineering@navy.mil
B53c		

STANDARD PHRASEOLOGY

SECTION C

NOT USED

#### STANDARD PHRASEOLOGY

# SECTION D

l. This section of standard phraseology is for use in structural disciplines.
Chip and grind each surface flush in way of repairs.
D1
Remove existing and install new each watertight door and hatch listed in
D2
Clean each tank listed in free of debris and foreign matter.
D3a
Inspect each tank for cleanliness prior to final closing.
D3b
Phrase deleted (See A25f)
D4
Remove existing and install new each watertight hatch and coaming listed in
D5
NOTE: UTILIZE FOR COMPARTMENTATION MARKINGS. FOR REFERENCE USE FED-STD-595, COLORS.
Apply markings using applicable colors from the following list:
White, Color No. 17886 of 2, MIL-PRF-24635  Brilliant Yellow, Color of 2, MIL-PRF-24635  Red, Color No. 11105 of 2, MIL-PRF-24635

Slush each new wire rope with new grease conforming to MIL-PRF-18458.
D10
Contact the SUPERVISOR to determine color, style, and pattern of habitability items.
D11a
Provide samples for color, style, and pattern selection.
D11b
Apply 2 layers of insulation tape, to a total minimum thickness of 17 mils, conforming to MIL-I-24391 to the faying surfaces of dissimilar metal.
D12
Remove <b>each</b> unused clip, hanger, electrical button, and stud from overhead, bulkheads, and decks.
D13
Adjust each hinge, latch, and safety release, installing CRES shims to ensure an airtight seal for each door.
D14
Chip and grind surfaces <b>flush</b> in way of
D15
Accomplish a visual inspection of each listed in 1.3 for structural integrity, deterioration, pitting, cracks, and areas of damage or distortion in each location listed in 1.2.
D16a
Accomplish a visual inspection of each tank listed in 1.2 for existing preservation coating, structural integrity, deterioration, pitting, cracks, and areas of damage or distortion, including sounding tubes, tank vents, overflows, piping, structural members, and manhole covers.
D16b
Shop test each new wire rope, including attached end fittings, to 40 percent of the breaking strength of the wire rope.

D17

boundary bulkhead in accordance with 2, and details in 2, conforming to MIL-L-24518.
D18
Install temporary wooden closures over each opening caused by removals.
D21a
Remove each temporary closure upon completion of work.
D21b
Adjust each dogging mechanism for unobstructed operation and to obtain 100 percent centered contact with the imprint of chalk in the center three-fifths of the gasket.
D23
Vee-out and weld linear feet of deteriorated and damaged welds. Area of repairs shall include deck, bulkhead, shell plating, and overhead of each space listed in 1.2 for total of linear feet per space.
D24
Preserve the interior surfaces of each with rust preventative compound conforming to MIL-PRF-16173, Class I or II, Grade 1 or 3, by completely filling and draining. Ventilate to remove solvent vapors.
D25
NOTE: FOR REFERENCE USE MIL-STD-1689, FABRICATION, WELDING, AND INSPECTION OF SHIPS STRUCTURE.
Fair-in existing plating adjoining each new insert in accordance with 2
D26
<b>Ensure</b> changes and alternate routes <b>are</b> made to enable ventilation runs to be completed and to suit existing shipboard conditions when the dimensions used on 2 cannot be complied with.
D30a

NOTE: D30b IS OPTIONAL FOR THOSE ACTIVITIES WHO CAN ESTABLISH

THAT THE CONTRACTOR CAN SHIPCHECK THE SHIP BEING

REPAIRED PRIOR TO BID.

Relocate **each** light, fixture, equipment, pipe, cable, and wire in way of new ventilation installation. New ventilation shall be templated to suit existing shipboard conditions and offset around interferences not feasible to relocate.

D30b

NOTE: D31a IS INTENDED FOR, BUT NOT LIMITED TO, USE WHEN

ACCOMPLISHING SHIPALTS.

FOR REFERENCE USE 512-7624117, INSTRUCTIONS FOR NOTE:

VENTILATION TESTING AND BALANCING.

Accomplish testing and balancing for **each** system installed new and **each** modified portion of existing systems to ensure minimum delivery of designed air quantities in accordance with 2. .

D31a

Template exact size, configuration, and location from existing shipboard conditions.

D32

# STANDARD PHRASEOLOGY

#### SECTION E

1. This section of standard phraseology is for general use in mechanical disciplines.
Disassemble each, using 2 for guidance.
E1a
Disassemble each in accordance with 2
E1b
Protect, blank, wrap, cover, or mask equipment and openings to preclude damage and prevent entry of contaminants into gas turbine engines to include foreign object debris (FOD) screen, uptake spaces, engine room, machinery, equipment, valves, vent system, and other openings prior to cleaning operation.
E2
NOTE: USE AS A SUBPARAGRAPH WHEN DISASSEMBLY IS INVOKED.
NOTE: USE AS A SUBPARAGRAPH WHEN DISASSEMBLY IS INVOKED.  Measure and record <b>serial number(s)</b> , sizes, and clearances, of each, using 2 for guidance.
Measure and record <b>serial number(s)</b> , sizes, and clearances, of each,
Measure and record <b>serial number(s)</b> , sizes, and clearances, of each, using 2 for guidance.
Measure and record <b>serial number(s)</b> , sizes, and clearances, of each, using 2 for guidance.  E4a  Measure and record <b>serial number(s)</b> , sizes, and clearances, of each in
Measure and record <b>serial number(s)</b> , sizes, and clearances, of each, using 2 for guidance.  E4a  Measure and record <b>serial number(s)</b> , sizes, and clearances, of each in accordance with 2
Measure and record <b>serial number(s)</b> , sizes, and clearances, of each, using 2 for guidance.  E4a  Measure and record <b>serial number(s)</b> , sizes, and clearances, of each in accordance with 2

#### NOTE: USE FOR MISSION CRITICAL EQUIPMENT, ESPECIALLY FORCED DRAFT BLOWERS, MAIN FEED PUMPS, MAIN PROPULSION

TURBINES, ETC.

Include **each** size, clearance, fit, and finish for **each** wearing part, bearing surface, thrust and journal bearing, seal and packing area, and physical condition of each part not specified for renewal.

E4d

NOTE: USE E5a AS A SUBPARAGRAPH WHEN DISASSEMBLY IS INVOKED.
Inspect each part for wear and defects, in accordance with 2
E5a
Inspect each part for wear and defects, using 2 for guidance.
E5b
NOTE: FOR REFERENCE USE S9086-CJ-STM-010/CH-075, FASTENERS.
Remove, clean, visually inspect for suitability for reuse, and protect <b>each</b> existing fastener from damage or loss in accordance with Sections 6 and 8 of 2
E5c
Remove test fluid and dry the interior and exterior surfaces. Allowable residual fluid: None.
E6
Straighten each to within inch total indicator reading.
E7
Straighten each shaft to within inch total indicator reading.
E8
Straighten each operating lever, linkage, and eccentric to provide freedom of operation.
E9

FOR REFERENCE USE DOD-STD-2182, ENGINEERING CHROMIUM NOTE: PLATING (ELECTRODEPOSITED) FOR REPAIR OF SHAFTING

(METRIC). FOR NDT TESTING, USE B26a-B26b.

Chrome-plate each journal in accordance with 2
E10
Machine each, using 2 for guidance.
E11a
Machine each in accordance with 2
E11b
Machine each new undersize casing wearing ring and each new oversize impeller wearing ring to sizes specified in 2
E12a

NOTE: USE E12b-E12c FOR IMPELLERS WITHOUT WEARING RINGS.

Machine each new impeller wearing ring area concentric to the impeller bore within 0.001-inch total indicator reading, removing only material required to correct out-of-round and eccentric conditions.

E12b

Machine each new undersize casing wearing ring bore concentric to casing wearing ring area to sizes specified in 2. for the mating impeller wearing surfaces.

E12c

NOTE: USE E12d-E12e FOR IMPELLERS WITH OVERSIZED WEARING RINGS.

Machine each new impeller wearing ring concentric to the impeller bore within 0.001 inch total indicator reading, removing only material required to correct out-of-round and eccentric conditions.

E12d

Machine each new casing wearing ring bore concentric to casing wearing ring area to sizes specified in 2.\_\_ for the mating impeller wearing ring surfaces.

Machine each new impeller wearing ring, using 2 for guidance.
E13a
Machine each new impeller wearing ring in accordance with 2
E13b
Machine each new casing wearing ring, using 2 for guidance.
E14a
Machine each new casing wearing ring in accordance with 2
E14b
Fit each wearing ring to corresponding groove in upper and lower casings.
E15
Inspect wearing ring fit. <b>Each</b> ring shall not bind and clearance shall be in accordance with 2
E16
Stone both faces of each thrust collar to remove high spots.
E17
Stone each journal to remove high spots.
E18
Stone each pinion and gear tooth to remove high spots.
E19
NOTE: WHEN E20 IS USED, E21 SHALL ALWAYS BE A SUBPARAGRAPH.

SPECIFY LABYRINTH OR CARBON PACKING.

Scrape, lap, and fit metal-to-metal joints of each turbine packing box, turbine case, turbine case cover, nozzle, steam chest, steam strainer, and steam strainer cover.
E20a
Lap and fit metal-to-metal joints of each
E20b
Hand fit and restore the contact between <b>each</b> exposed metal-to-metal, steamtight joint.
E20c
Machine, hand fit, and restore the contact between exposed metal-to-metal, steamtight joints.
E20d
Machine, hand fit, and restore the contact between exposed metal-to-metal and gasket seating surfaces, using 2 for guidance.
E20e
Inspect contact using blueing transfer method. Contact shall be percent, with a continuous band of contact wide between inner bolting perimeter and the sealing surface pressure source.
E21a
Inspect contact using blueing transfer method. Contact shall be a minimum of percent of total surface area, including a minimum of percent continuous contact across the pressure sealing surfaces.
E21b
Inspect contact using blueing transfer method. Contact shall be a minimum of percent of total surface area, including a continuous band with a minimum width of percent of the distance from the pressure source to the inner bolting perimeter.
E21c

NOTE: FOR PUMPS WITH IMPELLER WEARING RINGS.

Inspect each assembled pump rotating assembly for concentricity to the shaft axis. Eccentricity at each bearing shaft sleeve and wearing ring mating area shall not exceed inch total indicator reading.
E22
NOTE: USE FOR MINOR REPAIRS.
Restore <b>each</b> mating surface exposed by removal. Repair by removing high spots, burrs, abrasions, and foreign matter, where removal can be accomplished by hand tools.
E23a
Remove high spots, burrs, abrasions, nicks, corrosion, gasket material, and foreign matter from <b>each</b> exposed flange and mating surface.
E23b
Remove burrs and high spots from <b>each</b> exposed sliding surface, screw thread, key, and keyway.
E23c
Assemble each, using 2 for guidance.
E24a
Assemble each in accordance with 2
E24b
Assemble, install, align, adjust, and connect, fit and install <b>each</b> new and <b>each</b> new part in accordance with 2:
E24c
Measure and record <b>each</b> final size and clearance, using 2 for guidance.
E25a
Measure and record <b>each</b> final size and clearance in accordance with 2
E25b
Adjust and set the height of each worm gear, using 2 for guidance.

E26a
Adjust and set the height of each worm gear in accordance with 2
E26b
Verify mesh alignment and contact, using blueing method.
E26d
<b>Ensure</b> thrust faces <b>are</b> square with shaft axis to within inch total indicator reading.
E27
NOTE: FOR USE OF PRE-ESTABLISHED PARTS LIST FROM A TECHNICAL MANUAL OR OTHER REFERENCE.
Remove <b>each</b> existing and install new gasket, o-ring, pin, key, stud, bolt, and nut. Material shall conform to specifications in of 2
E28
Manually rotate each shaft prior to installation of pump shaft packing. Rubbing or binding of the rotating assembly not allowed.
E30a

Rotate shaft by hand one complete revolution. Binding or rubbing of the rotating assembly is not allowed.

E30b

USE E31 AS A SUBPARAGRAPH WHEN SECURING DETAILS ARE NOTE: INVOKED.

Apply antiseize compound conforming to MIL-PRF-907 on high temperature fasteners.

E31

FOR TURBINE SEALING SURFACES. NOTE:

Apply triple boiled linseed oil conforming to, with a viscosity of Z-8 or Z-9 on <b>each</b> metal-to-metal steam joint.		
E32a		
Apply high temperature sealing compound conforming to MIL-S-15204, Type C, on each		
E32b		
NOTE: FOR REDUCTION GEAR, BEARING AND COUPLING COVERS.		
Apply sealant conforming to MIL-S-45180, Type 2, on the metal-to-metal joints of each $\_\_\_$ .		
E33		
NOTE: FOR STEAM AND STEAM DRAINS (50-100 PSIG - 425 DEGREES FAHRENHEIT).		
Remove <b>each</b> existing and install new steam piping joint gasket and fastener. Gaskets shall conform to Graph Lock 3125SS/Graftech sheet gasket. Fasteners and nuts shall conform to MIL-DTL-1222, Type I, Grade 400 or 405, Class A or B, QQ-N-281, nickel-copper alloy.		
E34		
NOTE: FOR STEAM AND STEAM DRAINS 600-1500 PSIG, 1000 DEGREES FAHRENHEIT (MAXIMUM).		
Remove <b>each</b> existing and install new steam piping joint gasket and fastener. Gaskets shall conform to MIL-G-24716. Fasteners shall conform to MIL-DTL-		
1222, Grade B16, alloy steel. Nuts shall conform to MIL-DTL-1222, Type I, Grade 7.		
Grade 7.		
Grade 7.  E35  NOTE: FOR STEAM AND STEAM DRAINS 150-1500 PSIG, 775 DEGREES		
Grade 7.  E35  NOTE: FOR STEAM AND STEAM DRAINS 150-1500 PSIG, 775 DEGREES FAHRENHEIT (MAXIMUM).  Remove each existing and install new steam piping joint gasket and fastener. Gaskets shall conform to MIL-G-24716. Fasteners shall conform to MIL-DTL-1222, Type IV, Grade B-7, alloy steel. Nuts shall conform to MIL-DTL-1222,		

Remove each existing and install new feedwater piping joint gasket and fastener. Gaskets shall conform to MIL-G-24716. Fasteners shall conform to MIL-DTL-1222, Type I, Grade 5, carbon steel. Nuts shall conform to MIL-DTL-1222, Type I, Grade 5, alloy steel.

E37

NOTE:

FOR FRESH WATER - CHILLED WATER, FEEDWATER AND CONDENSATE 100 PSIG, 250 DEGREES FAHRENHEIT (MAXIMUM), i.e., HH-P-151, CLASS I, CLOTH INSERTED RUBBER, MIL-PRF-1149, TYPE II, CLASS I, SYNTHETIC RUBBER.

Remove each existing and install new fresh water piping joint gasket and fastener. Gaskets shall conform to  $\_\_$ ,  $\_\_$ ,  $\_\_$ . Fasteners and nuts shall conform to MIL-DTL-1222, Type I, Grade 400 or 405, Class A or B, QQ-N-281, nickel-copper alloy.

E39

NOTE:

FOR SALT WATER, INCLUDING SUCTION SEA CHEST STEAM OUT CONNECTIONS, 50-250 PSIG, 150 DEGREES FAHRENHEIT (MAXIMUM).

Remove **each** existing and install new salt water piping joint gasket and fastener. Gaskets shall conform to HH-P-151, Class I, cloth inserted rubber, or MIL-PRF-1149, Type II, Class I, synthetic rubber. Fasteners and nuts shall conform to MIL-DTL-1222, Type I, Grade 400 or 405, Class A or B, QQ-N-281, nickel-copper alloy.

E40

FOR SALT WATER 50-250 PSIG, 150 DEGREES FAHRENHEIT NOTE: (MAXIMUM).

Remove **each** existing and install new salt water piping joint gasket and fastener. Gaskets shall conform to MIL-PRF-1149, Type I, Class I, synthetic rubber. Fasteners and nuts shall conform to MIL-DTL-1222, Type I, Grade 400 or 405, Class A or B, QQ-N-281, nickel-copper alloy.

E41

FOR FUEL OIL 600-1200 PSIG, 775 DEGREES FAHRENHEIT NOTE: (MAXIMUM).

Remove each existing and install new fuel oil piping joint gasket and fastener. Gaskets shall conform to MIL-G-24716. Fasteners shall conform to MIL-DTL-1222, Type IV, Grade B-7, alloy steel. Nuts shall conform to MIL-DTL-1222, Grade 5.

E42

NOTE: FOR DIESEL FUEL OIL 200 PSIG.

Remove each existing and install new fuel oil piping joint gasket and fastener. Gaskets shall conform to MIL-G-24716. Fasteners and nuts shall conform to MIL-DTL-1222, Grade 5, carbon steel. Fasteners shall have protective coating per MIL-DTL-83488 (aluminum coating), Type II, Class 3; or ASTM B 633 (electrodeposited zinc), Type II, Service Condition 3.

E43a

NOTE: FOR GAS TURBINE POWERED SHIPS FUEL OIL 200 PSIG, 150 DEGREES FAHRENHEIT (MAXIMUM).

Remove each existing and install new fuel oil piping joint gasket and fastener. Gaskets shall conform to MIL-G-24716. Fasteners and nuts shall conform to MIL-DTL-1222, Type I, Grade 400 or 405, Class A or B, QQ-N-281, nickel-copper alloy.

E43b

NOTE: FOR LUBRICATING OIL 50 PSIG, 180 DEGREES FAHRENHEIT (MAXIMUM) i.e., HH-P-151, CLASS I, CLOTH INSERTED RUBBER, MIL-PRF-1149, TYPE II, CLASS I, SYNTHETIC RUBBER.

Remove each existing and install new lubricating oil piping joint gasket and fastener. Gaskets shall conform to \_\_\_\_, \_\_\_\_. Fasteners and nuts shall conform to MIL-DTL-1222, Type I, Grade 2 or Grade 5, carbon steel. Fasteners shall have protective coating per MIL-DTL-83488 (aluminum coating), Type II, Class 3; or ASTM B 633 (electrodeposited zinc), Type II, Service Condition 3.

E44

FOR LUBRICATING OIL 150 PSIG, 250 DEGREES FAHRENHEIT NOTE: (MAXIMUM).

Remove each existing and install new lubricating oil piping joint gasket and fastener. Gaskets shall conform to MIL-G-24716. Fasteners and nuts shall conform to MIL-DTL-1222, Type I, Grade 5, carbon steel. Fasteners shall have protective coating per MIL-DTL-83488 (aluminum coating), Type II, Class 3; or ASTM B 633 (electrodeposited zinc), Type II, Service Condition 3.

E45

NOTE: FOR INSTALLATION OF NEW HOLD-DOWN BOLTING FOR MACHINERY WHERE SELF-LOCKING NUTS ARE NOT REQUIRED.

Remove each existing and install new hold-down bolt and nut conforming to MIL-DTL-1222, Type III, Grade 5, alloy steel. Fasteners shall have protective coating per MIL-DTL-83488 (aluminum coating), Type II, Class 2, or ASTM B 633 (electrodeposited zinc), Type II, Service Condition 3.

E46

NOTE: FOR INSTALLATION OF NEW HOLD-DOWN BOLTING FOR MACHINERY WHERE SELF-LOCKING NUTS ARE REQUIRED. IDENTIFY TYPE OF MATERIAL FOR SELF-LOCKING NUTS.

Remove each existing and install new hold-down bolt conforming to MIL-DTL-1222, Type III, Grade 5, and self-locking nut conforming to NASM-25027, Fasteners shall have protective coating per MIL-DTL-83488 (aluminum coating), Type II, Class 2, or ASTM B 633 (electrodeposited zinc), Type II, Service Condition 3.

E47

Install each new aluminized cloth spray shield on \_\_\_\_\_ pipe, valve flange | and component in accordance with ASTM F 1138. E48

Fill each to the full mark with new conforming to

E49

Allowable leakage at each new and disturbed joint: None.

E50

NICKEL COPPER ALUMINUM (K-MONEL) BOLTING OF SEA VALVES NOTE: AND PIPE JOINTS - SHALL BE USED ON INBOARD AND OUTBOARD FLANGES AND BONNET JOINTS WHERE INTEGRITY OF THE HULL AGAINST THE SEA IS CONCERNED; ALSO WHERE VALVES ARE NOT READILY ACCESSIBLE FOR INSPECTION OR MAINTENANCE, i.e., MIL-DTL-24696, COMPRESSED ASBESTOS, MIL-G-24716, GASKET, METALLIC-FLEXIBLE GRAPHITE, SPIRAL WOUND OR ASME B16.20. SELF-LOCKING NUTS SHALL NOT BE USED ON BOILER BLOWDOWN AND DISCHARGE PIPING. Remove each existing and install new gasket and fastener. Gaskets shall conform to\_\_\_\_, \_\_\_\_. Fasteners shall conform to MIL-DTL-1222, Type I, Grade 500 nickel copper aluminum alloy. E51 NOTE: INVOKE APPLICABLE 009-12 REQUIREMENTS. Weld build-up the cracked, worn, and eroded areas of each and machine to dimensions and contours in accordance with 2. . E52a Handwork and skim cut each machined, sealing, aligning, mating, and gasket surface. E53 NOTE: SPECIFY TYPE OF MATERIAL AND MIL-SPEC. Install and fit **each** new chock and shim conforming to to accomplish alignment. E55a NOTE: FOR PUMPS AND TURBINES, SHIMS SHALL CONFORM TO SAE-AMS-

E55b

QQ-S-763, CRES, GRADE 304.

Install and fit **each** new shim conforming to to accomplish alignment.

Drill and ream <b>each</b> equipment support <b>foot</b> and foundation. Fit and install <b>each</b> new tapered dowel.		
E56a		
NOTE: SPECIFY TYPE OF MATERIAL.		
Drill and ream equipment support feet and foundations. Fit and install new tapered dowels in each unit to retain unit alignment.		
E56b		
NOTE:  TO MINIMIZE THE POSSIBILITY OF STRAINER BAG RUPTURE,  THE USE OF NYLON VICE MUSLIN FILTER BAGS (BECAUSE OF  THEIR GREATER STRENGTH) IS RECOMMENDED.		
Install new nylon filter bags in each strainer. Filter bags shall be of continuous filament nylon cloth, scoured finish, 80 by 80 thread, 75 to 100 micron fiber thickness, 125 to 200 micron holes in cloth.		
E59a		
NOTE: FOR USE IN LUBE OIL SYSTEMS WHERE RUPTURE OF FILTER BAG IS NOT PROBABLE.		
Install new cotton muslin filter bags with material conforming to CCC-C-432, Type 7, Class One, in each strainer.		
E59b		
Chase and tap each exposed threaded area.		
E62		
Install new coupling assembly and keys on each		
E64a		
Bore each coupling hub concentric and to size of shaft diameter within 0.001 inch total indicator reading and perpendicular to the face within 0.001 inch.		
E64b		
Cut keyways in each new coupling and fit new keys to the mating shafts and coupling hubs.		
E64c		

	concentric to within inch total indicator reading n inch gaged at the major diameter of the coupling			
E64d				
Inspect each bearing stave prior to installation aboard ship by probing with a pen knife or similar device at the rubber-metal interface around the total periphery of the stave to locate any unbonding of rubber from metal. A total cumulative length of unbonding greater than one inch, or any unbonding allowing the knife blade to be inserted deeper than one-fourth inch, shall be cause for rejecting the stave.				
Measure crankshaft de	eflection in accordance with 2			
E66				
Machine each brake drum a minimum amount to remove scoring, pitting, and eccentricity. Each drum shall be concentric to the drum bore within inch total indicator reading.  E67				
Clean each sump free	of foreign material.			
E68				
Hone each to re	emove glazing, scoring, and ridging.			
E69				
NOTE:	USE THE FOLLOWING WHEN CLEANING STEAM TURBINE INTERNALS, i.e., ROTORS, BLADING, CASING INTERNAL SURFACES.			
Blast clean each	with non-erosive cleaning agent.			
E72a				
Ensure cleaning agent is aluminum oxide with a particle size no coarser than 220 grit. Other cleaning agents such as glass beads, ash, and walnut shells are acceptable provided that the resultant finish is equivalent to that provided by 220 grit or finer aluminum oxide. The use of sand is prohibited.				
E72b				

Protect each machined surface against the action of the cleaning agent.
E72c
Measure runout of each shaft using dial indicator.
E73
Assemble each pump rotating assembly, using 2 for guidance.
E74
Clear each gage line and fitting free of foreign matter and obstructions.
E75
NOTE: FOR USE WITH A13a AND A13b WHEN LIGHT-OFF ASSESSMENT
(LOA)/PROPULSION EXAMINATION BOARD (PEB) RELATED.
<b>Ensure</b> calibration $is$ accomplished within days preceding the scheduled   LOA lock-out date.
E77
Install <b>each</b> new hold-down bolt and nut conforming to MIL-DTL-1222, Type , Grade, and steel self-locking hexagon nuts conforming to NASM-25027.
E78
E79a-E79d Phrases deleted. Invoke SI 009-115 for Rebabbitting.
Polish each to a root mean square average for roughness.
E82
Align each motor and compressor pulley to within inch parallel alignment. Belts shall depress inch at a point midway between the pulleys.
E83
Inert system with a positive pressure of 2 PSIG, using dry, oil-free nitrogen and a nitrogen regulator.
E84a

Install relief valve downstream of nitrogen regulator and set at 5 PSIG.
E84b
NOTE: SPECIFY TYPE OF MATERIAL.
Drill and ream equipment support feet and foundations. Fit and install new tapered dowels in each unit. The dowels shall be located in accessible locations for ease of removal that will retain unit alignment.
E86
Clear and clean each pocket and passage free of obstructions and foreign matter.
E87
Test each remote valve operator assembly for ease of operation and alignment by opening and closing each valve from its remote operating station through 3 complete cycles. Allowable binding: None.
E88
FOR USE ON NON-PRESSURE BOUNDARY APPLICATIONS SUCH AS COUPLING TAPER FITS, SPOTTING IN FOUNDATION LINERS, OR OTHER GENERAL APPLICATIONS WHERE BLUEING IS APPROPRIATE.
Inspect contact between and using the blueing transfer method.  Contact shall be a minimum of percent, evenly distributed over the contact surfaces.

# STANDARD PHRASEOLOGY

## SECTION F

1. This section of standard phraseology is for general use in electronic and electrical disciplines.
Disconnect mechanically and remove equipment listed in 1.3
F1
Matchmark, identify, and retain
F2
Accomplish an operational test of equipment and circuits.
F6
NOTE: FOR REFERENCE IN F8 AND F9, USE SE000-01-IMB-010, NAVY  INSTALLATION AND MAINTENANCE BOOK (NIMB), SECTION IX,  INSTALLATION STANDARDS (SOURCE CD: N0002400003).
Accomplish Swept Voltage Standing Wave Ration (VSWR) test on in accordance with Paragraph 5-2.11 of 2 Test shall be accomplished over the frequency range of equipment being tested.
F8a
Use standard VSWR reference loads at several points (i.e., 1.1:1, 1.25:1, 1.5:1, 2.1 and 3:1) to establish reference lines from lower to upper frequency limits.
F8b
Accomplish Insertion Loss test on in accordance with Paragraph 5-2.11 of 2 Tests shall be accomplished over frequency range of equipment being tested.
F9

NOTE: FOR REFERENCE USE 0967-LP-000-0130, ELECTRONICS INSTALLATION AND MAINTENANCE BOOK, TEST METHODS AND

PRACTICES.

Accomplish Time Domain Reflectometer (TDR) test on \_\_\_\_\_ in accordance with Paragraph 5-7 of 2.\_\_. Terminate each coaxial cable within its characteristic impedance and coefficient (RHO) control at maximum sensitivity. Record results on an X-Y recorder.

F10

Visually inspect each component prior to cleaning to detect evidence of casualties or deteriorating conditions that may not be apparent after cleaning.

F11

Inspect and test each component part and circuitry for shorts, opens, and grounds and determine missing and defective component parts and circuitry in accordance with  $2.\,$ 

F12

Remove **each** existing and install new wire and component part, using 2.\_\_ for guidance.

F13

Install Field Change \_\_\_\_\_. Accomplish the requirements of 2.\_\_\_.

F14

NOTE: USE FOR REPLACE WITH NEW, INSTALL OR REINSTALL -

EQUIPMENT.

HOOK-UP DATA COVERED BY 009-73.

Install equipment listed in 1.3.\_\_. Install retained hardware of 3.\_\_ and new CRES fasteners conforming to MIL-DTL-1222, Type I, Grade 304, using 2. for guidance.

F15a

NOTE: KNOWN TO BE A REQUIREMENT ON CG-47 CLASS.

HOOK-UP DATA COVERED BY 009-73.

Install equipment listed in 1.3.\_\_. Install retained hardware of 3 .\_\_ and new CRES fasteners conforming to MIL-DTL-1222, Type I, Grade 316, using 2. for guidance.

F15b

NOTE:

FOR REFERENCE USE MIL-STD-1310, SHIPBOARD BONDING, GROUNDING, AND OTHER TECHNIQUES FOR ELECTROMAGNETIC COMPATIBILITY AND SAFETY.

BOND STRAP FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH SECTIONS 7 AND 8 OF SE000-01-IMB-010, NAVY INSTALLATION AND MAINTENANCE BOOK (NIMB), SECTION VII, INDUSTRIAL ELECTROMAGNETIC COMPATIBILITY (IEMC) WORK PROCESS INSTRUCTIONS (SOURCE CD: N0002400003), INDUSTRIAL ELECTROMAGNETIC COMPATIBILITY (IEMC) WORK PROCESS INSTRUCTIONS.

Bond and ground equipment in accordance with 2.\_\_. Grounding straps shall be CRES 316L for topside equipment.

F16a

NOTE:

FOR REFERENCE USE (10001) OD 32382, GROUNDING AND BONDING EQUIPMENT ENCL. CHASSIS AND CASES, DESIGN AND INSTALLATION.

Bond and ground equipment in accordance with 2. and 2. .

F16b

**Ensure** acceptable criteria for equipment to hull ground via bond or ground strap is one-tenth ohm maximum.

F17

Remove each existing and install each new lug conforming to MIL-T-16366.

F18

Remove **each** existing and install new conductor identification sleeving conforming to SAE-AMS-DTL-23053, Class I, white, marked with indelible ink.

F19

NOTE:

FOR REFERENCE IN F22-F24, USE SE000-01-IMB-010, NAVY

INSTALLATION AND MAINTENANCE BOOK (NIMB), SECTION IX,

INSTALLATION STANDARDS (SOURCE CD: N0002400003).

Maintain temporary pressurization of \_\_\_\_\_ in accordance with Paragraph 5-2.7.1 of 2. upon completion of Insertion Loss Test.

F22

Purge and pressurize in accordance with Paragraph 5-1.14 of 2 upon completion of installation.
F23
Blank during unattended periods and maintain pressurization in accordance with Paragraph 5-2.6.6 of 2  F24
NOTE: USE F26a-F26c AND F28a-F28b FOR POST-REPAIR TEST.
Accomplish <b>each</b> Performance Test of 2 Align and adjust within the tolerances specified therein.
F26a
Record <b>each</b> reading on performance summary sheets.
F26b
Submit one legible copy, in hard copy or approved transferrable media, of completed summary sheets to the SUPERVISOR.
F26c
Accomplish an operational test of ship's service telephone installation.  Accomplish adjustments to verify operational performance in accordance with 2
F28a
Verify <b>each</b> circuit for audio output, clarity of voice transmission, and correct phone number.
F28b
Measure insulation resistance to ground for each stationary field winding and rotating field winding using a 500 volt direct current megger. Do not apply high voltages through solid state devices.
F29
Accomplish maintenance/reference standards test and record measurements of equipment listed in 1 in accordance with 2 Calibrate, test, and adjust the equipment and verify the performance of the equipment is within tolerances, using regulated power within the limits specified in 2
F30a

Install and connect equipment aboard ship prior to maintenance/reference standards test.
F30b
Remove unused foundation(s), cable hanger(s), wireway(s), bracket(s), and stud(s). Chip and grind surfaces flush and smooth in way of removals.
F35
<pre>Install each new foundation and stud for Template from new equipment. Install equipment on new foundation.</pre>
F36
Install and connect , installing <b>each</b> new fastener conforming to MIL-
DTL-1222, Type I or II, Grade 5, zinc coated.
DTL-1222, Type I or $\overline{\text{II, Grade 5, zinc coated.}}$
DTL-1222, Type I or II, Grade 5, zinc coated.  F37a  Install and connect, installing each new CRES fastener conforming to
DTL-1222, Type I or II, Grade 5, zinc coated.  F37a  Install and connect, installing each new CRES fastener conforming to MIL-DTL-1222, Type I, Grade 304.

## STANDARD PHRASEOLOGY

## SECTION G

1. This section of standard phraseology is for general use in piping disciplines.
Hydrostatically test, using at PSIG for a minimum of minutes. Allowable leakage: None.
G1
NOTE: USE ASTM F993, OR 810-5596087, SUPSHIP PORTSMOUTH STANDARD DRAWING VALVE LOCKING DEVICE (FOR CABLE LOCKING DEVICES, BUTTERFLY VALVES, AND LOCKED POSITION INDICATORS).
Install new locking devices on each valve listed in in accordance with 2
G2
NOTE: USE IN REPAIR OR SHIPALT WORK ITEMS FOR CLEANING NEW AND MODIFIED LEVEL II (AS DEFINED IN GSO SECTION 505j2) PIPING SYSTEMS WHICH DO NOT REQUIRE SPECIAL CLEANING REQUIREMENTS. REFER TO NOTE 1 IN GSO SECTION 505J2 FOR SYSTEMS REQUIRING SPECIAL CLEANING REQUIREMENTS.
Isolate <b>each</b> component subject to damage and clean the new and modified piping system to a cleanliness level that results in the internal surfaces being visually free of grease, oil, flux, scale, dirt, loose particles, and other contamination foreign to the base metal. Tap water residues on metals and light superficial rust on carbon steel surfaces, caused by a short time exposure to the atmosphere, are permitted. Light dust on cleaned surfaces is not objectionable, provided that the quantity and size of the particle does not adversely affect system operation.
G3a
NOTE: USE FOR CLEANING NEW AND MODIFIED LEVEL III PIPING SYSTEMS.
Isolate <b>each</b> component subject to damage and clean the new and modified piping system to a cleanliness level that results in the internal system surfaces being cleaned free of contamination and remaining residue on the surface does not interfere with the operation of or damage system components.
G3b

phonographic finish on flanges that have it.
G4
Ensure the copper-nickel piping is MIL-T-16420, Type, Class,inch wall thickness.
G5a
Ensure the carbon steel piping is MIL-P-24691.
G5b
Ensure the copper piping is MIL-T-24107,inch wall thickness.
G5c
Purge, evacuate, and dehydrate in accordance with 2 Charge with refrigerant in accordance with 2
G6
NOTE: FOR USE WITH 810-4714432, FOR PIPING HANGERS.
NNSY Standard Drawing, Std Pipe Hangers Fabrication Dets & Instl Instr (Non-Nuc Constr)
G7
Empty and clean, including piping associated with this Work Item.
G8
Align the piping to each Piping shall be supported independently and shall not impose a strain.
G9a
Align the piping to each Piping shall be supported independently and shall not impose a strain on the equipment.
G9b

Restore **each** piping flange mating surfaces exposed by disassembly of piping system. Repair by removing high spots, burrs, abrasions, and

foreign matter, where removal can be accomplished by hand tools. Maintain

FOR REFERENCE USE 804-1385781, HANGERS, PIPE, FOR NOTE: SURFACE SHIPS. Install each new hanger on new piping in accordance with 2. . G10a Install each new hanger to support the piping and prevent vibration in accordance with 2. . G10b Accomplish **each** test in accordance with General Notes of 2. . G12 MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated Piping Components for Naval Surface Ships G14a 802-5959353, MIL-STD-777D Modified for DDG-51 Class, Schedule of Piping, Valves, Fittings, and Associated Piping Components G14b FOR REFERENCE USE MIL-STD-777, SCHEDULE OF PIPING, NOTE: VALVES, FITTINGS, AND ASSOCIATED PIPING COMPONENTS (G14a). 1 FOR REFERENCE USE 802-5959353, MIL-STD-777D MODIFIED FOR DDG-51 CLASS, SCHEDULE OF PIPING, VALVES, FITTINGS, AND ASSOCIATED PIPING COMPONENTS (G14b). Ensure new materials conform to 2. , including Category and Group .| G15

 $\frac{\text{NOTE:}}{\text{FASTENERS NOT COVERED IN MIL-STD-777.}}$ 

## FOR BUTTERFLY VALVES INSTALLED IN FIREMAIN AND SALTWATER SYSTEMS, USE GASKET MATERIAL CONFORMING TO MIL-DTL-24696, TYPE II (FOR DDG-51 CLASS ONLY).

Install each valve, installing new gaskets conforming to and new fasteners conforming to				
G16				
NOTE:	FOR REFERENCE USE MIL-STD-777, SCHEDULE OF PIPING, VALVES, FITTINGS, AND ASSOCIATED PIPING COMPONENTS FOR NAVAL SURFACE SHIPS (G14a).			
	FOR REFERENCE USE 802-5959353, MIL-STD-777D MODIFIED FOR DDG-51 CLASS, SCHEDULE OF PIPING, VALVES, FITTINGS, AND ASSOCIATED PIPING COMPONENTS (G14b).			
2, including Cat	, installing new gaskets and fasteners conforming to tegory and Group			
G17				
	ational test of the new and disturbed piping lowable external leakage: None.			
Accomplish an opera	ational test of each newly installed valve at PSIG.			
G23a				
Cycle each valve from full closed to full open to full closed 4 times. Allowable external leakage: None.				
G23b				
NOTE:	FOR REFERENCE USE S9086-RK-STM-010/CH-505, PIPING SYSTEMS.			
	alignment of each expansion joint piping flange in ragraphs 505-3.3.1 through 3.3.6.5 of 2			
G24a				
<del>-</del>	copy, in hard copy or approved transferrable media, of easurements taken to the SUPERVISOR.			
G24b				

Nitrogen pressure test each brazed and mechanical joint at PSIG for a minimum of 15 minutes.
G25a
Inspect each brazed and mechanical joint, using a soap bubble method. Allowable leakage: None.
G25b
Machine each seat and disc to remove hardfacing.
G26a
Weld build-up each seat and disc.
G26b
Accomplish the requirements of 009-12 of 2.1, including Table One, Column C, Lines One through 9.
G26c
Machine each seat and disc to
G26d
Accomplish nondestructive testing in accordance with Line
G26e
Machine each seal ring seating area to remove stainless steel inlay.
G27a
Weld build-up each seal ring seating area.
G27b
Accomplish the requirements of 009-12 of 2.1, including Table One, Column H, Lines One through 9.
G27c

Machine each seal ring seating area to				
G27d				
Accomplish nondestructive testing in accordance with Line				
G27e				
NOTE: FOR REFERENCE USE MIL-STD-777, SCHEDULE OF PIPING, VALVES, FITTINGS, AND ASSOCIATED PIPING COMPONENTS FOR NAVAL SURFACE SHIPS (G14a).				
FOR REFERENCE USE 802-5959353, MIL-STD-777D MODIFIED FOR DDG-51 CLASS, SCHEDULE OF PIPING, VALVES, FITTINGS, AND ASSOCIATED PIPING COMPONENTS (G14b).	<u>,</u> 			
Install <b>each</b> new valve in place of those removed in 3 New materials shall conform to 2, including Category and Group				
G28a				
Shop test and set each relief valve prior to installation.				
G28b				
Ensure the test medium is				
G28c				
Ensure seat tightness is				
G28d				
Ensure lifting pressure is				
G28e				

Install wire and leadlock seals and attach a metal tag to each valve stamped with the following information after setting each relief valve:

Ship name and hull number Valve number or identification Date valve tested and set Name of repair facility

G28f