

Naval Education and
Training Command

NAVEDTRA 131A
July 1997

Support Manual for
MIL-HDBK-1379-2



PERSONNEL PERFORMANCE PROFILE BASED CURRICULUM DEVELOPMENT MANUAL

VOLUME I SUPPLEMENT - CURRICULUM DEVELOPERS AIDS



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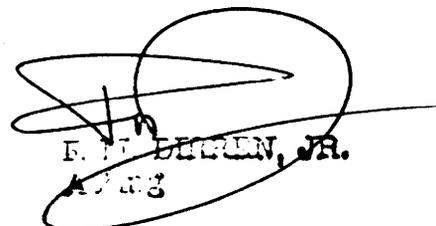
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LETTER OF PROMULGATION FOR NAVEDTRA 131A

1. This guidance manual has been extensively revised, in response to Navy and industry users. All changes reflect a continuing effort to increase the manual's utility to the training field. NAVEDTRA 131A supersedes and replaces NAVEDTRA 131.
2. A paradigm shift is taking place in Navy training materials development as we move from products developed within a rigid framework, and move toward design and development of training materials using a process oriented Instructional Systems Design/Systems Approach to Training (ISD/SAT). The ISD/SAT process is described in MIL-HDBK 1379-2 (9 June 1997). NAVEDTRA 131A supports the ISD/SAT process and training materials designed and developed using NAVEDTRA 131A are fully compatible with the ISD/SAT concept.
3. The procedures in this manual follow a Personnel Performance Profile (PPP) Based Curriculum Development method. This manual is intended for use by military, civil service, and contractor personnel engaged in Navy training materials development and modification.
4. Guidelines for planning a curriculum development project and for producing training materials through the five stages of the PPP based method are contained in this manual. Guidelines for the implementation and evaluation of curriculum materials are contained in NAVEDTRA 135A, Navy School Management Manual (October 1995).
5. Procedural guidance for development of training materials following a task based method is published in NAVEDTRA 130A.
6. Corrections and comments concerning this manual are invited and should be addressed to Chief of Naval Education and Training, Education Training Systems (ETS) division.
7. Reviewed and approved.


E. T. DIERKEN, JR.
AUG

NOTICE TO ONLINE USERS OF THIS MATERIAL

To keep online file size to a minimum, blank pages used in the paper copy for pagination have been omitted.

Only printed pages are contained online.

Chief of Naval Education and Training Education and Training Systems Division (ETS)

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FOREWORD

This supplement provides a variety of Curriculum Developer Aids (CDAs) which assist the developer in creating a PPP/TPS-Based Curricula. These CDAs range from simple Quick Reference Checklists (QRCs), which serve to remind the developer of all the required course documents, to more complex CDAs, such as those provided for PPP Table development.

The CDAs are suggested as a means of development but their use is optional.

For detailed guidance in developing any of the PPP/TPS products you must refer to the appropriate Volume and Chapter of NAVEDTRA 131A.

Additional CDAs for the subject titles listed below are under consideration and may be incorporated into this document at a later date.

TRAINING OBJECTIVE STATEMENT CODE CDAs
TRAINING LEVEL ASSIGNMENT CDAs
TABLE ASSIGNMENT MATRIX CDAs
TRAINING PATH CHART CDA
LESSON PLAN DEVELOPMENT CDAs
TRAINEE GUIDE DEVELOPMENT CDAs

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

QUICK REFERENCE CHECKLISTS

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

INTRODUCTION

These Quick Reference Checklists (QRCs) provide the Developer a quick reference for the end products of Curriculum Development. Additionally, each QRC lists the contents of each product, and provides references where detailed information regarding the products can be found.

You may use these QRCs to:

1. Check the products that you have updated or developed for correct content and order
2. Quickly find the appropriate reference manuals

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

PLANNING QRC

PLANNING PRODUCT

Training Project Plan (TPP) – The TPP is a proposal to develop a new course or revise an existing course.

TPP CONTENTS – Use the checklist provided to ensure that your TPP includes applicable elements from those listed.

<u>ELEMENT</u>	<u>CHECK HERE</u>
1. Cover Page	<input type="checkbox"/>
2. Table of Contents	<input type="checkbox"/>
3. Justification	<input type="checkbox"/>
4. Impact if Course Revision or Development is not Undertaken	<input type="checkbox"/>
5. Course Data Page	<input type="checkbox"/>
6. Safety Risks and Hazardous Materials Exposure	<input type="checkbox"/>
7. Curriculum Development Method Recommended	<input type="checkbox"/>
8. Milestones	<input type="checkbox"/>
9. Required Resources	<input type="checkbox"/>

PLANNING REFERENCES

1. NAVEDTRA 131A, Volume I, Chapter 2
2. NAVEDTRA 131A, Volume II, Tab A-1
3. NAVEDTRA 131A, Volume III, Chapter 2

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

STAGE ONE QRC

STAGE ONE PRODUCTS

Personnel Performance Profile (PPP) Tables – PPP Tables list the minimum knowledge and skills required to coordinate, direct, or perform operation and maintenance. The five types of PPP Tables are:

<i>HARDWARE</i>	<i>NON-HARDWARE</i>
<i>Equipment</i>	<i>Task/Function } T/F</i>
<i>Subsystem } E/SS/S</i>	<i>Background } B/G</i>
<i>System</i>	

PPP TABLE PACKAGE CONTENTS – Your project may contain any combination of the above tables. Normally, several PPP tables are developed for a particular program. When completed, they are delivered to the Curriculum Control Authority (CCA) for review as a package. Use the checklist below to ensure you include all required elements.

<u>ELEMENT</u>	<u>CHECK HERE</u>
1. PPP Cover including the Date of Issue	<input type="checkbox"/>
2. PPP Table Listing including:	<input type="checkbox"/>
a. PPP Table Title	<input type="checkbox"/>
b. Originating Activity of each PPP Table listed	<input type="checkbox"/>
3. PPP Table Title Page including:	<input type="checkbox"/>
a. Assigned PPP Table Number	<input type="checkbox"/>
b. Latest Equipment Modification Record Number	<input type="checkbox"/>
c. New Design-Drawing Number	<input type="checkbox"/>
4. All Applicable E/SS/S, Task/Function, or Background PPP Tables developed or revised for the project	<input type="checkbox"/>

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

Training Path System (TPS) – A tool used to identify the training requirements for ALL categories of personnel in a training program.

TPS CONTENTS – Use the checklist provided below to ensure that all elements of the TPS are included in your TPS.

<u>ELEMENT</u>	<u>CHECK HERE</u>
1. Cover Page	<input type="checkbox"/>
2. Table of Contents	<input type="checkbox"/>
3. Introduction	<input type="checkbox"/>
4. Training Objective Statements (TOS)	<input type="checkbox"/>
5. Training Level Assignment (TLA) Tables	<input type="checkbox"/>
6. Table Assignment Matrix (TAM)	<input type="checkbox"/>
7. Training Path Chart (TPC)	<input type="checkbox"/>
8. PPP Table Index	<input type="checkbox"/>

STAGE ONE REFERENCES

1. NAVEDTRA 131A, Volume I, Chapters 3 and 4
2. NAVEDTRA 131A, Volume II, Tab A-2, A-3
3. NAVEDTRA 131A, Volume III, Chapters 3 and 4

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

STAGE TWO QRC

STAGE TWO PRODUCTS

Training Course Control Document (TCCD) – A collection of products which expresses in summary form, the content, structure, and essential management information for a course.

TCCD CONTENTS – Use the following checklist to ensure that your TCCD includes all the elements listed.

<u>ELEMENT</u>	<u>CHECK HERE</u>
A. FRONT MATTER	
1. Cover Page	<input type="checkbox"/>
2. Letter of Promulgation	<input type="checkbox"/>
3. Table of Contents	<input type="checkbox"/>
4. Foreword	<input type="checkbox"/>
5. Course Data	<input type="checkbox"/>
6. Trainee Data	<input type="checkbox"/>
B. CURRICULUM OUTLINE OF INSTRUCTION	
1. Part(s)	<input type="checkbox"/>
2. Section	<input type="checkbox"/>
3. Topic	<input type="checkbox"/>
4. Course Learning Objectives	<input type="checkbox"/>
5. Topic Learning Objectives	<input type="checkbox"/>
C. ANNEXES	
1. Resource Requirements List (RRL)	
2. Course Master Schedule	
3. Fault Applicability List (FAL)	<input type="checkbox"/>
4. Profile Item-to-Topic Objective Assignment Chart	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

STAGE TWO REFERENCES

1. NAVEDTRA 131A, Volume I, Chapter 5
2. NAVEDTRA 131A, Volume II, Tab A-4
3. NAVEDTRA 131A, Volume III, Chapter 5

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

STAGE THREE QRC

STAGE THREE PRODUCTS

Lesson Plan – A Lesson Plan is the document that programs the use of all other Training Materials.

Trainee Guide – A Trainee Guide is the primary trainee training material.

Test Package – A Test Package is a collection of documents which provide the CCA with a comprehensive Test format breakdown.

Instructional Media Material – IMM is a classroom and lab training support asset that is used by the instructor.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

LESSON PLAN CONTENT – Use the checklist provided below to ensure that your Lesson Plan includes all the elements listed.

<u>ELEMENT</u>	<u>CHECK HERE</u>
Front Matter	
a. Cover Page (Optional)	<input type="checkbox"/>
b. Title Page	<input type="checkbox"/>
c. List of Effective Pages	<input type="checkbox"/>
d. Letter of Promulgation (Optional)	<input type="checkbox"/>
e. Change Record	<input type="checkbox"/>
f. Table of Contents	<input type="checkbox"/>
g. Security Awareness Notice	<input type="checkbox"/>
h. Safety/Hazard Awareness Notice	<input type="checkbox"/>
i. How to Use the Lesson Plan	<input type="checkbox"/>
j. Course Master Schedule	<input type="checkbox"/>
g. Course Learning Objectives	<input type="checkbox"/>
Part Elements	
a. Tab Divider	<input type="checkbox"/>
b. Section Pages	<input type="checkbox"/>
c. Topic Pages	<input type="checkbox"/>
d. Discussion-Demonstration-Activity (DDA) Pages	<input type="checkbox"/>
e. Answer Sheets	<input type="checkbox"/>
Reference Material Elements (Optional)	
a. Resource Requirements List (RRL)	<input type="checkbox"/>
b. Profile Item-to-Topic Objective Assignment Chart (OAC)	<input type="checkbox"/>
c. Fault Applicability List (FAL)	<input type="checkbox"/>

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

TRAINEE GUIDE CONTENT – Use the checklist to ensure your Trainee Guide includes all the elements listed.

<u>ELEMENT</u>	<u>CHECK HERE</u>
<p>Front Matter</p> <ul style="list-style-type: none"> a. Trainee Name Page (Optional) b. Cover (Optional) c. Title Page d. List of Effective Pages e. Change Record f. Security Awareness Notice g. Safety/Hazard Awareness Notice h. Table of Contents i. How To Use Your Trainee Guide j. Course Learning Objectives k. Course Master Schedule (Optional) 	<ul style="list-style-type: none"> <input type="checkbox"/>
<p>Instruction Sheets</p> <ul style="list-style-type: none"> a. Information Sheets b. Diagram Sheets c. Job Sheets d. Assignment Sheets e. Problem Sheets f. Outline Sheets 	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

TEST PACKAGE CONTENT – Use the checklist provided to ensure your Test Package includes all of the elements listed.

<u>ELEMENT</u>	<u>CHECK HERE</u>
<ul style="list-style-type: none"> a. Testing Plan b. Performance Test Administrator's Guide c. Job Sheets d. Written Test Administrator's Guide e. Written Test Items 	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

NAVEDTRA 131A, VOLUME I SUPPLEMENT
QUICK REFERENCE CHECKLISTS

INSTRUCTIONAL MEDIA MATERIAL – The checklist provided below lists various types of IMM. Your project may contain some or all of these training supports. The list is not all inclusive.

<u>ELEMENT</u>	<u>CHECK HERE</u>
Transparencies	
Video Tapes	<input type="checkbox"/>
Slide Presentation	<input type="checkbox"/>
Wall Charts	<input type="checkbox"/>
Audio Presentation	<input type="checkbox"/>
OJT Handbook	<input type="checkbox"/>

STAGE THREE REFERENCES

LESSON PLAN

1. NAVEDTRA 131A, Volume I, Chapter 6
2. NAVEDTRA 131A, Volume II, Tab A-5
3. NAVEDTRA 131A, Volume III, Chapter 5

TRAINEE GUIDE

1. NAVEDTRA 131A, Volume I, Chapter 7
2. NAVEDTRA 131A, Volume II, Tab A-6
3. NAVEDTRA 131A, Volume III, Chapter 5

TEST PACKAGE

1. NAVEDTRA 131A, Volume I, Chapter 8
2. NAVEDTRA 131A, Volume II, Tab A-7
3. NAVEDTRA 131A, Volume III, Chapter 5

INSTRUCTIONAL MEDIA MATERIAL

1. NAVEDTRA 131A, Volume I, Chapter 9
2. NAVEDTRA 131A, Volume III, Chapter 5

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

PPP TABLE DEVELOPMENT

NAVEDTRA 131A, VOLUME I SUPPLEMENT

PPP TABLE DEVELOPMENT

INTRODUCTION

PPP Tables are the cornerstone of PPP Based Curriculum Development. Figure 1 illustrates how PPP tables and their associated Line Items appear in the various curriculum documents.

This section of the supplement provides the “tools” needed to construct Equipment, Subsystem, and System (E/SS/S)–*Hardware*– and Background and Task/Function (B/G and T/F)– *Non Hardware*–PPP Tables

To develop PPP Tables you must first assemble the information needed for your project. Table 1, E/SS/S Data Compilation, provides a list of the information required for most E/SS/S PPP Tables. Task/Function and Background tables are the last to be developed. The general and prerequisite knowledge requirements identified in these tables is derived from analysis of the completed E/SS/S Tables.

The next step in development is to complete the PPP Model Statements contained in Tables 2 through 4. The E/SS/S Model Statements contain blanks where the name of your Equipment, Subsystem, or System is inserted. The Task/Function and Background Model Statements provide blanks where general and prerequisite knowledge you have determined necessary can be inserted.

Following the Model Statements, CDAs are provided that lead you step-by-step through the process of selecting the applicable Model Statements for your Hardware PPP tables. They will become the Hardware PPP Table Line Items.

Finally, PPP Table Checklists are provided that assist you in determining that all necessary information has been included in your PPP tables

ANALYZING AND COMPILING INFORMATION

After the information resources have been identified and obtained, use them to compile data regarding:

- Equipment characteristics
- Operation and maintenance requirements
- Documentation requirements
- Safety and security considerations

Table 1 may be used as an Aid for identifying these and other characteristics and requirements. You should regard Table 1 as an aid only and not limit your data collection to the categories listed. Other data unique to the equipment or the particular training situation may need to be added. However, using Table 1, you should be able to more adequately account for required data while analyzing documentation, interviewing personnel, and observing actual equipment operation and maintenance.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

PPP TABLE S0136. Commercial Utility Cargo Vehicle (TYPE A), Utility (Equipment)

PPP LINE ITEM

ITEM	KNOWLEDGE/SKILL
1-5-2	Describe operational tasks for CUCV (TYPE A) a. Pre-operational procedures (1) Routine (go/no-go, self test, etc.) b. Operational procedures c. Post-operational procedures
1-5-3	Describe indications which may occur during operation of the CUCV (TYPE A). Include alarms, indicators, displays, and readouts.
1-5-4	Describe casualty/degraded/abnormal/not full mission capable mode(s) of operation for the CUCV (TYPE A).
1-5-5	Describe data logging requirements for the CUCV (TYPE A). Include logging method, types of data logged, and disposition.
1-5-6	Describe all acceptance tests for the CUCV (TYPE A).

– PPP Line Item

*The Line Item as it appears in the **Equipment PPP Table**. Chapter three of Volume I provides a detailed discussion of PPPs.*

FIGURE 1: TRACK OF SELECTED PPP “LINE ITEM/TABLE NUMBER REFERENCE” THROUGH A CURRICULUM (PAGE 1 OF 7)

TRAINING LEVEL ASSIGNMENT (TLA) CHART

Training Level Assignment for the Construction Mechanic (NEC CM-XXXX) TLA-CM1									
TABLE S0136									
ITEM	LEVEL								
	F1	T1	T2	T3	O1	O2	P1	C1	C2
1-1-1	A	A							
1-1-2	A	A							
1-1-3	A	A							
1-1-4	A	A							
1-1-5	A	A							
1-4-2	A	A							
1-5-1	A	A							
1-5-2a	A								
1-5-2b	A								
1-5-2c	A	A							
1-5-3	A	A							

← PPP
Line
Item

*The **TLA** identifies the level at which the line item will be taught and the location of the training. Chapter 4 (Training Path System (TPS) information) of Volume I discusses this chart in detail.*

FIGURE 1: TRACK OF SELECTED PPP “LINE ITEM/TABLE NUMBER REFERENCE” THROUGH A CURRICULUM (PAGE 2 OF 7)

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

OBJECTIVE ASSIGNMENT CHART (OAC)

PROFILE ITEM-TO-TOPIC OBJECTIVE ASSIGNMENT CHART								
TABLE	ITEM	TOS	VOL	PART	SECT	TOPI C	L.O.	TEST ITEM NO.
S0136	1-4-2	T1			2	2	2	1
	1-4-2	T2			4	2	2	1
	1-5-1	T1			2	3	1	1
	1-5-1	T2			4	3	1	1
	1-5-2 a	T1			2	3	2	1-3
	b	T1			2	3	2	1-5
	c	T1			2	3	2	1
	d	T2			4	3	2	1
	1-5-3	T1			2	3	3	1
	1-5-3	T2			4	3	3	1

← PPP
Line
Item

The profile item-to-topic assignment chart is abbreviated “OAC” for Objective Assignment Chart. This chart provides a cross reference between the PPP line items, Lesson Plan location, Learning Objectives and test items. The OAC is discussed in detail in Chapter 5 of Volume I.

FIGURE 1: TRACK OF SELECTED PPP “LINE ITEM/TABLE NUMBER REFERENCE” THROUGH A CURRICULUM (PAGE 3 OF 7)

LESSON PLAN

A-234-5478 VOLUME I

TABLE OF CONTENTS

Section	Page	Section	Page
FRONT MATTER			
Cover	i	2. Interface Description of the CUCV (TYPE A)	S0136-2-2-1
List of Effective Pages	ii	3. BASIC OPERATION OF THE CUCV (TYPE A)	S0136-2-3-1
Letter of Promulgation	iii		
Changes	iv	3. BASIC OPERATION OF THE CUCV (TYPE A)	S0136-3-1
Record Awareness Notice	v	1. Basic Operation of the CUCV (TYPE A)	S0136-3-1-1
Table of Contents	vi	4. THEORY OF THE CUCV (TYPE A)	S0136-4-1
How to Use the Lesson Plan	viii	1. Functional Description of the CUCV (TYPE A)	S0136-4-1-1
Allocation of Instructional Time	xii	2. Interface Description of the CUCV (TYPE A)	S0136-4-2-1
Course Learning Objectives	xvi	3. Operational Description of the CUCV (TYPE A)	S0136-4-3-1
		4. Maintenance Description of the CUCV (TYPE A)	S01364-4-1
		5. OPERATION OF THE CUCV (TYPE A)	S0136-5-1
		1. Operation of the CUCV (TYPE A)	S0136-5-1-1
VOLUME I			
PART 542 COMMERCIAL UTILITY CARGO VEHICLE (TYPE A) CUCV)			
1. FAMILIARIZATION WITH THE CUCV (TYPE A)	S0136-1-1		
1. General Description of the CUCV (TYPE A)	S0136-1-1-1		
2. Physical Description of the CUCV (TYPE A)	S0136-1-2-1		
2. INTRODUCTION TO THE CUCV (TYPE A)	S0136-2-1		
1. Functional Description of the CUCV (TYPE A)	S0136-2-1-1		

←PPP
Table
No. Ref.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

The Table of Contents page of the Lesson Plan identifies the specific PPP line item and its location within the Lesson Plan. Chapter 6, Volume I provides a detailed discussion of Lesson Plan organization.

FIGURE 1: TRACK OF A SELECTED PPP “LINE ITEM/TABLE NUMBER REFERENCE” THROUGH A CURRICULUM (PAGE 4 OF 7)

LESSON PLAN

A-234-5678 VOLUME I

COURSE LEARNING OBJECTIVES

Upon successful completion of this course, the trainee will have acquired the following knowledge and skill and be able to:

Knowledge:

1. State the purpose, function, and describe the documentation of the CUCV (TYPE A).
2. Describe the theory necessary to support and understand the performance of normal operation without going into logic, circuits, program flow diagrams, or mechanical component breakdown of the CUCV (TYPE A).
3. Describe the theory necessary to support and understand the performance of all operational tasks and, all preventive and basic corrective maintenance without going into detailed logic, circuit analysis, individual flow diagrams, or detailed mechanical component breakdown of the CUCV (TYPE A).

Skills:

1. Perform normal operational procedures with supervision on the CUCV (TYPE A).
2. Perform all operational procedures with supervision on the CUCV (TYPE A).
3. Perform preventive maintenance procedures with supervision on the CUCV (TYPE A).
4. Perform documented fault isolation and repair procedures with supervision on the CUCV (TYPE A).
5. Perform approved, undocumented corrective maintenance procedures, with supervision, to the authorized repair level for the CUCV (TYPE A).

SKILL AND KNOWLEDGE DERIVED FROM A PPP LINE ITEM

The PPP line items converted to Course Learning Objectives. The Course Learning Objectives page can be found in the Lesson Plan section of the curriculum. Chapter 6, Volume I provides a detailed discussion of Lesson Plan organization.

FIGURE 1: TRACK OF A SELECTED PPP “LINE ITEM/TABLE NUMBER REFERENCE” THROUGH A CURRICULUM (PAGE 5 OF 7)

Topic Learning Objectives

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

LESSON PLAN

1. Commercial Utility Cargo Vehicle (Type A) Utility

A-234-5678 VOLUME I

Topic 1. Operation Tasks for the CUCV (Type A)

Topic Learning Objectives:

Upon successful completion of this topic the trainee will be able to:

- 1. Describe operational tasks CUCV (Type A)
 - A. Pre-operational tasks (CUCV (Type A))
 - B. Operational procedures
 - C. Post-operational procedures

Topic Learning Objective Derived from a -PPP Line Item

- 3. Describe casualty/degraded/abnormal/not full mission capable mode(s) of operation for the CUCV (Type A)
- 4. Describe data logging requirements for the CUCV (Type A). Include logging method, types of data logged and disposition.
- 5. Describe the acceptance tests for the CUCV (Type A)

- 2. Describe indications which may occur during operation of the CUCV (Type A). Include alarms, indicators, displays, and results.

The PPP Line Item as it appears as a Topic Learning Objective (TLO) within a Lesson Plan. TLOs are usually the same as the PPP Line Item. Chapter 6, Volume I provides a detailed discussion of Lesson Plans.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

**FIGURE 1: TRACK OF A SELECTED PPP “LINE ITEM/TABLE NUMBER REFERENCE”
THROUGH A CURRICULUM (PAGE 6 OF 7)**

INFORMATION SHEET

TRAINEE GUIDE		A-234-5678
		Sheet 1 of 3
INFORMATION SHEET	S1036-2-3-1	-PPP Table Number Reference
DAILY PRE-OPERATIONAL PROCEDURES		
A. INTRODUCTION		
1. This information sheet will inform you of the pre-operational procedures that must be done daily before operating the CUCV (TYPE A).		
B. REFERENCES		
1. <i>Operator's Manual for CUCV (TYPE A), Utility</i> (TM-2320-289-10)		
C. INFORMATION		
1. The following PRE-OPERATIONAL PROCEDURES must be done each day before operating your UTILITY VEHICLE. Failure to perform these daily PRE-OPERATIONAL PROCEDURES may cause serious damage to your vehicle.		
a. CHECK OIL LEVEL. Operator's Manuals for all wheeled tracked vehicles stress performance of this procedure.		

An Information Sheet pertaining to a specific PPP line item. Information Sheets provide amplifying information not available in the manuals. Information Sheets are found in the Trainee Guide. Chapter 7, Volume I provides a detailed discussion of the Trainee Guide.

FIGURE 1: TRACK OF A SELECTED PPP “LINE ITEM/TABLE NUMBER REFERENCE” THROUGH A CURRICULUM (PAGE 7 OF 7)

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE 1. E/SS/S DATA COMPILATION

A. PHYSICAL/FUNCTIONAL/OPERATIONAL DESCRIPTION	
1. Purpose (intended use)	<input type="checkbox"/>
2. Operating processes	<input type="checkbox"/>
3. Dimensions	<input type="checkbox"/>
4. Capabilities	<input type="checkbox"/>
5. Limitations	<input type="checkbox"/>
6. Manual/automatic aspects	<input type="checkbox"/>
B. REQUIREMENTS (Operating, Logistic, Interface, Maintenance, Environment)	
1. Power	<input type="checkbox"/>
2. Input/output signals	<input type="checkbox"/>
3. Coding	<input type="checkbox"/>
4. Procedures	<input type="checkbox"/>
a. Pre-operational	<input type="checkbox"/>
b. Normal	<input type="checkbox"/>
c. Shutdown	<input type="checkbox"/>
d. Emergency	<input type="checkbox"/>
e. Post-operational	<input type="checkbox"/>
5. Ancillary equipment (test, handling, monitoring, etc.)	<input type="checkbox"/>
6. System/subsystem interface	<input type="checkbox"/>
7. Maintenance policy	<input type="checkbox"/>
8. Tests (on-line/off-line)	<input type="checkbox"/>
9. Preventive maintenance (adjusting, cleaning, lubricating, etc.)	<input type="checkbox"/>
10. Corrective maintenance (fault isolation, level of repair, disassembly, assembly, etc.)	<input type="checkbox"/>
11. Environment	<input type="checkbox"/>
a. Temperature	<input type="checkbox"/>
b. Ventilation	<input type="checkbox"/>
c. Electric/magnetic fields	<input type="checkbox"/>
d. Radiation	<input type="checkbox"/>
e. Chilled air/water	<input type="checkbox"/>
12. Calibration and Alignment	<input type="checkbox"/>
13. Accuracy	<input type="checkbox"/>
C. DOCUMENTATION	
1. Technical publications	<input type="checkbox"/>
2. Operation and maintenance procedures	<input type="checkbox"/>
3. Logs	<input type="checkbox"/>
D. SAFETY	
	<input type="checkbox"/>
E. SECURITY	
	<input type="checkbox"/>

MODEL STATEMENTS

In this section you will find tables that will assist you in the development of both Hardware and Non-hardware PPP Table Line Items

The steps you take should be:

1. Complete E/SS/S Model Statements using the E/SS/S Model Statement Table
2. Complete Task/Function and Background Model Statements using the applicable Model Statement Tables
3. Construct Equipment PPP Tables using the Equipment PPP Table CDA
4. Construct Subsystem PPP Tables using the Subsystem PPP Table CDA
5. Construct System PPP Tables using the System PPP Table CDA

Hardware Model Statements

Use Table 2 to develop Hardware PPP Table Line Items. When completed, all applicable Equipment, Subsystem, and System (E//SS/S) PPP Table Line Items will be extracted from Table 2.

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PPP TABLE DEVELOPMENT

TABLE 2. E/SS/S MODEL STATEMENTS (Sheet 1 of 8)

2.	<u>(EQUIPMENT, SUBSYSTEM, OR SYSTEM) SKILLS</u>
2-1.	<p>OPERATION</p> <p>No operation involved. (Inserted when the equipment, subsystem, or system requires no operator action.)</p> <p>-Or-</p>
2-1-1.	<p>Perform tasks for operation of the _____ including:</p> <p>a. Pre-operational procedures</p> <p style="padding-left: 40px;">(1) Routine (2) Installation (3) Assembly</p> <p>b. Operational procedures</p> <p>c. Post-operational procedures</p>
2-1-2.	<p>Recognize and interpret all indications occurring during the performance of the operating procedures and perform appropriate operator actions in the proper sequence on the _____.</p>
2-1-3.	<p>Perform tasks in the (i) casualty, (ii) degraded, (iii) abnormal, and (iv) not full mission capable modes of operation for the _____.</p>
2-1-4.	<p>Recognize and interpret the format of tapes punched under computer control of the _____.</p>
2-1-5.	<p>Perform data logging requirements for the _____.</p>

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PPP TABLE DEVELOPMENT

TABLE 2. E/SS/S MODEL STATEMENTS (Sheet 2 of 8)

2-1-6.	Perform acceptance tests for the _____.
2-1-7.	Adhere to the security requirements during operation of the _____.
2-1-8.	Adhere to personnel and equipment safety precautions during operational procedures for the _____.
2-2.	MAINTENANCE
2-2-1.	Use special (i) tools and (ii) test equipment required for maintenance of the _____ as prescribed in applicable documentation.
2-2-2.	Perform preventive maintenance procedures, including quality assurance procedures, on the _____ as scheduled by the (i) Preventive Maintenance Management Plan (PMMP), (ii) Planned Maintenance System (PMS), and (iii) Naval Aviation Maintenance Program (NAMPP).
2-2-3.	Perform (i) alignment, (ii) adjustment, and (iii) calibration procedures on the _____.
2-2-4.	Perform the (i) operational tests and (ii) diagnostic programs, as applicable, for maintenance of the _____.
2-2-5.	Recognized and interpret all malfunction indications for the _____.
2-2-6.	Perform systematic fault isolation procedures contained in prescribed maintenance documentation.
2-2-7.	Use authorized methods to isolate faults which cannot be located using procedures contained in prescribed maintenance documentation.

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PPP TABLE DEVELOPMENT

TABLE 2. E/SS/S MODEL STATEMENTS (Sheet 3 of 8)

2-2-8.	(i) Disassemble, (ii) repair, and (iii) reassemble the _____ to the authorized maintenance level. (Not applicable to the subsystem and system PPP model statements.)
2-2-9.	Perform post-repair procedures, including quality assurance procedures, on the _____.
2-2-10.	Adhere to the security requirements when performing maintenance on the _____.
2-2-11.	Adhere to personnel and equipment safety precautions when performing maintenance procedures on the _____.
1.	<u>(EQUIPMENT, SUBSYSTEM, OR SYSTEM) KNOWLEDGE</u>
1-1.	GENERAL
1-1-1.	State the function(s) of the _____.
1-1-2.	State that the _____ consists of the following (Equipment, use "major functional areas") (Subsystem, use "equipment") (System, use "subsystems"). Include the function of each. a. (Equipment – list the major functional areas) (Subsystem – list the equipment) (System – list subsystems)
1-1-3.	Define the (i) abbreviations, (ii) terms, and (iii) symbols used with the _____.
1-1-4.	State the operational characteristics and capabilities of the _____. a. Power, logic levels, capacity, emergency, tolerances, and accuracies when applicable.
1-1-5.	Describe the differences between models of the _____.
1-1-6.	State the security requirements for the _____.

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PPP TABLE DEVELOPMENT

TABLE 2. E/SS/S MODEL STATEMENTS (Sheet 4 of 8)

1-2.	PHYSICAL DESCRIPTION
1-2-1.	Describe all major and associated components of the _____ . Include (i) name, (ii) nomenclature, (iii) physical appearance, (iv) reference designator, (v) location, and (vi) construction features. a. (Equipment – list major components, subassemblies, and functional areas) (Subsystem – list the equipment) (System – list subsystems)
1-2-2.	Describe the (i) displays, (ii) controls, and (iii) indicators, directly associated with the _____ . Include name, (iv) reference designator, (v) positions, (vi) colors, and (vii) location.
1-3.	FUNCTIONAL DESCRIPTION
1-3-1.	Describe how the _____ works (functional operation). Include (i) methods of control, (ii) signal flow, (iii) sequential operation, and (iv) indications. a. (Equipment – list major components, subassemblies, and functional areas) (Subsystem – list equipment) (System – list subsystems) -Or-
1-3-2.	Describe how the _____ works (functional operation). Include (as applicable): types of signals, signal flow, sequential operation, coding, indication, frequencies, modes, inputs and outputs, signal exchange, signal generation, timing relationship of signals, sequence of events, logic elements, circuits and registers involved, integration of circuits or elements to perform loop functions, signal/data format, power supplies, and protective devices.

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PPP TABLE DEVELOPMENT

TABLE 2. E/SS/S MODEL STATEMENTS (Sheet 5 of 8)

1-3-3.	Describe how loops within the _____ work (functional operation). Include (as applicable): method of control, signal flow, sequential operation, indications, types of signals, coding, frequencies, modes, inputs and outputs, signal exchange, signal generation, timing relationship of signals, sequence of events, phase-lock loops, logic elements, circuits and registers involved, integration of circuits or elements to perform loop functions, signal/data format, power supplies, and protective devices.
1-3-4.	Describe the functions of each (i) control and (ii) indicator in each (iii) position, (iv) condition, and (v) color.
1-3-5.	Describe each program, sub-program, routine, command, instruction, code, option, etc. used with the _____. Include name, (i) program number, and (ii) assumptions and constraints imposed.
1-4.	INTERFACE DESCRIPTION
1-4-1.	Describe the physical interface between the _____ and related external equipments. Include (i) name (ii) physical appearance, (iii) reference designator, and (iv) locations. a. (List applicable electrical, hydraulic, mechanical, or pneumatic connections).
1-4-2.	Describe functional interface between the _____ and related external equipments. a. Electrical (power source) b. Electronic (input, output, and control signals) c. Pneumatic (gases of any type: e.g., nitrogen, freon, air, helium, etc.) d. Hydraulic (liquids of any type: e.g., water, hydraulic oil, lube oil, etc.) e. Mechanical (1) Structural or Hull (2) Shafts, gears, springs, etc.

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PPP TABLE DEVELOPMENT

TABLE 2. E/SS/S MODEL STATEMENTS (Sheet 6 of 8)

1-5.	OPERATIONAL DESCRIPTION
1-5-1.	No operation involved. (Inserted when the equipment, subsystem, or system requires no operator action) -Or- Describe the authority and regulations pertaining to the operation of the _____, including external equipments which interface with it.
1-5-2.	Describe operational tasks to perform on the _____. a. Pre-operational procedures. (1) Routine (GO/NO-GO, Self test, etc.) (2) Installation (3) Assembly b. Operational procedures c. Post-operational procedures
1-5-3.	Describe indications which should or may occur during operation of the _____. Include (i) alarms, (ii) indicators, (iii) displays, (iv) readouts, and (v) printouts/typeouts.
1-5-4.	Describe (i) casualty, (ii) degraded, (iii) abnormal, (iv) not full mission capable modes of operation of the _____.
1-5-5.	Describe (i) interpretation, (ii) function, (iii) use, and (iv) format of tapes punched under computer control of the _____.
1-5-6.	Describe the data logging requirements for the _____. Include (i) logging method, (ii) type of data logged, and (iii) disposition.
1-5-7.	Describe all acceptance tests for the _____.
1-5-8.	Describe security requirements to be observed during operation of the _____.
1-5-9.	Describe personnel and equipment safety precautions which are to be observed during operation of the _____.

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PPP TABLE DEVELOPMENT

TABLE 2. E/SS/S MODEL STATEMENTS (Sheet 7 of 8)

1-6.	MAINTENANCE DESCRIPTION
1-6-1.	<p>Define the maintenance policy for the _____.</p> <p>a. Preventive maintenance – the requirement for periodic performance of tasks to minimize equipment malfunctions.</p> <p>(1) Servicing – scheduled or unscheduled inspections, cleaning, fueling, lubrication, corrosion control, and any other function in support of maintaining any equipment full mission capable.</p> <p>(2) Operational checks (confidence or self tests)</p> <p>(a) Pre-maintenance procedures (b) Performance checks (c) Degradation/deterioration checks (d) Quality Assurance checks</p> <p>(3) Progressive maintenance (if applicable) – periodic refurbishment of components or assemblies in order to maintain levels of performance or reliability.</p> <p>b. Corrective maintenance – checks and procedures used to locate and correct malfunctions.</p> <p>(1) Authorized repair responsibility – correction of malfunctions to the authorized maintenance level.</p> <p>(2) Fault isolation – location of faults to the level of available spares and authorized repair level.</p> <p>(a) Equipment operational checks and tests. (b) Fault isolation tests and procedures.</p> <p>(3) Analytical procedures – isolation of faults using authorized methods not contained in prescribed maintenance documentation.</p>

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TABLE 2. E/SS/S MODEL STATEMENTS (Sheet 8 of 8)

1-6-1 – cont.	(4) Post-maintenance procedures – procedures performed after repair including quality assurance checks.
1-6-2.	Describe the use of (i) special tools and (ii) test equipment required for maintenance of the _____ as prescribed in applicable maintenance documentation.
1-6-3.	Describe preventive maintenance procedures for the _____. Include recognition and interpretation of all indications, (i) records, (ii) reports and instructions.
1-6-4.	Describe (i) alignment, (ii) adjustment, and (iii) calibration procedures for the _____.
1-6-5.	Describe the (i) operational tests and (ii) diagnostic programs, as applicable, for maintenance of the _____. (iii) Include the test names, uses, and procedures.
1-6-6.	Describe the recognition and interpretation of all malfunction indications for the _____.
1-6-7.	Describe the systematic fault isolation procedures contained in prescribed maintenance documentation for the _____.
1-6-8.	Describe authorized methods to isolate faults which cannot be located using procedures contained in prescribed documentation.
1-6-9.	Describe the procedures to (i) disassemble, (ii) repair, and (iii) reassemble the _____ to the authorized maintenance level. (Not applicable to the subsystem and system PPP model statements.)
1-6-10.	Describe the post repair procedures for the _____.
1-6-11.	Describe the security requirements when performing maintenance
1-6-12.	Describe the personnel and equipment safety precautions which are to be observed when performing maintenance on the _____.
1-7.	DOCUMENTATION
1-7-1.	Describe the organization, content and use of all technical documentation provided for use with the _____.

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Non-hardware Model Statements

Use Tables 3 and 4 to develop Non-hardware PPP Line Items. When completed, all Task/Function and Background PPP Table Line Items will be extracted from these tables.

Task/Function Model Statements

In order to write comprehensive Task/Function PPP Line Items, follow the guidelines given below when using the Task/Function Model Statements Table

1. Name the Task/Function.
2. Check for the correctness of ending of the Task/Function name:
 - a.ing
 - b.ion
 - c.ment
3. List the duties that comprise this Task/Function (Duty: Major subdivisions of work that comprise a Task/Function):

Task/Function Duty 1
Task/Function Duty 2
Task/Function Duty 3
Task/Function Duty 4
4. Insert each duty into the Task/Function PPP Table, beginning at PPP line item 2.1.4 and continuing through 2.1.X. (The number of duties for a Task/Function usually runs 3-7.)

2.1.4 *Duty 1*
2.1.5 *Duty 2*
2.1.6 *Duty 3*
2.1.7 *Duty 4*

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5. List the skills which comprise a duty

2.1.4.1 *Duty 1, Skill 1*

2.1.4.2 *Duty 1, Skill 2*

2.1.4.3 *Duty 1, Skill 3*

2.1.4.4 *Duty 1, Skill 4*

6. List the knowledge which directly supports the skill

1.1.4.1 *Duty 1, Skill 1, Knowledge 1*

1.1.4.2 *Duty 1, Skill 1, Knowledge 2*

1.1.4.3 *Duty 1, Skill 1, Knowledge 3*

1.1.4.4 *Duty 1, Skill 1, Knowledge 4*

7. List the knowledge which indirectly supports the skill

1.1.4.5 *Duty 1, Skill 1, Knowledge 5*

1.1.4.6 *Duty 1, Skill 1, Knowledge 6*

1.1.4.7 *Duty 1, Skill 1, Knowledge 7*

1.1.4.8 *Duty 1, Skill 1, Knowledge 8*

8. Continue to Table 3 and proceed with filling in the appropriate spaces

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TABLE 3. TASK/FUNCTION MODEL STATEMENTS (Sheet 1 of 2)

1.	KNOWLEDGE
1-1.	GENERAL
1-1-1.	State the purpose of _____.
1-1-2.	Define the abbreviations, terms, and symbols associated with _____.
1-1-3.	Describe the responsibilities of _____. –LIST ALL RESPONSIBILITIES OF COORDINATORS, DIRECTORS, PERFORMERS, AND WATCHSTANDERS–
1-1-4.	Describe all applicable documentation associated with _____.
1-1-5.	Describe policies associated with _____. –LIST ALL POLICIES OF COORDINATORS, DIRECTORS, PERFORMERS, AND WATCHSTANDERS–
1-2.	PROCEDURAL
1-2-1.	State the safety precautions associated with _____.
1-2-2.	State the security requirements associated with the _____.
1-2-3.	Describe the administrative procedures associated with _____. –LIST ALL ADMINISTRATIVE PROCEDURES REQUIRED OF COORDINATORS, DIRECTORS, PERFORMERS, AND WATCHSTANDERS–
1-2-4.	Describe the tasks associated with (Duty #1). a. Task #1 to support duty b. Task #2 to support duty c. Task X.X, etc., to support duty
1-2-5.	Describe the tasks associated with (Duty #2). a. Task #1 to support duty b. Task #2 to support duty c. Task X.X., etc., to support duty
1-2-6.	Continue task descriptions for each duty identified above.

TABLE 3. TASK/FUNCTION MODEL STATEMENTS (Sheet 2 of 2)

2.	SKILLS
2-1.	PROCEDURES
2-1-1.	Adhere to all safety precautions associated with _____.
2-1-2.	Adhere to all security procedures associated with _____.
2-1-3.	Perform all administrative procedures associated with _____.
2-1-4.	Perform the tasks associated with (Duty #1) a. Task #1 to support duty b. Task #2 to support duty c. Task #3 to support duty d. Task X.X., etc., to support duty
2-1-5.	Perform the tasks associated with (Duty #2) a. Task #1 to support duty b. Task #2 to support duty c. Task #3 to support duty d. Task X.X., etc., to support duty
2-1-6.	Continue task descriptions for each duty identified above.

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PPP TABLE DEVELOPMENT

Background Model Statements

In order to write comprehensive Background PPP Table Line Items, follow the guidelines given below when using the Background Model Statements Table

1. Determine the “Background” subject matter and the content areas within (i.e.; MATHEMATICS – Arithmetic, Algebra, Geometry, etc.), required to survive in the course, i.e.; needed in order to learn the operation/maintenance of the specific hardware, or the function, or other background material being taught.
2. Analyze that part of the Trainee population which will enter the projected course; determine the *subject matter*, and *content areas within*, that this trainee population is deficient in
3. This *subject matter*, and *content areas within*, forms the basis for the Background skills and knowledge for the course
4. Check existing Background PPP Tables for these skills and knowledge
5. If these skills and knowledge are not contained within an existing Background PPP Table add to an existing PPP Table, or create a new Background PPP Table – IF APPROPRIATE
 - a. Brainstorm, preferably with other subject matter experts, the specific knowledge and skills that are required to survive the course
 - b. Obtain reliable references, or texts, from the subject matter area and use them to organize, complete, and assure correctness of the Background PPP Table

TABLE 4. BACKGROUND MODEL STATEMENTS

1.	KNOWLEDGE
1-1.	Define the abbreviations, terms and symbols associated with _____.
1-2.	Describe the principles associated with _____.
1-3.	Describe the theories associated with _____.
1-4.	Describe the formulas associated with _____.
1-5.	Describe the purpose of (an associated device or physical object – where applicable)
1-6.	Describe the characteristics of (an associated device or physical object – where applicable)
2.	SKILLS
2-1.	Use _____.
2-2.	Apply _____.
2-3.	Analyze _____.
2-4.	Recognize _____.
2-5.	Recall _____.
2-6.	Evaluate _____.
2-7.	Observe _____.
See Table 5 for a listing of additional knowledge and skill verbs	

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TABLE 5. VERB LISTING

Physical Skills	Mental Skills	Administrative Skills	Knowledge Communication
accomplish adjust align balance calibrate change check clean complete construct correct deenergize demonstrate disassemble energize enter exchange inspect install isolate locate manipulate measure move operate perform plot position reassemble remove repair replace show start stop test trace troubleshoot use utilize	achieve analyze calculate choose compare compute condense decide derive determine diagnose distinguish evaluate interpret monitor observe rank recognize select solve sort synthesize	administer coordinate decide draw fill out instruct list manage organize plan report submit	communicate define describe explain express identify illustrate list name state summarize tell write

CURRICULUM DEVELOPER AID

FOR

EQUIPMENT

PERSONNEL PERFORMANCE PROFILE

TABLES

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PPP TABLE DEVELOPMENT

Obtain the following resources:

- Technical documentation
 - SMEs
 - Job Task Inventory
 - E/SS/S PPP Model Statements Table 2
1. Start the development of an equipment PPP by obtaining two blank pieces of paper, then:
 - a. On one blank piece of paper put the heading "Page A." Immediately below this heading write "2. Equipment Skills." Below the heading "2. Equipment Skills" write "2-1 Operation."
 - b. On the other blank piece of paper put the heading "Page B." Immediately below this heading write "1. Equipment Knowledge." Below the heading "1. Equipment Knowledge" write "1-5 Operational Description."
 2. Is there any technical documentation required for use with the equipment?
 - a. If yes, near the bottom of page B write "1-7. Documentation" and select line item 1-7-1 from the Model Statement table and write it on Page B below the heading "1-7. Documentation."
 - b. If no, continue to step 3
 3. Are there any actions one must take to make this equipment perform the purpose it was designed for?
 - a. If yes, select line item 2-1-1 (but not subitems) from the Model Statement table and write it below the heading "2-1. Operation" on Page A. Select line item 1-5-1 from the Model Statement table and write it below the heading "1-5. Operational Description" on Page B. Select line item 1-5-2 from the Model Statement table and write it on Page B below the last line item listed.
 - b. If no, write "No operation required" below "2-1. Operation" on Page A and write "No operation required" on Page B below the heading "1-5. Operational Description," then go to step 28 b(2).

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4. Are there any equipment preoperations required?
 - a. If yes, select subitem 2-1-1a from the Model Statement table and write it on Page A below line item 2-1-1. Select subitem 1-5-2a from the Model Statement table and write it on Page B below line item 1-5-2.
 - b. If no, go to step 7
5. Are there any routine preoperational procedures which must be performed prior to the operational procedures?
 - a. If yes, select subitem 2-1-1a (1) from the Model Statement table and write it on Page A below subitem 2-1-1a. Select subitem 1-5-2a (1) from the Model Statement table and write it on Page B below subitem 1-5-2a.
 - b. If no, continue to step 6
6. Does this equipment have to be installed into a specific location prior to operation?
 - a. If yes, select subitem 2-1-1a (2) from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2a (2) from the Model Statement table and write it on Page B below the last item/subitem listed.
 - b. If no, continue to step 7
7. Does this equipment have to be assembled prior to operation?
 - a. If yes:
 - (1) Select subitem 2-1-1a (3) from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2a (3) from the Model Statement table and write it on Page B below the last item/subitem listed.
 - (2) Select subitem 2-1-1b from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2b from the Model Statement table and write it on Page B below the last item/subitem listed.
 - b. If no, select subitem 2-1-1b from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2b from the Model Statement table and write it on Page B below the last item/subitem listed.

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8. Are there any procedures that must be performed after the equipment has been operated?
 - a. If yes, select subitem 2-1-1c from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2c from the Model Statement table and write it on Page B below the last item/subitem listed.
 - b. If no, continue to step 9
9. Are there any critical operator actions required to keep the equipment operating properly?
 - a. If yes, select line item 2-1-2 from the Model Statement table and write it on Page A below the last item/subitem. Select line item 1-5-3 from the Model Statement table and write it on Page B below the last item/subitem.
 - b. If no, go to step 15
10. Does this equipment have any alarms?
 - a. If yes, select line item 1-5-3 part (i) from the Model Statement table and write onto Page B as line item 1-5-3
 - b. If no, continue to step 11
11. Does this equipment have any indicators?
 - a. If yes, select line item 1-5-3 part (ii) from the Model Statement table and incorporate into line item 1-5-3 on Page B
 - b. If no, continue to step 12
12. Does this equipment have any displays?
 - a. If yes, select line item 1-5-3 (iii) from the Model Statement table and incorporate into line item 1-5-3 on Page B
 - b. If no, continue to step 13
13. Does this equipment have any readouts?
 - a. If yes, select line item 1-5-3 part (iv) from the Model Statement table and

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- incorporate into line item 1-5-3 on Page B
- b. If no, continue to step 14
14. Does this equipment have any printouts or typeouts?
- a. If yes, select line item 1-5-3 part (v) from the Model Statement table and incorporate into line item 1-5-3 on Page B
 - b. If no, continue to step 15
15. Does this equipment have specific casualty modes of operation?
- a. If yes, select line item 2-1-3 part (i) from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-5-4 part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 16
16. Does this equipment have a specifically designated degraded mode of operation?
- a. If yes, select line item 2-1-3 part (ii) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (ii) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 17
17. Does this equipment have a specifically designated abnormal mode of operation?
- a. If yes, select line item 2-1-3 part (iii) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (iii) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 18
18. Does this equipment have a designated not full mission capable mode of operation?

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- a. If yes, select line item 2-1-3 part (iv) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (iv) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 19
19. Is this equipment a type of computer which produces tapes, disks, or diskettes?
- a. If yes, select line item 2-1-4 from the Model Statement table and write it on Page A below the last line item/subitem listed
 - b. If no, go to step 24
20. Must these tapes, disks, or diskettes be interpreted to support equipment operation?
- a. If yes, select line item 1-5-5 part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed
 - b. If no, continue to step 21
21. Must the function of these tapes, disks, or diskettes be understood to support equipment operation?
- a. If yes, select line item 1-5-5 part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 22
22. Must the use of these tapes, disks, or diskettes be understood to support equipment operation?
- a. If yes, select line item 1-5-5 Part (iii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 23
23. Must the format of these tapes, disks, or diskettes be understood to support

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equipment operation?

- a. If yes, select line item 1-5-5 Part (iv) from the Model Statement table and write it on Page B below the last item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 24
24. Are there any data logging requirements involved with the operation of this equipment?
- a. If yes, select line item 2-1-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-5-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, go to step 28
25. Are there specific methods that must be followed to meet data logging requirements?
- a. If yes, select line item 1-5-6 Part (i) from the Model Statement table and incorporate it on Page B with the previously selected part of line item 1-5-6
 - b. If no, continue to step 26
26. Are there specific types of data to be logged to support data logging requirements?

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- a. If yes, select line item 1-5-6 Part (ii) from the Model Statement table and incorporate it on Page B with the previously selected parts of line item 1-5-6
 - b. If no, continue to step 27
27. Is a knowledge of the disposition of logged data required to support data logging requirements?
- a. If yes, select line item 1-5-6 Part (iii) from the Model Statement table and incorporate it on Page B with the previously selected parts of line item 1-5-6
 - b. If no, continue to step 28
28. Are there acceptance tests which must be performed when this equipment is operated?
- a. If yes:
 - (1) Select line item 2-1-6 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-5-7 from the Model Statement table and write it on Page B below the last line item/subitem listed. Select line items 2-1-7 and 2-1-8 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-5-8 and 1-5-9 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - (2) Below the last line item/subitem listed on Page A write "2-2. Maintenance." Below the last line item/subitem listed on Page B write "1-6. Maintenance Description." Below the maintenance description heading on Page B write out line item 1-6-1 from the Model Statement table.
 - b. If no:
 - (1) Select line items 2-1-7 and 2-1-8 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-5-8 and 1-5-9 from the Model Statement table and write it on Page B below the last line item/subitem listed.

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- (2) Below the last line item/subitem listed on Page A write “2-2. Maintenance.” Below the last line item/subitem listed on Page B write “1-6. Maintenance Description.” Below the maintenance description heading on Page B write out line item 1-6-1 from the Model Statement table.
29. Is any special tool unique to this equipment used during either preventive or corrective maintenance?
- If yes, select line item 2-2-1 Part (i) from the Model Statement table and write it on Page A below the Maintenance heading. Select line item 1-6-2 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - If no, continue to step 30
30. Is any test equipment unique to this equipment used during preventive or corrective maintenance?
- If yes, select line item 2-2-1 Part (ii) from the Model Statement table and write it on Page A below the Maintenance heading. Incorporate it with any other parts of line item 2-2-1 previously selected. Select line item 1-6-2 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-6-2 previously selected.
 - If no, continue to step 31
31. Does this equipment have required preventive maintenance procedures?
- If yes, select line item 2-2-2 from the Model Statement table and write it on Page A below the last line item/subitem listed. Based on the Preventive Maintenance System in use for this equipment select line item 2-2-2 Part (i), 2-2-2 Part (ii) or 2-2-2 Part (iii) and incorporate it into the previously selected part of line item 2-2-2 on page A. Select line item 1-6-3 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - If no, go to step 34
32. Are there any records that must be kept for preventive maintenance?
- If yes, select line item 1-6-3 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of

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- line item 1-6-3 previously selected.
- b. If no, continue to step 33
33. Are there any reports which must be made for preventive maintenance?
- a. If yes, select line item 1-6-3 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-3 previously selected.
 - b. If no, continue to step 34
34. Are there any alignment procedures for this equipment?
- a. If yes, select line item, 2-2-3 Part (i) from the Model Statement table and write it on Page A below the last line item/subitem selected. Select line item 1-6-4 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 35
35. Are there any adjustment procedures for this equipment?
- a. If yes, select line item 2-2-3 Part (ii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-3 previously selected. Select line item 1-6-4 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-4 previously selected.
 - b. If no, continue to step 36
36. Are there any calibration procedures for this equipment?
- a. If yes, select line item 2-2-3 Part (iii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-3 previously selected. Select line item 1-6-4 Part (iii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of the line item 1-6-4 previously selected.
 - b. If no, continue to step 37
37. Are there any operational tests performed during preventive or corrective maintenance for this equipment?

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- a. If yes, select line item 2-2-4 Part (i) from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-5 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 38
38. Are there any diagnostic programs used during preventive or corrective maintenance for this equipment?
- a. If yes, select line item 2-2-4 Part (ii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-4 previously selected. Select line item 1-6-5 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-5 previously selected.
 - b. If no, continue to step 39
39. Were either Part (i), or Part (ii) of line item 1-6-5 selected?
- a. If yes, select line item 1-6-5 Part (iii) from the Model Statement table and incorporate it in the parts of line item 1-6-5 previously listed on Page B. Select line item 2-2-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, select line item 2-2-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
40. Are there fault isolation procedures contained in the technical documentation for this equipment?

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- a. If yes, select line item 2-2-6 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-7 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 41
41. Does the technical documentation for this equipment provide documented fault isolation procedures that cover all possible faults?
- a. If yes, continue to step 42
 - b. If no, select line item 2-2-7 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-8 from the Model Statement table and write it on Page B below the last line item/subitem listed.
42. Is repair of this equipment possible?
- a. If yes, select line item 2-2-8 Part (ii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-9 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, go to step 44 b
43. To repair this equipment, must it be disassembled either in whole or in part?
- a. If yes, select line item 2-2-8 Part (i) and Part (iii) from the Model Statement table and write it on Page A, incorporating it into the part of 2-2-8 previously selected. Select line item 1-6-9 Part (i) and Part (iii) from the Model Statement table and write it on Page B, incorporating it into the part of 1-6-9 previously selected.
 - b. If no, continue to step 44
44. Are there any procedures which must be performed after the repair of this equipment?
- a. If yes, select line item 2-2-9 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-10 from the Model Statement table and write it on Page B below the last line item/subitem listed. Select line items 2-2-10 and 2-2-11 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-6-11 and 1-6-12 from the Model Statement table and write it on Page B below the last line item/subitem listed. Number all line items on Page A sequentially starting with number 2-1-1 for operational skills and 2-2-1 for maintenance skills. Number all line items on Page B sequentially starting with numbers 1-5-1 for line items in the operational description and 1-6-1 for line items in the maintenance

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description.

- b. If no, select line items 2-2-10 and 2-2-11 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-6-11 and 1-6-12 from the Model Statement table and write it on Page B below the last line item/subitem listed. Number all line items on Page A sequentially starting with number 2-1-1 for operational skills and 2-2-1 for maintenance skills. Number all line items on Page B sequentially starting with numbers 1-5-1 for line items in the operational description and 1-6-1 for line items in the maintenance description.
45. On a blank piece of paper write the heading “1. Equipment Knowledge.” On the same paper write “1-1. General” below the heading. This paper will be referred to as Page 1. On page 1, below the sub-heading, write line item 1-1-1 from the Model Statement table. Number this line item 1-1-1. On page 1 below line item 1-1-1, write line item 1-1-2 from the Model Statement table. Number this line item 1-1-2. Write out the necessary subitems as required. These are identified sequentially by small letters (a, b, c, etc.).
46. Are there abbreviations unique to this equipment?
- a. If yes, select line item 1-1-3 Part (i) from the Model Statement table and write on Page 1 below the last line item/subitem listed
 - b. If no, continue to step 47
47. Are there terms unique to this equipment?
- a. If yes, select line item 1-1-3 Part (ii) from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Incorporate it into any other parts of line item 1-1-3 previously selected.
 - b. If no, continue to step 48
48. Are there symbols unique to this equipment?
- a. If yes, select line item 1-1-3 Part (iii) from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Incorporate it into any other parts of line item 1-1-3 previously selected. Select line item 1-1-4 from the Model Statement table and write it on Page 1 below the last line item/subitem listed.
 - b. If no, select line item 1-1-4 from the Model Statement table and write it on Page 1 below the last line item/subitem listed
49. Does this equipment have different models?

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- a. If yes, select line item 1-1-5 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Select line item 1-1-6 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Ensure all line items listed on Page 1 are numbered sequentially starting with line item 1-1-1. On a blank piece of paper write the following heading: "1-2. Physical Description." This paper will be referred to as Page 2. Select line item 1-2-1 Part (i) from the Model Statement table and write it on Page 2 below the heading.
 - b. If no, select line item 1-1-6 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Ensure all line items listed on Page 1 are numbered sequentially starting with line item 1-1-1. On a blank piece of paper write the following heading: "1-2. Physical Description." This paper will be referred to as Page 2. Select line item 1-2-1 Part (i) from the Model Statement table and write it on Page 2 below the heading.
50. Do the major and associated components of this equipment have specific nomenclature?
- a. If yes, below line item 1-2-1 on Page 2 list out all the major components, subassemblies, and functional areas of the equipment. These will be subitems to line 1-2-1. They are identified sequentially by small letters (a, b, c, etc.). Select line item 1-2-1 Part (ii) from the Model Statement table and write it on Page 2 incorporating it into any other part of line item 1-2-1 previously selected.
 - b. If no, continue to step 51
51. Is an understanding of the physical appearance of the major components required?
- a. If yes, select line item 1-2-1 Part (iii) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected
 - b. If no, continue to step 52
52. Do the major components have reference designators?

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- a. If yes, select line item 1-2-1 Part (iv) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected
 - b. If no, continue to step 53
53. Is an understanding of the location of the major components required?
- a. If yes, select line item 1-2-1 Part (v) from Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected
 - b. If no, continue to step 54
54. Is an understanding of the construction features of the major components required?
- a. If yes, select line item 1-2-1 Part (vi) from the Model Statement table and write it on Page 2, incorporating it into any part or the line item 1-2-1 previously selected
 - b. If no, continue to step 55
55. Does this equipment have any displays?
- a. If yes, select line item 1-2-2 Part (i) from the Model Statement table and write it on Page 2 below the last line item/subitem listed
 - b. If no, continue to step 56
56. Does this equipment have any controls?
- a. If yes, select line item 1-2-2 Part (ii) from the Model Statement table and write it on page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 57
57. Does this equipment have any indicators?
- a. If yes, select line item 1-2-2 Part (iii) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-2-2 previously selected.
 - b. If no, continue to step 58
58. Do the displays, controls, or indicators have reference designators?

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- a. If yes, select line item 1-2-2 Part (iv) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line 1-2-2 previously selected.
 - b. If no, continue to step 59
59. Do the displays, controls, or indicators have specific positions?
- a. If yes, select line item 1-2-2 Part (v) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 60
60. Do the displays, controls, or indicators have specific colors?
- a. If yes, select line item 1-2-2 Part (vi) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 61
61. Do the displays, controls, or indicators have specific locations?
- a. If yes, select line item 1-2-2 Part (vii) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-2-2 previously selected. Ensure the two line items on Page 2 are numbered 1-2-1 and 1-2-2. On a blank piece of paper write the following heading: "1-3. Functional Description." This paper will be referred to as Page 3.
 - b. If no, ensure the two line items on Page 2 are numbered 1-2-1 and 1-2-2. On a blank piece of paper write the following heading: "1-3. Functional Description." This paper will be referred to as Page 3.
62. Is this equipment a computer or complex electro-mechanical device with various control circuits?
- a. If yes, select line item 1-3-1 (Part B) from the Model Statement table. Write the statement on Page 3 immediately below the heading and label it 1-3-1. Select the appropriate terms from the statement and incorporate them into a single statement on Page 3 with the selected Model Statement. Then go to step 67.

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- b. If no, select line item 1-3-1 (Part A) from the Model Statement table. Write the statement on Page 3 immediately below the heading and label it 1-3-1.
63. Does this equipment have specific methods of control?
- a. If yes, select line item 1-3-1 Part (i) from the Model Statement table and write it on Page 3, incorporating it into the part of line item 1-3-1 previously selected
 - b. If no, continue to step 64
64. Is an understanding of signal flow within this equipment required?
- a. If yes, select line item 1-3-1 Part (ii) from the Model Statement table and write it on Page 3, incorporating it into the parts of line item 1-3-1 previously selected
 - b. If no, continue to step 65
65. Does this equipment operate in a specific sequence?
- a. If yes, select line item 1-3-1 Part (iii) from the Model Statement table and write it on Page 3, incorporating it into any other parts of line item 1-3-1 previously selected
 - b. If no, continue to step 66
66. Does this equipment have any indications that it is operating in various methods/modes, etc?
- a. If yes, select line item 1-3-1 Part (iv) from the Model Statement table and write it on Page 3, incorporating it into any other parts of line item 1-3-1 previously selected. Immediately below the last part of line item 1-3-1 listed, list out the major functional areas, components, and subassemblies of the equipment. These will be subitems to line item 1-3-1. They are identified by sequential small letters (a, b, c, etc.).
 - b. If no, immediately below the last part of line item 1-3-1 listed, list out the major functional areas, components, and subassemblies of the equipment. These will be subitems to line item 1-3-1. They are identified by sequential small letters (a, b, c, etc.).
67. Does this equipment have functional loops within it allowing for proper operation?
- a. If yes, select line item 1-3-2 from the Model Statement table and write it on Page

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3 below the last line subitem listed. Review line item 1-3-2 from the Model Statement table and select the appropriate terms. Incorporate them into a single statement with line item 1-3-2 on Page 3.

- b. If no, continue to step 68
68. Does this equipment have any controls?
- a. If yes, select line item 1-3-4 Part (i) from the Model Statement table and write it on page 3 below the last line item/subitem listed
 - b. If no, continue to step 69
69. Does this equipment have any indicators?
- a. If yes, select line item 1-3-4 Part (ii) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other part of line item 1-3-4 previously listed.
 - b. If no, continue to step 70
70. Do the displays, controls, or indicators have any specific positions?
- a. If yes, select line item 1-3-4 Part (iii) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-4 previously selected.
 - b. If no, continue to step 71
71. Do the controls or indicators of this equipment have specific conditions?
- a. If yes, select line item 1-3-3 Part (iv) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-3 previously selected.
 - b. If no, continue to step 72
72. Do the displays, controls, or indicators have specific colors?
- a. If yes, select line item 1-3-3 Part (v) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-3 previously selected.
 - b. If no, continue to step 73
73. Is this equipment a computer or other type of device that is programmable?

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- a. If yes, select line item 1-3-5 from the Model Statement table and write it on Page 3 below the last line item/subitem listed
 - b. If no, go to step 75 a(2)
74. Do the programs associated with this equipment have specific numbers?
- a. If yes, select line item 1-3-5 Part (i) from the Model Statement table and write it on Page 3, incorporating it into the part of line item 1-3-5 previously selected
 - b. If no, continue to step 75
75. Does the use of any associated programs impose any type of constraints on operational or maintenance procedures?
- a. If yes:
 - (1) Select line item 1-3-5 Part (ii) from the Model Statement table and write it on Page 3, incorporating it into the parts of line item 1-3-5 previously selected
 - (2) Number the line items on Page 3 sequentially, beginning with number 1-3-1. On a blank piece of paper write the following heading "1-4. Interface Description." On page 4 below the heading write line item 1-4-1 Part (i) from the Model Statement table.
 - b. If no, number the line items on Page 3 sequentially, beginning with number 1-3-1. On a blank piece of paper write the following heading "1-4. Interface Description." On page 4 below the heading write line item 1-4-1 Part (i) from the Model Statement table.
76. Is an understanding of the physical appearance of the physical interface required?
- a. If yes, select line item 1-4-1 Part (ii) from the Model Statement table and write it on Page 4, incorporating it into the part of line item 1-4-1 previously selected
 - b. If no, continue to step 77
77. Does the physical interface of this equipment have reference designators?

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- a. If yes, select line item 1-4-1 Part (iii) from the Model Statement table and write it on Page 4, incorporating it into the parts of line item 1-4-1 previously selected
 - b. If no, continue to step 78
78. Does the physical interface of this equipment have specific locations?
- a. If yes, select line item 1-4-1 Part (iv) from the Model Statement table and write it on Page 4, incorporating it into the parts of line item 1-4-1 previously selected. Immediately below the last part of line item 1-4-1 listed, list out the physical interface and related external equipment which make up the equipment, subsystem, or system. These will be subitems to line item 1-4-1. They are identified by sequential small letters (a, b, c, etc.). Select line item 1-4-2 from the Model Statement table and write it on Page 4 below the last line item/subitem selected.
 - b. If no, immediately below the last part of line item 1-4-1 listed, list out the physical interface and related external equipment which make up the equipment, subsystem, or system. These will be subitems to line item 1-4-1. They are identified by sequential small letters (a, b, c, etc.). Select line item 1-4-2 from the Model Statement table and write it on Page 4 below the last line item/subitem selected.
79. Are there any electrical interfaces between this equipment and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2a from the Model Statement table and write it on Page 4 below line item 1-4-2
 - b. If no, continue to step 80
80. Are there any electronic interfaces between this equipment and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2b from the Model Statement table and write it on Page 4 below line item 1-4-2 or subitem 1-4-2a if it was previously selected.
 - b. If no, continue to step 81
81. Are there any pneumatic interfaces between this equipment and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2c from the Model Statement table and write it on Page

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- 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected
- b. If no, continue to step 82
82. Are there any hydraulic interfaces between this equipment and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2d from the Model Statement table and write it on Page 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected
- b. If no, continue to step 83
83. Are there any mechanical interfaces between this equipment and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2e from the Model Statement table and write it on Page 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected. Include sub-level (1) or (2) of this subitem as appropriate.
- b. If no, continue to step 84
84. Place all the pages of this draft Personnel Performance Profile (PPP) in the following order:
- (1) Page 1
 - (2) Page 2
 - (3) Page 3
 - (4) Page 4

 - (5) Page B
 - (6) Page A
85. Transfer the information from the hand-written pages to the final PPP Table form. Review the Personnel Performance Profile Table for completeness and accuracy.

Refer to Figure 2 as an example of a completed Equipment PPP Table.

PERSONNEL PERFORMANCE PROFILE
FOR
GENERAL UTILITY VEHICLES
TABLE S1036
COMMERCIAL UTILITY CARGO VEHICLE (TYPE A)
30 MARCH 1986
EQUIPMENT MODIFICATION RECORD
None
NEW DESIGN - DRAWING NUMBER
None
S1036-1/S1036-2

FIGURE 2. Example Equipment PPP Table Cover Page

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TABLE S1036. Commercial Utility Cargo Vehicle (TYPE A) (Equipment).	
ITEM No.	KNOWLEDGE/SKILL
1.	<u>EQUIPMENT KNOWLEDGE</u>
1-1.	GENERAL
1-1-1.	State the functions of the CUCV (TYPE A).
1-1-2.	State that the CUCV (TYPE A) consists of the following major functional areas. Include the function of each. <ul style="list-style-type: none"> a. Engine b. Transmission c. NP208 transfer case d. NP205 transfer case e. Front axle f. Rear axle g. Electrical system h. Wheels/tires i. Frame j. Body k. Painting/rustproofing
1-1-3.	Define the abbreviations, terms, and symbols used with the CUCV (TYPE A).
1-1-4.	State the operational characteristics and capabilities of the CUCV (TYPE A).
1-1-5.	State the security requirements for the CUCV (TYPE A).
1-2.	PHYSICAL DESCRIPTION
1-2-1.	Describe all major and associated components of the CUCV (TYPE A). Include name, nomenclature, physical appearance, reference designator, location, and construction features. <ul style="list-style-type: none"> a. Engine b. Transmission c. NP208 transfer case d. NP205 transfer case e. Front axle f. Rear axle g. Electrical system h. Wheels/tires i. Frame j. Body k. Painting/rustproofing

FIGURE 2. Example Equipment PPP Table

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TABLE S1036. Commercial Utility Cargo Vehicle (TYPE A) (Equipment).	
ITEM No.	KNOWLEDGE/SKILL
1-2-2.	<p>Describe displays, controls, and indicators directly associated with the CUCV (TYPE A). Include name, reference designator, positions, colors, and location.</p> <ul style="list-style-type: none"> a. Steering wheel b. Gear shift lever c. Brake pedal d. Foot throttle pedal e. Four-wheel drive selector f. Heater/defroster g. Inside rearview mirror h. Key-operated ignition i. Fuel gauge j. Speedometer/odometer k. Lighted transmission dials l. Generator output lamp m. Oil pressure lamp n. Engine temperature lamp o. Glow-plug operation lamp p. Water-in-fuel lamp q. Low coolant warning lamp r. Seat belt warning lamp s. Emergency brake lever
1-3.	<p>FUNCTIONAL DESCRIPTION</p>
1-3-1.	<p>Describe how the CUCV (TYPE A) works (functional operation). Include methods of control, signal flow, sequential operation, and indications.</p> <ul style="list-style-type: none"> a. Engine b. Transmission c. NP208 transfer case d. NP205 transfer case e. Front axle f. Rear axle g. Electrical system h. Wheels/tires i. Frame j. Body k. Painting/rustproofing

FIGURE 2. Example Equipment PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1036. Commercial Utility Cargo Vehicle (TYPE A) (Equipment).	
ITEM No.	KNOWLEDGE/SKILL
1-3-2.	<p>Describe the functions of each control and indicator for the CUCV (TYPE A) in each position, condition, and color.</p> <ul style="list-style-type: none"> a. Steering wheel b. Gear shift lever c. Brake pedal d. Foot throttle pedal e. Four-wheel drive selector f. Heater/defroster g. Inside rearview mirror h. Key-operated ignition i. Fuel gauge j. Speedometer/odometer k. Lighted transmission dials l. Generator output lamp m. Oil pressure lamp n. Engine temperature lamp o. Glow-plug operation lamp p. Water-in-fuel lamp q. Low coolant warning lamp r. Seat belt warning lamp s. Emergency brake lever
1-4.	INTERFACE DESCRIPTION
1-4-1.	<p>Describe physical interface between CUCV (TYPE A) and related external equipments. Include name, physical appearance, reference designator, and locations.</p> <ul style="list-style-type: none"> a. Multi-purpose tow hooks b. Pintle c. Exterior mirrors d. Brush guards e. Blackout lights f. Slave receptacle g. Trailer wiring h. Diagnostic connector assembly i. Tailgate j. Bumpers k. Seating/passenger restraint l. VRC-43 radio m. VRC-46 radio n. AS-1729 antenna o. Nuclear, Biological, and Chemical (NBC) kit p. Weapons holder q. AN/USQ-70

FIGURE 2. Example Equipment PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1036. Commercial Utility Cargo Vehicle (TYPE A) (Equipment).	
ITEM No.	KNOWLEDGE/SKILL
1-4-2.	Describe functional interface between the CUCV (TYPE A) and related external equipments. <ul style="list-style-type: none"> a. Electrical (power sources) b. Electronic (input, output, and control signals) c. Pneumatic d. Hydraulic (hydraulic oil, lube oil, water, etc.) e. Mechanical <ul style="list-style-type: none"> (1) Structural (2) Shafts, gears, springs
1-5.	OPERATIONAL DESCRIPTION
1-5-1.	Describe authority and regulations pertaining to the operation of the CUCV (TYPE A) including external equipments which interface with it.
1-5-2.	Describe operational tasks for CUCV (TYPE A). <ul style="list-style-type: none"> a. Preoperational procedures <ul style="list-style-type: none"> (1) Routine (go/no-go, self test, etc.) b. Operational procedures c. Postoperational procedures
1-5-3.	Describe the indications which may occur during operation of the CUCV (TYPE A). Include alarms, indicators, displays, and readouts.
1-5-4.	Describe casualty/degraded/abnormal/not full mission capable mode(s) of operation for the CUCV (TYPE A).
1-5-5.	Describe data logging requirements for the CUCV (TYPE A). Include logging method, types of data logged, and disposition.
1-5-6.	Describe all acceptance tests for the CUCV (TYPE A).
1-5-7.	Describe personnel and equipment safety precautions which are to be observed during operation of the CUCV (TYPE A).
1-6.	MAINTENANCE DESCRIPTION
1-6-1.	Define the maintenance policy for the CUCV (TYPE A). <ul style="list-style-type: none"> a. Preventive maintenance - the requirement for periodic performance of tasks to minimize system malfunctions by doing the following:

FIGURE 2. Example Equipment PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1036. Commercial Utility Cargo Vehicle (TYPE A) (Equipment).	
ITEM No.	KNOWLEDGE/SKILL
1-6-1. (Cont.)	<ul style="list-style-type: none"> (1) Servicing - scheduled or unscheduled inspections, cleaning, fueling, lubrication, corrosion control, and any other function in support of maintaining any equipment full mission capable. (2) Operational checks (confidence or self-test) <ul style="list-style-type: none"> (a) Pre-maintenance procedures (b) Performance checks (c) Degradation/deterioration checks (d) Quality assurance checks b. Corrective maintenance - checks and procedures used to locate and correct malfunctions as determined by the following guides: <ul style="list-style-type: none"> (1) Authorized repair responsibility to correct malfunctions to the authorized maintenance level. (2) Fault Isolation - Location of faults to the level of available spares and to the authorized repair level. <ul style="list-style-type: none"> (a) Equipment operation checks and tests (b) Fault isolation tests and procedures (3) Analytical procedures - isolation of faults using authorized techniques not contained in prescribed maintenance documentation. (4) Post-maintenance procedures - procedures performed after repair.
1-6-2.	Describe the use of special tools and test equipment required for maintenance for the CUCV (TYPE A) as prescribed in applicable documentation.
1-6-3.	Describe preventive maintenance procedures for the CUCV (TYPE A). Include recognition and interpretation of indications, records, reports, and instructions.
1-6-4.	Describe alignment, adjustment, and calibration procedures for the CUCV (TYPE A).
1-6-5.	Describe operational tests used for maintenance of the CUCV (TYPE A). Include tests' names, uses, and the procedures.

FIGURE 2. Example Equipment PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1036. Commercial Utility Cargo Vehicle (TYPE A) (Equipment).	
ITEM No.	KNOWLEDGE/SKILL
1-6-6.	Describe the recognition and interpretation of all malfunction indications for the CUCV (TYPE A).
1-6-7.	Describe the systematic fault isolation procedures contained in the prescribed maintenance documentation for the CUCV (TYPE A).
1-6-8.	Describe authorized methods to isolate faults on the CUCV (TYPE A), which cannot be located using procedures contained in the prescribed documentation.
1-6-9.	Describe the procedures to disassemble, repair, and reassemble the CUCV (TYPE A) to the authorized maintenance level.
1-6-10.	Describe the post-repair procedures for the CUCV (TYPE A).
1-6-11.	Describe personnel and equipment safety precautions which are to be observed while performing maintenance on the CUCV (TYPE A).
1-7.	DOCUMENTATION
1-7-1.	Describe the organization, content, and use of all technical documentation provided for use with the CUCV (TYPE A).
2.	<u>EQUIPMENT SKILLS</u>
2-1.	OPERATION
2-1-1.	Perform tasks for operation of the CUCV (TYPE A). <ul style="list-style-type: none"> a. Pre-operational procedures <ul style="list-style-type: none"> (1) Routine b. Operational procedures c. Post-operational procedures
2-1-2.	Recognize and interpret all indications occurring during performance of the operating procedures, and perform appropriate operator actions in proper sequences on the CUCV (TYPE A).
2-1-3.	Perform tasks and casualty/degraded/abnormal/not full mission capable modes of operation of the CUCV (TYPE A).

FIGURE 2. Example Equipment PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1036. Commercial Utility Cargo Vehicle (TYPE A) (Equipment).	
ITEM No.	KNOWLEDGE/SKILL
2-1-4.	Perform data logging requirements for the CUCV (TYPE A).
2-1-5.	Perform acceptance tests for the CUCV (TYPE A).
2-1-6.	Adhere to personnel and equipment safety precautions during operational procedures of the CUCV (TYPE A).
2-2.	MAINTENANCE
2-2-1.	Use special tools and test equipment required for maintenance of the CUCV (TYPE A) as prescribed in applicable documentation.
2-2-2.	Perform preventive maintenance procedures, including quality assurance procedures, on the CUCV (TYPE A) as scheduled by the Planned Maintenance System (PMS).
2-2-3.	Perform alignment, adjustment, and calibration procedures on the CUCV (TYPE A).
2-2-4.	Perform operational tests used for maintenance of the CUCV (TYPE A).
2-2-5.	Recognize and interpret all malfunction indications for the CUCV (TYPE A).
2-2-6.	Perform schematic fault isolation on the CUCV (TYPE A), using the procedures contained in prescribed maintenance documentation.
2-2-7.	Use authorized methods to isolate faults on the CUCV (TYPE A), which cannot be located using the procedures in the prescribed maintenance documentation.
2-2-8.	Disassemble, repair, and reassemble the CUCV (TYPE A) to the authorized maintenance level.
2-2-9.	Perform post-repair procedures, including quality assurance procedures, on the CUCV (TYPE A).
2-2-10.	Adhere to personnel and equipment safety precautions when performing maintenance on the CUCV (TYPE A).

FIGURE 2. Example Equipment PPP Table - Continued

CURRICULUM DEVELOPER AID
FOR
SUBSYSTEM
PERSONNEL PERFORMANCE PROFILE
TABLES

Obtain the following resources:

- Technical documentation
 - SMEs
 - Job Task Inventory
 - E/SS/S PPP Model Statements Table 2
1. Start the development of a subsystem PPP by obtaining two blank pieces of paper, then:
 - a. On one blank piece of paper put the heading "Page A." Immediately below this heading write "2. Subsystem Skills." Below the heading "2. Subsystem Skills" write "2-1 Operation."
 - b. On the other blank piece of paper put the heading "Page B." Immediately below this heading write "1. Subsystem Knowledge." Below the heading "1. Subsystem Knowledge" write "1-5 Operational Description."
 2. Is there any technical documentation required for use with the subsystem?
 - a. If yes, at the bottom of page B write "1-7. Documentation" and select line item 1-7-1 from the Model Statement table and write it on Page B below the heading "1-7. Documentation"
 - b. If no, continue to step 3
 3. Are there any actions a human must take to make this subsystem perform the purpose it was designed for?
 - a. If yes, select line item 2-1-1 from the Model Statement table and write it below the heading "2-1. Operation" on Page A. Select line item 1-5-1 from the Model Statement table and write it below the heading "1-5. Operational Description" on Page B. Select line item 1-5-2 from the Model Statement table and write it on Page B below the last line item listed.
 - b. If no, write "No operation required" below "2-1. Operation" on Page A and write "No operation required" on Page B below the heading "1-5. Operational Description," then go to step 28 b(2).
 4. Are there any actions that must be performed on this subsystem prior to operating it?
 - a. If yes, select subitem 2-1-1a from the Model Statement table and write it on Page A below line item 2-1-1. Select subitem 1-5-2a from the Model Statement table and write it on Page B below line item 1-5-2.
 - b. If no, go to step 7

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5. Are there any routine preoperational procedures which must be performed prior to the operational procedures?
 - a. If yes, select subitem 2-1-1a (1) from the Model Statement table and write it on Page A below subitem 2-1-1a. Select subitem 1-5-2a (1) from the Model Statement table and write it on Page B below subitem 1-5-2a.
 - b. If no, continue to step 6
6. Does this subsystem have to be installed into a specific location prior to operation?
 - a. If yes, select subitem 2-1-1a (2) from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2a (2) from the Model Statement table and write it on Page B below the last item/subitem listed.
 - b. If no, continue to step 7
7. Does this subsystem have to be assembled prior to operation?
 - a. If yes,
 - (1) Select subitem 2-1-1a (3) from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2a (3) from the Model Statement table and write it on Page B below the last item/subitem listed.
 - (2) Select subitem 2-1-1b from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2b from the Model Statement table and write it on Page B below the last item/subitem listed.
 - b. If no, select subitem 2-1-1b from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2b from the Model Statement table and write it on Page B below the last item/subitem listed.
8. Are there any procedures that must be performed after the subsystem has been operated?
 - a. If yes, select subitem 2-1-1c from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2c from the Model Statement table and write it on Page B below the last item/subitem listed.
 - b. If no, continue to step 9

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9. Are there any critical operator actions required to keep the subsystem operating properly?
 - a. If yes, select line item 2-1-2 from the Model Statement table and write it on Page A below the last item/subitem. Select line item 1-5-3 part (i) from the Model Statement table and write it on Page B below the last item/subitem.
 - b. If no, go to step 15
10. Does this subsystem have any alarms?
 - a. If yes, select line item 1-5-3 part (i) from the Model Statement table and incorporate it into line item 1-5-3 on Page B
 - b. If no, continue to step 11
11. Does this subsystem have any indicators?
 - a. If yes, select line item 1-5-3 part (ii) from the Model Statement table and incorporate it into line item 1-5-3 on Page B.
 - b. If no, continue to step 12
12. Does this subsystem have any displays?
 - a. If yes, select line item 1-5-3 (iii) from the Model Statement table and incorporate it into line item 1-5-3 on Page B
 - b. If no, continue to step 13
13. Does this subsystem have any readouts?
 - a. If yes, select line item 1-5-3 part (iv) from the Model Statement table and incorporate it into line item 1-5-3 on Page B.
 - b. If no, continue to step 14
14. Does this subsystem have any printouts or typeouts?
 - a. If yes, select line item 1-5-3 part (v) from the Model Statement table and incorporate it into line item 1-5-3 on Page B
 - b. If no, continue to step 15
15. Does this subsystem have specific casualty modes of operation?

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- a. If yes, select line item 2-1-3 part (i) from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-5-4 part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 16
16. Does this subsystem have a specifically designated degraded mode of operation?
- a. If yes, select line item 2-1-3 part (ii) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (ii) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 17
17. Does this subsystem have a specifically designated abnormal mode of operation?
- a. If yes, select line item 2-1-3 part (iii) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (iii) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 18
18. Does this subsystem have a designated not full mission capable mode of operation?
- a. If yes, select line item 2-1-3 part (iv) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (iv) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 19
19. Is this subsystem a type of computer which produces tapes, disks, or diskettes?
- a. If yes, select line item 2-1-4 from the Model Statement table and write it on Page A below the last line item/subitem listed

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- b. If no, go to step 24
- 20. Must these tapes, disks, or diskettes be interpreted to support subsystem operation?
 - a. If yes, select line item 1-5-5 part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed
 - b. If no, continue to step 21
- 21. Must the function of these tapes, disks, or diskettes be understood to support subsystem operation?
 - a. If yes, select line item 1-5-5 part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 22
- 22. Must the use of these tapes, disks, or diskettes be understood to support subsystem operation?
 - a. If yes, select line item 1-5-5 Part (iii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 23
- 23. Must the format of these tapes, disks, or diskettes be understood to support subsystem operation?

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- a. If yes, select line item 1-5-5 Part (iv) from the Model Statement table and write it on Page B below the last item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 24
24. Are there any data logging requirements involved with the operation of this subsystem?
- a. If yes, select line item 2-1-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-5-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, go to step 28
25. Are there specific methods that must be followed to meet data logging requirements?
- a. If yes, select line item 1-5-6 Part (i) from the Model Statement table and incorporate it on Page B with the previously selected part of line item 1-5-6
 - b. If no, continue to step 26
26. Are there specific types of data to be logged to support data logging requirements?
- a. If yes, select line item 1-5-6 Part (ii) from the Model Statement table and incorporate it on Page B with the previously selected parts of line item 1-5-6
 - b. If no, continue to step 27
27. Is a knowledge of the disposition of logged data required to support data logging requirements?
- a. If yes, select line item 1-5-6 Part (iii) from the Model Statement table and incorporate it on Page B with the previously selected parts of line item 1-5-6
 - b. If no, continue to step 28
28. Are there acceptance tests which must be performed when this subsystem is operated?

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- a. If yes, select line item 2-1-6 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-5-7 from the Model Statement table and write it on Page B below the last line item/subitem listed. Select line items 2-1-7 and 2-1-8 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-5-8 and 1-5-9 from the Model Statement table and write it on Page B below the last line item/subitem listed. Below the last line item/subitem listed on Page A write “2-2. Maintenance.” Below the last line item/subitem listed on Page B write “1-6. Maintenance Description.” Below the maintenance description heading on Page B write out line item 1-6-1 from the Model Statement table.
 - b. If no:
 - (1) Select line items 2-1-7 and 2-1-8 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-5-8 and 1-5-9 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - (2) Below the last line item/subitem listed on Page A write “2-2. Maintenance.” Below the last line item/subitem listed on Page B write “1-6. Maintenance Description.” Below the maintenance description heading on Page B write out line item 1-6-1 from the Model Statement table.
29. Is any special tool unique to this subsystem used during either preventive or corrective maintenance?
- a. If yes, select line item 2-2-1 Part (i) from the Model Statement table and write it on Page A below the Maintenance heading. Select line item 1-6-2 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 30
30. Is any test equipment unique to this subsystem used during preventive or corrective maintenance?
- a. If yes, select line item 2-2-1 Part (ii) from the Model Statement table and write it on Page A below the Maintenance heading. Incorporate it with any other parts of line item 2-2-1 previously selected. Select line item 1-6-2

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Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-6-2 previously selected.

b. If no, continue to step 31

31. Does this subsystem have required preventive maintenance procedures?

a. If yes, select line 2-2-2 from the Model Statement table and write it on Page A below the last line item/subitem listed

Based on the Preventive Maintenance System in use for this subsystem select line item 2-2-2 Part (i), 2-2-2 Part (ii) or 2-2-2 Part (iii) and incorporate it into the previously selected part of line item 2-2-2 on page A. Select line item 1-6-3 from the Model Statement table and write it on Page B below the last line item/subitem listed.

b. If no, go to step 34

32. Are there any records that must be kept for preventive maintenance?

a. If yes, select line item 1-6-3 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-3 previously selected.

b. If no, continue to step 33

33. Are there any reports which must be made for preventive maintenance?

a. If yes, select line item 1-6-3 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-3 previously selected.

b. If no, continue to step 34

34. Are there any alignment procedures for this subsystem?

a. If yes, select line item, 2-2-3 Part (i) from the Model Statement table and write it on Page A below the last line item/subitem selected. Select line item 1-6-4 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.

b. If no, continue to step 35

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35. Are there any adjustment procedures for this subsystem?
- a. If yes, select line item 2-2-3 Part (ii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-3 previously selected. Select line item 1-6-4 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-4 previously selected.
 - b. If no, continue to step 36
36. Are there any calibration procedures for this subsystem?
- a. If yes, select line item 2-2-3 Part (iii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-3 previously selected. Select line item 1-6-4 Part (iii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of the line item 1-6-4 previously selected.
 - b. If no, continue to step 37
37. Are there any operational tests performed during preventive or corrective maintenance for this subsystem?
- a. If yes, select line item 2-2-4 Part (i) from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-5 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 38
38. Are there any diagnostic programs used during preventive or corrective maintenance for this subsystem?
- a. If yes, select line item 2-2-4 Part (ii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-4 previously selected. Select line item 1-6-5 Part(ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-5 previously selected.
 - b. If no, continue to step 39
39. Were either Part (i) or Part (ii) of line item 1-6-5 selected?

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- a. If yes, select line item 1-6-5 Part (iii) from the Model Statement table and incorporate it in the parts of line item 1-6-5 previously listed on Page B. Select line item 2-2-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, select line item 2-2-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
40. Are there fault isolation procedures contained in the technical documentation for this subsystem?
- a. If yes, select line item 2-2-6 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-7 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 41
41. Does the technical documentation for this subsystem provide documented fault isolation procedures that cover all possible faults?
- a. If yes, continue to step 42
 - b. If no, select line item 2-2-7 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-8 from the Model Statement table and write it on Page B below the last line item/subitem listed.
42. Are there any procedures which must be performed after the repair of this subsystem?
- a. If yes, select line item 2-2-9 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-10 from the Model Statement table and write it on Page B below the last line item/subitem listed. Select line items 2-2-10 and 2-2-11 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-6-11 and 1-6-12 from the Model Statement table and write it on Page B below the last line item/subitem listed. Number all line items on Page A sequentially starting with number 2-1-1 for operational skills and 2-2-1 for maintenance skills. Number all line items on Page B sequentially starting with numbers 1-5-1 for line items in the operational description and 1-6-1 for line items in the maintenance description.

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- b. If no, select line items 2-2-10 and 2-2-11 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-6-11 and 1-6-12 from the Model Statement table and write it on Page B below the last line item/subitem listed. Number all line items on Page A sequentially, starting with number 2-1-1 for operational skills and 2-2-1 for maintenance skills. Number all line items on Page B sequentially, starting with numbers 1-5-1 for line items in the operational description and 1-6-1 for line items in the maintenance description.
43. On a blank piece of paper write the heading “1. Subsystem Knowledge.” On the same paper write “1-1. General” below the heading. This paper will be referred to as Page 1. On page 1, below the sub-heading, write line item 1-1-1 from the Model Statement table. Number this line item 1-1-1. On page 1, below line item 1-1-1, write line item 1-1-2 from the Model Statement table. Number this line item 1-1-2. Write out the necessary subitems as required. These are identified sequentially by small letters (a, b, c, etc.).
44. Are there abbreviations unique to this subsystem?
- a. If yes, select line item 1-1-3 Part (i) from the Model Statement table and write on Page 1 below the last line item/subitem listed
 - b. If no, continue to step 45
45. Are there terms unique to this subsystem?
- a. If yes, select line item 1-1-3 Part (ii) from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Incorporate it into any other parts of line item 1-1-3 previously selected.
 - b. If no, continue to step 46
46. Are there symbols unique to this subsystem?
- a. If yes, select line item 1-1-3 Part (iii) from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Incorporate it into any other parts of line item 1-1-3 previously selected. Select line item 1-1-4 from the Model Statement table and write it on Page 1 below the last line item/subitem listed.
 - b. If no, select line item 1-1-4 from the Model Statement table and write it on Page 1 below the last line item/subitem listed

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47. Does this subsystem have different models?
- a. If yes, select line item 1-1-5 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Select line item 1-1-6 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Ensure all line items listed on Page 1 are numbered sequentially starting with line item 1-1-1. On a blank piece of paper write the following heading: "1-2. Physical Description." This paper will be referred to as Page 2. Select line item 1-2-1 Part (i) from the Model Statement table and write it on Page 2 below the heading.
 - b. If no, select line item 1-1-6 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Ensure all line items listed on Page 1 are numbered sequentially starting with line item 1-1-1. On a blank piece of paper write the following heading: "1-2. Physical Description." This paper will be referred to as Page 2. Select line item 1-2-1 Part (i) from the Model Statement table and write it on Page 2 below the heading.
48. Do the equipments of this subsystem have specific nomenclature?
- a. If yes, below line item 1-2-1 on Page 2 list out all the equipments that make up the subsystems. These will make up the subsystems to line item 1-2-1. They are identified sequentially by small letters (a, b, c, etc.). Select line item 1-2-1 Part (ii) from the Model Statement table and write it on Page 2 incorporating it into any other part of line item 1-2-1 previously selected.
 - b. If no, continue to step 49
49. Is an understanding of the physical appearance of the associated equipments required?
- a. If yes, select line item 1-2-1 Part (iii) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected.
 - b. If no, continue to step 50
50. Do the associated equipments have reference designators?
- a. If yes, select line item 1-2-1 Part (iv) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected.

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- b. If no, continue to step 51
- 51. Is an understanding of the location of the associated equipments required?
 - a. If yes, select line item 1-2-1 Part (v) from Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected
 - b. If no, continue to step 52
- 52. Is an understanding of the construction features of the associated equipments required?
 - a. If yes, select line item 1-2-1 Part (vi) from the Model Statement table and write it on Page 2, incorporating it into any part or the line item 1-2-1 previously selected
 - b. If no, continue to step 53
- 53. Does this subsystem have any displays?
 - a. If yes, select line item 1-2-2 Part (i) from the Model Statement table and write it on Page 2 below the last line item/subitem listed
 - b. If no, continue to step 54
- 54. Does this subsystem have any controls?
 - a. If yes, select line item 1-2-2 Part (ii) from the Model Statement table and write it on page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 55
- 55. Does this subsystem have any indicators?
 - a. If yes, select line item 1-2-2 Part (iii) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-2-2 previously selected.
 - b. If no, continue to step 56
- 56. Do the displays, controls, or indicators have reference designators?
 - a. If yes, select line item 1-2-2 Part (iv) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line 1-2-2 previously selected.

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- b. If no, continue to step 57
57. Do the displays, controls, or indicators have specific positions?
- a. If yes, select line item 1-2-2 Part (v) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 58
58. Do the displays, controls, or indicators have specific colors?
- a. If yes, select line item 1-2-2 Part (vi) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 59
59. Do the displays, controls, or indicators have specific locations?
- a. If yes, select line item 1-2-2 Part (vii) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-2-2 previously selected. Ensure the two line items on Page 2 are numbered 1-2-1 and 1-2-2. On a blank piece of paper write the following heading: "1-3. Functional Description." This paper will be referred to as Page 3.
 - b. If no, ensure the two line items on Page 2 are numbered 1-2-1 and 1-2-2. On a blank piece of paper write the following heading: "1-3. Functional Description." This paper will be referred to as Page 3.

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60. Is this subsystem a computer or complex electro-mechanical device with various control circuits?
- a. If yes, select line item 1-3-1 (Part B) from the Model Statement table. Write the statement on Page 3 immediately below the heading and label it 1-3-1.
- Select the appropriate terms from the statement and incorporate them into a single statement on Page 3 with the selected Model Statement. Then go to step 65.
- b. If no, select line item 1-3-1 (Part A) from the Model Statement table. Write the statement on Page 3 immediately below the heading and label it 1-3-1.
61. Does this subsystem have specific methods of control?
- a. If yes, select line item 1-3-1 Part (i) from the Model Statement table and write it on Page 3, incorporating it into the part of line item 1-3-1 previously selected
- b. If no, continue to step 62
62. Is an understanding of signal flow within this subsystem required?
- a. If yes, select line item 1-3-1 Part (ii) from the Model Statement table and write it on Page 3, incorporating it into the parts of line item 1-3-1 previously selected
- b. If no, continue to step 63
63. Does this subsystem operate in a specific sequence?
- a. If yes, select line item 1-3-1 Part (iii) from the Model Statement table and write it on Page 3, incorporating it into any other parts of line item 1-3-1 previously selected
- b. If no, continue to step 64
64. Does this subsystem have any indications that it is operating in various methods/modes, etc?
- a. If yes, select line item 1-3-1 Part (iv) from the Model Statement table and write it on Page 3, incorporating it into any other parts of line item 1-3-1 previously selected. Immediately below the last part of line item 1-3-1 listed, list out the equipments which make up the subsystem. These will be subitems to line item 1-3-1. They are identified by sequential small letters (a, b, c, etc.).

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- b. If no, immediately below the last part of line item 1-3-1 listed, list out the equipments which make up the subsystem. These will be subitems to line item 1-3-1. They are identified by sequential small letters (a, b, c, etc.).
65. Does this subsystem have functional loops within it allowing for proper operation?
- a. If yes, select line item 1-3-2 from the Model Statement table and write it on Page 3 below the last line subitem listed. Review line item 1-3-2 from the Model Statement table and select the appropriate terms. Incorporate them into a single statement with line item 1-3-2 on Page 3.
 - b. If no, continue to step 66
66. Does this subsystem have any controls?
- a. If yes, select line item 1-3-3 Part (i) from the Model Statement table and write it on page 3 below the last line item/subitem listed
 - b. If no, continue to step 67
67. Does this subsystem have any indicators?
- a. If yes, select line item 1-3-3 Part (ii) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other part of line item 1-3-3 previously listed.
 - b. If no, continue to step 68
68. Do the displays, controls, or indicators have any specific positions?
- a. If yes, select line item 1-3-3 Part (iii) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-3 previously selected.
 - b. If no, continue to step 69
69. Do the controls or indicators of this subsystem have specific conditions?
- a. If yes, select line item 1-3-3 Part (iv) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-3 previously selected.
 - b. If no, continue to step 70
70. Do the displays, controls, or indicators have specific colors?

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- a. If yes, select line item 1-3-3 Part (v) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-3 previously selected.
 - b. If no, continue to step 71
71. Is this subsystem a computer or other type of device that is programmable?
- a. If yes, select line item 1-3-4 from the Model Statement table and write it on Page 3 below the last line item/subitem listed
 - b. If no, go to step 73 a(2)
72. Do the programs associated with this subsystem have specific numbers?
- a. If yes, select line item 1-3-4 Part (i) from the Model Statement table and write it on Page 3, incorporating it into the part of line item 1-3-4 previously selected
 - b. If no, continue to step 73
73. Does the use of any associated programs impose any type of constraints on operational or maintenance procedures?
- a. If yes:
 - (1) Select line item 1-3-4 Part (ii) from the Model Statement table and write it on Page 3, incorporating it into the parts of line item 1-3-4 previously selected
 - (2) Number the line items on Page 3 sequentially, beginning with number 1-3-1. On a blank piece of paper write the following heading "1-4. Interface Description." On page 4 below the heading write line item 1-4-1 Part (i) from the Model Statement table.
 - b. If no, number the line items on Page 3 sequentially, beginning with number 1-3-1. On a blank piece of paper write the following heading "1-4. Interface Description." On page 4 below the heading write line item 1-4-1 Part (i) from the Model Statement table.

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74. Is an understanding of the physical appearance of the physical interface required?
- If yes, select line item 1-4-1 Part (ii) from the Model Statement table and write it on Page 4, incorporating it into the part of line item 1-4-1 previously selected
 - If no, continue to step 75
75. Does the physical interface of this subsystem have reference designators?
- If yes, select line item 1-4-1 Part (iii) from the Model Statement table and write it on Page 4, incorporating it into the parts of line item 1-4-1 previously selected
 - If no, continue to step 76
76. Does the physical interface of this subsystem have specific locations?
- If yes, select line item 1-4-1 Part (iv) from the Model Statement table and write it on Page 4, incorporating it into the parts of line item 1-4-1 previously selected. Immediately below the last part of line item 1-4-1 listed, list out the physical interface and related external equipment which make up the equipment, subsystem, or system. These will be subitems to line item 1-4-1. They are identified by sequential small letters (a, b, c, etc.). Select line item 1-4-2 from the Model Statement table and write it on Page 4 below the last line item/subitem selected.
 - If no, immediately below the last part of line item 1-4-1 listed, list out the physical interface and related external equipment which make up the equipment, subsystem, or system. These will be subitems to line item 1-4-1. They are identified by sequential small letters (a, b, c, etc.). Select line item 1-4-2 from the Model Statement table and write it on Page 4 below the last line item/subitem selected.
77. Are there any electrical interfaces between this subsystem and any other equipment, subsystem, or system?
- If yes, select subitem 1-4-2a from the Model Statement table and write it on Page 4 below line item 1-4-2
 - If no, continue to step 78
78. Are there any electronic interfaces between this subsystem and any other equipment, subsystem, or system?
- If yes, select subitem 1-4-2b from the Model Statement table and write it on

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Page 4 below line item 1-4-2 or subitem 1-4-2a if it was previously selected

- b. If no, continue to step 79
79. Are there any pneumatic interfaces between this subsystem and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2c from the Model Statement table and write it on Page 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected.
 - b. If no, continue to step 80
80. Are there any hydraulic interfaces between this subsystem and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2d from the Model Statement table and write it on Page 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected.
 - b. If no, continue to step 81
81. Are there any mechanical interfaces between this subsystem and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2e from the Model Statement table and write it on Page 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected. Include sublevel (1) or (2) of this subitem as appropriate.
 - b. If no, continue to step 82
82. Place all the pages of this draft Personnel Performance Profile (PPP) in the following order:
- (1) Page 1
 - (2) Page 2
 - (3) Page 3
 - (4) Page 4
 - (5) Page B
 - (6) Page A

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83. Transfer the information from the hand-written pages to the final PPP Table form. Review the Personnel Performance Profile Table for completeness and accuracy.

Refer to Figure 3 as an example of a completed Subsystem PPP Table

PERSONNEL PERFORMANCE PROFILE
FOR
MOBILE CONSTRUCTION BATTALION VEHICLES - DEPLOYED

TABLE S1038
GENERAL UTILITY VEHICLES
15 MARCH 1986

SUBSYSTEM MODIFICATION RECORD

None

NEW DESIGN - DRAWING NUMBER

None

S1038-1/S1038-2

FIGURE 3. Example Subsystem PPP Table Cover Page

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PPP TABLE DEVELOPMENT

TABLE S1038. General Utility Vehicles (Subsystem).	
ITEM No.	KNOWLEDGE/SKILL
1.	<u>SUBSYSTEM KNOWLEDGE</u>
1-1.	GENERAL
1-1-1.	State the function of the General Utility Vehicles.
1-1-2.	State that the General Utility Vehicles subsystem consists of the following Commercial Utility Cargo Vehicle (CUCV) equipment including the function of each. <ul style="list-style-type: none"> a. CUCV (TYPE A), Utility b. CUCV (TYPE B), Cargo c. CUCV (TYPE C), Ambulance d. CUCV (5-TON), Dump e. CUCV (2.5 TON), Cargo f. CUCV (15 TON), Dump
1-1-3.	Define the abbreviations, terms, and symbols used with the General Utility Vehicles.
1-1-4.	State the operational characteristics and capabilities of the General Utility Vehicles in terms of the parameters and limitations as listed in the operating specifications pages of the applicable technical documentation.
1-1-5.	Describe the differences between the various models of the General Utility Vehicles.
1-2.	PHYSICAL DESCRIPTION
1-2-1.	Describe all equipments or major functional areas of the General Utility Vehicles. Include the name, nomenclature, physical appearance, reference designation, location, and construction features. <ul style="list-style-type: none"> a. CUCV (TYPE A), Utility b. CUCV (TYPE B), Cargo c. CUCV (TYPE C), Ambulance d. CUCV (5-TON), Dump e. CUCV (2.5 TON), Cargo f. CUCV (15 TON), Dump
1-2-2.	Describe controls, indicators, and displays directly associated with the General Utility Vehicles.

FIGURE 3. Example Subsystem PPP Table

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1038. General Utility Vehicles (Subsystem).	
ITEM No.	KNOWLEDGE/SKILL
1-2-2. (Cont.)	<p>Include name, reference, designation, positions, locations, and colors of each.</p> <ul style="list-style-type: none"> a. CUCV (TYPE A), Utility b. CUCV (TYPE B), Cargo c. CUCV (TYPE C), Ambulance d. CUCV (5-TON), Dump e. CUCV (2.5 TON), Cargo f. CUCV (15 TON), Dump
1-3.	FUNCTIONAL DESCRIPTION
1-3-1.	<p>Describe how the General Utility Vehicles work (functional operation). Include, when applicable, the methods of controls, signal flow, and indications.</p> <ul style="list-style-type: none"> a. CUCV (TYPE A), Utility b. CUCV (TYPE B), Cargo c. CUCV (TYPE C), Ambulance d. CUCV (5-TON), Dump e. CUCV (2.5 TON), Cargo f. CUCV (15 TON), Dump
1-3-2.	<p>Describe the functions of each control, indicator, and display of the General Utility Vehicles. Include, when applicable, electrical signal flow, fluid flow, steam flow, mechanical transfer, pneumatic control, position, color, or indication of each.</p> <ul style="list-style-type: none"> a. CUCV (TYPE A), Utility b. CUCV (TYPE B), Cargo c. CUCV (TYPE C), Ambulance d. CUCV (5-TON), Dump e. CUCV (2.5 TON), Cargo f. CUCV (15 TON), Dump
1-4.	<p>INTERFACE DESCRIPTION</p> <p>There are no interfaces between the General Utility Vehicles and any other subsystem.</p>
1-5.	OPERATIONAL DESCRIPTION
1-5-1.	<p>Describe the authority and regulations pertaining to the operation of the General Utility Vehicles.</p>

FIGURE 3. Example Subsystem PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1038. General Utility Vehicles (Subsystem).	
ITEM No.	KNOWLEDGE/SKILL
1-5-2.	Describe operational tasks for General Utility Vehicles. <ul style="list-style-type: none"> a. Pre-operational procedures b. Operational procedures c. Post-operational procedures
1-5-3.	Describe indications which should or may occur during operation of the General Utility Vehicles. Include alarms, indicators, displays, and readouts.
1-5-4.	Describe casualty/degraded/abnormal/not full mission capable mode(s) of operation for the General Utility Vehicles.
1-5-5.	Describe data logging requirements for the General Utility Vehicles. Include logging method, types of data logged, and disposition.
1-5-6.	Describe personnel and equipment safety precautions which are to be observed during operation of the General Utility Vehicles.
1-6.	MAINTENANCE DESCRIPTION
1-6-1.	Define the maintenance policy for the General Utility Vehicles. <ul style="list-style-type: none"> a. Preventive maintenance - the requirement for periodic performance of tasks to minimize system malfunctions by doing the following: <ul style="list-style-type: none"> (1) cleaning (2) inspection (3) lubrication (4) painting (5) degradation/deterioration checks (6) performance checks (7) pre-maintenance procedures b. Corrective maintenance - checks and procedures used to locate and correct malfunctions as determined by the following guides: <ul style="list-style-type: none"> (1) Authorized repair responsibility to correct malfunctions to the authorized maintenance level.

FIGURE 3. Example Subsystem PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1038. General Utility Vehicles (Subsystem).	
ITEM No.	KNOWLEDGE/SKILL
1-6-1. (Cont.)	<p>(2) Fault isolation - location of faults to the level of available spares, and to the authorized repair level including system operational checks and tests, as well as fault isolation tests and procedures.</p> <p>(3) Analytical procedures - isolation of faults using authorized techniques not contained in prescribed maintenance documentation.</p> <p>(4) Post-maintenance procedures - procedures performed after repair.</p>
1-6-2.	Describe the use of special tools and test equipment required for maintenance of the General Utility Vehicles as prescribed in applicable documentation.
1-6-3.	Describe preventive maintenance procedures for the General Utility Vehicles. Include recognition and interpretation of indications, records, and reports.
1-6-4.	Describe alignment, adjustment, and calibration procedures for the General Utility Vehicles.
1-6-5.	Describe the operational tests used for maintenance of the General Utility Vehicles. Include test name, use, and the procedures.
1-6-6.	Describe the recognition and interpretation of all malfunction indications for the General Utility Vehicles.
1-6-7.	Describe the systematic fault isolation procedures contained in the prescribed maintenance documentation for the General Utility Vehicles.
1-6-8.	Describe authorized techniques to isolate faults on the General Utility Vehicles, which cannot be located using procedures contained in the prescribed documentation.
1-6-9.	Describe the post-repair procedures for the General Utility Vehicles.
1-6-10.	Describe personnel and equipment safety precautions which are to be observed while performing maintenance on the General Utility Vehicles.

FIGURE 3. Example Subsystem PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1038. General Utility Vehicles (Subsystem).	
ITEM No.	KNOWLEDGE/SKILL
1-7.	DOCUMENTATION
1-7-1.	Describe the organization, content, and use of all technical documentation provided for use with the General Utility Vehicles.
2.	<u>SUBSYSTEM SKILLS</u>
2-1.	OPERATION
2-1-1.	Perform tasks for operation of the General Utility Vehicles. <ul style="list-style-type: none"> a. Pre-operational procedures b. Operational procedures c. Post-operational procedures
2-1-2.	Perform tasks and casualty/degraded/abnormal/not full mission capable modes of operations of the General Utility Vehicles.
2-1-3.	Perform data logging requirements for the General Utility Vehicles.
2-1-4.	Adhere to personnel and equipment safety precautions during operation of the General Utility Vehicles.
2-2.	MAINTENANCE
2-2-1.	Use special tools and special test equipment required for maintenance of the General Utility Vehicles as prescribed in applicable document.
2-2-2.	Perform preventive maintenance procedures, including quality assurance procedures on the General Utility Vehicles, as scheduled by the Planned Maintenance System (PMS).
2-2-3.	Perform alignment, adjustment, and calibration procedures on the General Utility Vehicles.
2-2-4.	Perform operational tests used for maintenance of the General Utility Vehicles.
2-2-5.	Recognize and interpret all malfunction indications for the General Utility Vehicles.

FIGURE 3. Example Subsystem PPP Table - Continued

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PPP TABLE DEVELOPMENT

TABLE S1038. General Utility Vehicles (Subsystem).	
ITEM No.	KNOWLEDGE/SKILL
2-2-6.	Perform systematic fault isolation on the General Utility Vehicles, using the procedures contained in prescribed maintenance documentation.
2-2-7.	Use authorized methods to isolate faults on the General Utility Vehicles, which cannot be located using the procedures contained in prescribed maintenance documentation.
2-2-8.	Perform post-repair procedures, including quality assurance procedures, on the General Utility Vehicles.
2-2-9.	Adhere to personnel and equipment safety precautions when performing maintenance on the General Utility Vehicles.

FIGURE 3. Example Subsystem PPP Table - Continued

CURRICULUM DEVELOPER AID
FOR
SYSTEM
PERSONNEL PERFORMANCE PROFILE
TABLES

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

Obtain the following resources:

- Technical documentation
 - SMEs
 - Job Task Inventory
 - E/SS/S PPP Model Statements Table 2
1. Start the development of a System PPP by obtaining two blank pieces of paper, then:
 - a. On one blank piece of paper put the heading “Page A.” Immediately below this heading write “2. System Skills.” Below the heading “2. System Skills” write “2-1 Operation.”
 - b. On the other blank piece of paper put the heading “Page B.” Immediately below this heading write “1. System Knowledge.” Below the heading “1. System Knowledge” write “1-5 Operational Description.”
 2. Is there any technical documentation required for use with the system?
 - a. If yes, at the bottom of page B write “1-7. Documentation” and select line item 1-7-1 from the Model Statement table and write it on Page B below the heading “1-7. Documentation.”
 - b. If no, continue to step 3
 3. Are there any actions a human must take to make this system perform the purpose it was designed for?
 - a. If yes, select line item 2-1-1 from the Model Statement table and write it below the heading “2-1. Operation” on Page A. Select line item 1-5-1 from the Model Statement table and write it below the heading “1-5. Operational Description” on Page B. Select line item 1-5-2 from the Model Statement table and write it on Page B below the last line item listed.
 - b. If no, write “No operation required below” “2-1. Operation” on Page A and write “No operation required” on Page B below the heading “1-5. Operational Description,” then go to step 28 b(2).
 4. Are there any actions that must be performed on this system prior to operating it?
 - a. If yes, select subitem 2-1-1a from the Model Statement table and write it on

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Page A below line item 2-1-1. Select subitem 1-5-2a from the Model Statement table and write it on Page B below line item 1-5-2.

- b. If no, go to step 7
5. Are there any routine pre-operational procedures which must be performed prior to the operational procedures?
 - a. If yes, select subitem 2-1-1a (1) from the Model Statement table and write it on Page A below subitem 2-1-1a. Select subitem 1-5-2a (1) from the Model Statement table and write it on Page B below subitem 1-5-2a.
 - b. If no, continue to step 6
6. Does this system have to be installed into a specific location prior to operation?
 - a. If yes, select subitem 2-1-1a (2) from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2a (2) from the Model Statement table and write it on Page B below the last item/subitem listed.
 - b. If no, continue to step 7
7. Does this system have to be assembled prior to operation?
 - a. If yes:
 - (1) Select subitem 2-1-1a (3) from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2a (3) from the Model Statement table and write it on Page B below the last item/subitem listed.
 - (2) Select subitem 2-1-1b from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2b from the Model Statement table and write it on Page B below the last item/subitem listed.
 - b. If no, select subitem 2-1-1b from the Model Statement table and write it on Page A below the last item/subitem listed. Select subitem 1-5-2b from the Model Statement table and write it on Page B below the last item/subitem listed.
8. Are there any procedures that must be performed after the system has been operated?
 - a. If yes, select subitem 2-1-1c from the Model Statement table and write it on Page

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A below the last item/subitem listed. Select subitem 1-5-2c from the Model Statement table and write it on Page B below the last item/subitem listed.

- b. If no, continue to step 9
9. Are there any critical operator actions required to keep the system operating properly?
- a. If yes, select line item 2-1-2 from the Model Statement table and write it on Page A below the last item/subitem. Select line item 1-5-3 from the Model Statement table and write it on Page B below the last item/subitem.
 - b. If no, go to step 15
10. Does this system have any alarms?
- a. If yes, select line item 1-5-3 part (i) from the Model Statement table and incorporate it into line item 1-5-3 on Page B
 - b. If no, continue to step 11
11. Does this system have any indicators?
- a. If yes, select line item 1-5-3 part (ii) from the Model Statement table and incorporate it into line item 1-5-3 on Page B
 - b. If no, continue to step 12
12. Does this system have any displays?
- a. If yes, select line item 1-5-3 (iii) from the Model Statement table and incorporate it into line item 1-5-3 on Page B.
 - b. If no, continue to step 13
13. Does this system have any readouts?

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- a. If yes, select line item 1-5-3 part (iv) from the Model Statement table and incorporate it into line item 1-5-3 on Page B
 - b. If no, continue to step 14
14. Does this system have any printouts or typeouts?
- a. If yes, select line item 1-5-3 part (v) from the Model Statement table and incorporate it into line item 1-5-3 on Page B
 - b. If no, continue to step 15
15. Does this system have specific casualty modes of operation?
- a. If yes, select line item 2-1-3 part (i) from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-5-4 part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 16
16. Does this system have a specifically designated degraded mode of operation?
- a. If yes, select line item 2-1-3 part (ii) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (ii) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 17
17. Does this system have a specifically designated abnormal mode of operation?
- a. If yes, select line item 2-1-3 part (iii) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (iii) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 18
18. Does this system have a designated not full mission capable mode of operation?

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- a. If yes, select line item 2-1-3 part (iv) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (iv) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 19
19. Is this system a type of computer which produces tapes, disks, or diskettes?
- a. If yes, select line item 2-1-4 from the Model Statement table and write it on Page A below the last line item/subitem listed
 - b. If no, go to step 24
20. Must these tapes, disks, or diskettes be interpreted to support system operation?
- a. If yes, select line item 1-5-5 part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed
 - b. If no, continue to step 21
21. Must the function of these tapes, disks, or diskettes be understood to support system operation?
- a. If yes, select line item 1-5-5 part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 22
22. Must the use of these tapes, disks, or diskettes be understood to support system operation?
- a. If yes, select line item 1-5-5 Part (iii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 23
23. Must the format of these tapes, disks, or diskettes be understood to support system operation?

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- a. If yes, select line item 1-5-5 Part (iv) from the Model Statement table and write it on Page B below the last item/subitem listed. Incorporate it with any other part of line item 1-5-5 previously selected.
 - b. If no, continue to step 24
24. Are there any data logging requirements involved with the operation of this system?
- a. If yes, select line item 2-1-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-5-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, go to step 28
25. Are there specific methods that must be followed to meet data logging requirements?
- a. If yes, select line item 1-5-6 Part (i) from the Model Statement table and incorporate it on Page B with the previously selected part of line item 1-5-6
 - b. If no, continue to step 26
26. Are there specific types of data to be logged to support data logging requirements?
- a. If yes, select line item 1-5-6 Part (ii) from the Model Statement table and incorporate it on Page B with the previously selected parts of line item 1-5-6
 - b. If no, continue to step 27
27. Is a knowledge of the disposition of logged data required to support data logging requirements?
- a. If yes, select line item 1-5-6 Part (iii) from the Model Statement table and incorporate it on Page B with the previously selected parts of line item 1-5-6
 - b. If no, continue to step 28
28. Are there acceptance tests which must be performed when this system is operated?
- a. If yes, select line item 2-1-6 from the Model Statement table and write it on Page

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- A below the last line item/subitem listed. Select line item 1-5-7 from the Model Statement table and write it on Page B below the last line item/subitem listed. Select line items 2-1-7 and 2-1-8 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-5-8 and 1-5-9 from the Model Statement table and write it on Page B below the last line item/subitem listed. Below the last line item/subitem listed on Page A write “2-2. Maintenance.” Below the last line item/subitem listed on Page B write “1-6. Maintenance Description.” Below the maintenance description heading on Page B write out line item 1-6-1 from the Model Statement table.
- b. If no:
- (1) Select line items 2-1-7 and 2-1-8 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-5-8 and 1-5-9 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - (2) Below the last line item/subitem listed on Page A write “2-2. Maintenance.” Below the last line item/subitem listed on Page B write “1-6. Maintenance Description.” Below the maintenance description heading on Page B write out line item 1-6-1 from the Model Statement table.
29. Is any special tool unique to this system used during either preventive or corrective maintenance?
- a. If yes, select line item 2-2-1 Part (i) from the Model Statement table and write it on Page A below the Maintenance heading. Select line item 1-6-2 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 30
30. Is any test equipment unique to this system used during preventive or corrective maintenance?
- a. If yes, select line item 2-2-1 Part (ii) from the Model Statement table and write it on Page A below the Maintenance heading. Incorporate it with any other parts of line item 2-2-1 previously selected. Select line item 1-6-2 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any other part of line item 1-6-2 previously selected.
 - b. If no, continue to step 31

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31. Does this system have required preventive maintenance procedures?
- a. If yes, select line 2-2-2 from the Model Statement table and write it on Page A below the last line item/subitem listed
- Based on the Preventive Maintenance System in use for this system, select line item 2-2-2 Part (i), 2-2-2 Part (ii) or 2-2-2 Part (iii) and incorporate it into the previously selected part of line item 2-2-2 on page A. Select line item 1-6-3 from the Model Statement table and write it on Page B below the last line item/subitem listed.
- b. If no, go to step 34
32. Are there any records that must be kept for preventive maintenance?
- a. If yes, select line item 1-6-3 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-3 previously selected.
- b. If no, continue to step 33
33. Are there any reports which must be made for preventive maintenance?
- a. If yes, select line item 1-6-3 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-3 previously selected.
- b. If no, continue to step 34
34. Are there any alignment procedures for this system?
- a. If yes, select line item, 2-2-3 Part (i) from the Model Statement table and write it on Page A below the last line item/subitem selected. Select line

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- item 1-6-4 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
- b. If no, continue to step 35
35. Are there any adjustment procedures for this system?
- a. If yes, select line item 2-2-3 Part (ii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-3 previously selected. Select line item 1-6-4 Part (ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-4 previously selected.
 - b. If no, continue to step 36
36. Are there any calibration procedures for this system?
- a. If yes, select line item 2-2-3 Part (iii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-3 previously selected. Select line item 1-6-4 Part (iii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of the line item 1-6-4 previously selected.
 - b. If no, continue to step 37
37. Are there any operational tests performed during preventive or corrective maintenance for this system?
- a. If yes, select line item 2-2-4 Part (i) from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-5 Part (i) from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 38
38. Are there any diagnostic programs used during preventive or corrective maintenance for this system?

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- a. If yes, select line item 2-2-4 Part (ii) from the Model Statement table and write it on Page A below the last line item/subitem listed. Incorporate it with any parts of line item 2-2-4 previously selected. Select line item 1-6-5 Part(ii) from the Model Statement table and write it on Page B below the last line item/subitem listed. Incorporate it with any parts of line item 1-6-5 previously selected.
 - b. If no, continue to step 39
39. Were either Part (i), or Part (ii) of line item 1-6-5 selected?
- a. If yes, select line item 1-6-5 Part (iii) from the Model Statement table and incorporate it in the parts of line item 1-6-5 previously listed on Page B. Select line item 2-2-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, select line item 2-2-5 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-6 from the Model Statement table and write it on Page B below the last line item/subitem listed.
40. Are there fault isolation procedures contained in the technical documentation for this system?
- a. If yes, select line item 2-2-6 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-7 from the Model Statement table and write it on Page B below the last line item/subitem listed.
 - b. If no, continue to step 41
41. Does the technical documentation for this system provide documented fault isolation procedures that cover all possible faults?
- a. If yes, continue to step 42
 - b. If no, select line item 2-2-7 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-8 from

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- the Model Statement table and write it on Page B below the last line item/subitem listed.
42. Are there any procedures which must be performed after the repair of this system?
- a. If yes, select line item 2-2-9 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line item 1-6-10 from the Model Statement table and write it on Page B below the last line item/subitem listed. Select line items 2-2-10 and 2-2-11 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-6-11 and 1-6-12 from the Model Statement table and write it on Page B below the last line item/subitem listed. Number all line items on Page A sequentially, starting with number 2-1-1 for operational skills and 2-2-1 for maintenance skills. Number all line items on Page B sequentially, starting with numbers 1-5-1 for line items in the operational description and 1-6-1 for line items in the maintenance description.
 - b. If no, select line items 2-2-10 and 2-2-11 from the Model Statement table and write it on Page A below the last line item/subitem listed. Select line items 1-6-11 and 1-6-12 from the Model Statement table and write it on Page B below the last line item/subitem listed. Number all line items on Page A sequentially, starting with number 2-1-1 for operational skills and 2-2-1 for maintenance skills. Number all line items on Page B sequentially, starting with numbers 1-5-1 for line items in the operational description and 1-6-1 for line items in the maintenance description.
43. On a blank piece of paper write the heading “1. System Knowledge.” On the same paper write “1-1. General” below the heading. This paper will be referred to as Page 1. On page 1, below the sub-heading, write line item 1-1-1 from the Model Statement table. Number this line item 1-1-1. On page 1, below line item 1-1-1, write line item 1-1-2 from the Model Statement table. Number this line item 1-1-2. Write out the necessary subitems as required. These are identified sequentially by small letters (a, b, c, etc).
44. Are there abbreviations unique to this system?
- a. If yes, select line item 1-1-3 Part (i) from the Model Statement table and write it on Page 1 below the last line item/subitem listed
 - b. If no, continue to step 45

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45. Are there terms unique to this system?
- If yes, select line item 1-1-3 Part (ii) from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Incorporate it into any other parts of line item 1-1-3 previously selected.
 - If no, continue to step 46
46. Are there symbols unique to this system?
- If yes, select line item 1-1-3 Part (iii) from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Incorporate it into any other parts of line item 1-1-3 previously selected. Select line item 1-1-4 from the Model Statement table and write it on Page 1 below the last line item/subitem listed.
 - If no, select line item 1-1-4 from the Model Statement table and write it on Page 1 below the last line item/subitem listed
47. Does this system have different models?
- If yes, select line item 1-1-5 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Select line item 1-1-6 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Ensure all line items listed on Page 1 are numbered sequentially starting with line item 1-1-1. On a blank piece of paper write the following heading: "1-2. Physical Description." This paper will be referred to as Page 2. Select line item 1-2-1 Part (i) from the Model Statement table and write it on Page 2 below the heading.
 - If no, select line item 1-1-6 from the Model Statement table and write it on Page 1 below the last line item/subitem listed. Ensure all line items listed on Page 1 are numbered sequentially starting with line item 1-1-1. On a blank piece of paper write the following heading: "1-2. Physical Description." This paper will be referred to as Page 2. Select line item 1-2-1 Part (i) from the Model Statement table and write it on Page 2 below the heading.
48. Do the subsystems of this system have specific nomenclature?
- If yes, below line item 1-2-1 on Page 2 list out all the subsystems that make up the system. These will make up the subitems to line item 1-2-1. They are identified sequentially by small letters (a, b, c, etc.). Select line item 1-2-1 Part

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- (ii) from the Model Statement table and write it on Page 2 incorporating it into any other part of line item 1-2-1 previously selected.
- b. If no, continue to step 49
49. Is an understanding of the physical appearance of the major and/or associated components, equipments, or subsystems required?
- a. If yes, select line item 1-2-1 Part (iii) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected
 - b. If no, continue to step 50
50. Do the major and/or associated components, equipments, or subsystems have reference designators?
- a. If yes, select line item 1-2-1 Part (iv) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected
 - b. If no, continue to step 51
51. Is an understanding of the location of the major and/or associated components, equipments, or subsystems required?
- a. If yes, select line item 1-2-1 Part (v) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected
 - b. If no, continue to step 52
52. Is an understanding of the construction features of the major and/or associated components, equipments, or subsystems required?
- a. If yes, select line item 1-2-1 Part (vi) from the Model Statement table and write it on Page 2, incorporating it into any other part of the line item 1-2-1 previously selected
 - b. If no, continue to step 53
53. Does this system have any displays?
- a. If yes, select line item 1-2-2 Part (i) from the Model Statement table and write it on Page 2 below the last line item/subitem listed

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- b. If no, continue to step 54
54. Does this system have any controls?
- a. If yes, select line item 1-2-2 Part (ii) from the Model Statement table and write it on page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 55
55. Does this system have any indicators?
- a. If yes, select line item 1-2-2 Part (iii) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-2-2 previously selected.
 - b. If no, continue to step 56
56. Do the displays, controls, or indicators have reference designators?
- a. If yes, select line item 1-2-2 Part (iv) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line 1-2-2 previously selected.
 - b. If no, continue to step 57
57. Do the displays, controls, or indicators have specific positions?
- a. If yes, select line item 1-2-2 Part (v) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 58
58. Do the displays, controls, or indicators have specific colors?
- a. If yes, select line item 1-2-2 Part (vi) from the Model Statement table and write it on Page 2 below the last line item/subitem listed. Incorporate it with any other part of line item 1-2-2 previously selected.
 - b. If no, continue to step 59
59. Do the displays, controls, or indicators have specific locations?
- a. If yes, select line item 1-2-2 Part (vii) from the Model Statement table and write it

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- on Page 2 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-2-2 previously selected. Ensure the two line items on Page 2 are numbered 1-2-1 and 1-2-2. On a blank piece of paper write the following heading: "1-3. Functional Description." This paper will be referred to as Page 3.
- b. If no, ensure the two line items on Page 2 are numbered 1-2-1 and 1-2-2. On a blank piece of paper write the following heading: "1-3. Functional Description." This paper will be referred to as Page 3.
60. Is this system a computer or complex electro-mechanical device with various control circuits?
- a. If yes, select line item 1-3-1 (Part B) from the Model Statement table. Write the statement on Page 3 immediately below the heading and label it 1-3-1. Select the appropriate terms from the statement and incorporate them into a single statement on Page 3 with the selected Model Statement. Then go to step 65.
 - b. If no, select line item 1-3-1 (Part A) from the Model Statement table. Write the statement on Page 3 immediately below the heading and label it 1-3-1.
61. Does this system have specific methods of control?
- a. If yes, select line item 1-3-1 Part (i) from the Model Statement table and write it on Page 3, incorporating it into the part of line item 1-3-1 previously selected
 - b. If no, continue to step 62
62. Is an understanding of signal flow within this system required?
- a. If yes, select line item 1-3-1 Part (ii) from the Model Statement table and write it on Page 3, incorporating it into the parts of line item 1-3-1 previously selected
 - b. If no, continue to step 63
63. Does this system operate in a specific sequence?
- a. If yes, select line item 1-3-1 Part (iii) from the Model Statement table and write it on Page 3, incorporating it into any other parts of line item 1-3-1 previously selected
 - b. If no, continue to step 64

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64. Does this system have any indications that it is operating in various methods/modes, etc?
- a. If yes, select line item 1-3-1 Part (iv) from the Model Statement table and write it on Page 3, incorporating it into any other parts of line item 1-3-1 previously selected. Immediately below the last part of line item 1-3-1 listed, list out the subsystems which make up the system. These will be subitems to line item 1-3-1. They are identified by sequential small letters (a, b, c, etc.).
 - b. If no, immediately below the last part of line item 1-3-1 listed, list out the subsystems which make up the system. These will be subitems to line item 1-3-1. They are identified by sequential small letters (a, b, c, etc.).
65. Does this system have functional loops within it allowing for proper operation?
- a. If yes, select line item 1-3-2 from the Model Statement table and write it on Page 3 below the last line subitem listed. Review line item 1-3-2 from the Model Statement table and select the appropriate terms. Incorporate them into a single statement with line item 1-3-2 on Page 3.
 - b. If no, continue to step 66
66. Does this system have any controls?
- a. If yes, select line item 1-3-3 Part (i) from the Model Statement table and write it on page 3 below the last line item/subitem listed
 - b. If no, continue to step 67
67. Does this system have any indicators?
- a. If yes, select line item 1-3-3 Part (ii) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other part of line item 1-3-3 previously listed.
 - b. If no, continue to step 68
68. Do the displays, controls, or indicators have any specific positions?
- a. If yes, select line item 1-3-3 Part (iii) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-3 previously selected.
 - b. If no, continue to step 69

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69. Do the controls or indicators of this system have specific conditions?
- a. If yes, select line item 1-3-3 Part (iv) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-3 previously selected.
 - b. If no, continue to step 70
70. Do the displays, controls, or indicators have specific colors?
- a. If yes, select line item 1-3-3 Part (v) from the Model Statement table and write it on Page 3 below the last line item/subitem listed. Incorporate it with any other parts of line item 1-3-3 previously selected.
 - b. If no, continue to step 71
71. Is this system a computer or other type of device that is programmable?
- a. If yes, select line item 1-3-4 from the Model Statement table and write it on Page 3 below the last line item/subitem listed
 - b. If no, go to step 73 a(2)
72. Do the programs associated with this system have specific numbers?
- a. If yes, select line item 1-3-4 Part (i) from the Model Statement table and write it on Page 3, incorporating it into the part of line item 1-3-4 previously selected
 - b. If no, continue to step 73
73. Does the use of any associated programs impose any type of constraints on operational or maintenance procedures?
- a. If yes:
 - (1) Select line item 1-3-4 Part (ii) from the Model Statement table and write it on Page 3, incorporating it into the parts of line item 1-3-4 previously selected
 - (2) Number the line items on Page 3 sequentially, beginning with number 1-3-1. On a blank piece of paper write the following heading "1-4. Interface Description." On page 4 below the heading write line item 1-4-1 Part (i) from the Model Statement table.

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- b. If no, number the line items on Page 3 sequentially, beginning with number 1-3-1. On a blank piece of paper write the following heading “1-4. Interface Description.” On page 4 below the heading write line item 1-4-1 Part (i) from the Model Statement table.
74. Is an understanding of the physical appearance of the physical interface required?
- a. If yes, select line item 1-4-1 Part (ii) from the Model Statement table and write it on Page 4, incorporating it into the part of line item 1-4-1 previously selected
 - b. If no, continue to step 75
75. Does the physical interface of this system have reference designators?
- a. If yes, select line item 1-4-1 Part (iii) from the Model Statement table and write it on Page 4, incorporating it into the parts of line item 1-4-1 previously selected
 - b. If no, continue to step 76
76. Does the physical interface of this system have specific locations?
- a. If yes, select line item 1-4-1 Part (iv) from the Model Statement table and write it on Page 4, incorporating it into the parts of line item 1-4-1 previously selected. Immediately below the last part of line item 1-4-1 listed, list out the physical interface and related external equipment which make up the equipment, subsystem, or system. These will be subitems to line item 1-4-1. They are identified by sequential small letters (a, b, c, etc.). Select line item 1-4-2 from the Model Statement table and write it on Page 4 below the last line item/subitem selected.
 - b. If no, immediately below the last part of line item 1-4-1 listed, list out the physical interface and related external equipment which make up the equipment, subsystem, or system. These will be subitems to line item 1-4-1. They are identified by sequential small letters (a, b, c, etc.). Select line item 1-4-2 from the Model Statement table and write it on Page 4 below the last line item/subitem selected.
77. Are there any electrical interfaces between this system and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2a from the Model Statement table and write it on Page 4 below line item 1-4-2
 - b. If no, continue to step 78

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78. Are there any electronic interfaces between this system and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2b from the Model Statement table and write it on Page 4 below line item 1-4-2 or subitem 1-4-2a if it was previously selected
 - b. If no, continue to step 79
79. Are there any pneumatic interfaces between this system and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2c from the Model Statement table and write it on Page 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected
 - b. If no, continue to step 80
80. Are there any hydraulic interfaces between this system and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2d from the Model Statement table and write it on Page 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected
 - b. If no, continue to step 81
81. Are there any mechanical interfaces between this system and any other equipment, subsystem, or system?
- a. If yes, select subitem 1-4-2e from the Model Statement table and write it on Page 4 below line item 1-4-2 or any subitem of line item 1-4-2 previously selected. Include sublevel (1) or (2) of this subitem as appropriate.
 - b. If no, continue to step 82
82. Place all the pages of this draft Personnel Performance Profile (PPP) in the following order:
- (1) Page 1
 - (2) Page 2
 - (3) Page 3
 - (4) Page 4
 - (5) Page B
 - (6) Page A

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83. Transfer the information from the hand-written pages to the final PPP Table forms. Review the Personnel Performance Profile Table for completeness and accuracy.

Refer to Figure 4 as an example of a completed System PPP Table

PERSONNEL PERFORMANCE PROFILE
FOR
MOBILE CONSTRUCTION BATTALION VEHICLES - DEPLOYED
TABLE S1037
MOBILE CONSTRUCTION BATTALION VEHICLES - DEPLOYED
1 JANUARY 1986
SYSTEM MODIFICATION RECORD
None
NEW DESIGN - DRAWING NUMBER
None
S1037-1/S1037-2

FIGURE 4. Example System PPP Table Cover Page

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PPP TABLE DEVELOPMENT

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System).	
ITEM No.	KNOWLEDGE/SKILL
1.	<u>SYSTEM KNOWLEDGE</u>
1-1.	GENERAL
1-1-1.	State the purpose of the Mobile Construction Battalion Vehicles - Deployed system.
1-1-2.	State that the Mobile Construction Battalion Vehicles - Deployed system consists of the following subsystems including the function of each. <ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-1-3.	Define the abbreviations, terms, and symbols used with the Mobile Construction Battalion Vehicles - Deployed system.
1-1-4.	State the operational characteristics and capabilities of the Mobile Construction Battalion Vehicles - Deployed system in terms of the parameters and limitations as listed in the applicable technical documentation.
1-1-5.	Describe the differences between the various models of the Mobile Construction Battalion Vehicles - Deployed system.
1-2.	PHYSICAL DESCRIPTION
1-2-1.	Describe all subsystems or major equipments of the Mobile Construction Battalion Vehicles - Deployed system. Include the name, nomenclature, physical appearance, reference designation, location, and construction features of each. <ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-2-2.	Describe controls, indicators, and displays directly associated with the Mobile Construction Battalion Vehicles - Deployed system. Include name, reference designation, positions, locations, and colors of each.

FIGURE 4. Example System PPP Table

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PPP TABLE DEVELOPMENT

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System)	
ITEM No.	KNOWLEDGE/SKILL
1-2-2. (Cont.)	<ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-3.	FUNCTIONAL DESCRIPTION
1-3-1.	<p>Describe how the Mobile Construction Battalion Vehicles - Deployed system works (functional operation). Include, when applicable, the methods of control, operational modes, inputs, and outputs of each.</p> <ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-3-2.	<p>Describe the functions of each control, indicator, and display of the Mobile Construction Battalion Vehicles - Deployed system. Include, when applicable, electrical signal flow, fluid flow, steam flow, mechanical transfer, pneumatic control, position, color, or indication of each.</p> <ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-4.	<p>INTERFACE DESCRIPTION</p> <p>There are no interfaces between the Mobile Construction Battalion Vehicles - Deployed system and any other system.</p>
1-5.	OPERATIONAL DESCRIPTION
1-5-1.	Describe the authority and regulations pertaining to the operation of the Mobile Construction Battalion Vehicles - Deployed system.

FIGURE 4. Example System PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System)	
ITEM No.	KNOWLEDGE/SKILL
1-5-2.	Describe operational tasks for Mobile Construction Battalion Vehicles - Deployed system. <ul style="list-style-type: none"> a. Pre-operational procedures b. Operational procedures c. Post-operational procedures
1-5-3.	Describe indications which should or may occur during operation of the Mobile Construction Battalion Vehicles - Deployed system. Include alarms, indicators, displays, and readouts.
1-5-4.	Describe casualty/degraded/abnormal/not full mission capable mode(s) of operation for the Mobile Construction Battalion Vehicles - Deployed system.
1-5-5.	Describe data logging requirements for the Mobile Construction Battalion Vehicles - Deployed system. Include logging method, types of data logged, and disposition.
1-5-6.	Describe the personnel and equipment safety precautions which are to be observed during operation of the Mobile Construction Battalion Vehicles - Deployed system.
1-6.	MAINTENANCE DESCRIPTION
1-6-1.	Define the maintenance policy for the Mobile Construction Battalion Vehicles - Deployed system. <ul style="list-style-type: none"> a. Preventive maintenance - the requirement for periodic performance of tasks to minimize malfunctions by doing the following: <ul style="list-style-type: none"> (1) cleaning (2) inspection (3) lubrication (4) painting (5) degradation/deterioration checks (6) performance checks (7) pre-maintenance procedures

FIGURE 4. Example System PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System)	
ITEM No.	KNOWLEDGE/SKILL
1-6-1. (Cont.)	<p>b. Corrective Maintenance - checks and procedures used to locate and correct malfunctions as determined by the following guides:</p> <ul style="list-style-type: none"> (1) Authorized repair responsibility to correct malfunctions to the authorized maintenance level. (2) Fault Isolation - location of faults to the level of available spares, and to the authorized repair level including system operational checks and tests, as well as fault isolation tests and procedures. (3) Analytical procedures - isolation of faults using authorized techniques not contained in prescribed maintenance documentation. (4) Post-maintenance procedures - procedures performed after repair.
1-6-2.	Describe the use of special tools and test equipment required for maintenance of the Mobile Construction Battalion Vehicles - Deployed system as prescribed in applicable documentation.
1-6-3.	Describe preventive maintenance procedures for the Mobile Construction Battalion Vehicles - Deployed system. Include recognition and interpretation of indications, records, and reports.
1-6-4.	Describe alignment, adjustment, and calibration procedures for the Mobile Construction Battalion Vehicles - Deployed system.
1-6-5.	Describe the operational tests used for maintenance of the Mobile Construction Battalion Vehicles - Deployed system. Include test name, use, and the procedures.
1-6-6.	Describe the recognition and interpretation of all malfunction indications for the Mobile Construction Battalion Vehicles - Deployed system.
1-6-7.	Describe the systematic fault isolation procedures contained in the prescribed maintenance documentation for the Mobile Construction Battalion Vehicles - Deployed system.

FIGURE 4. Example System PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System)	
ITEM No.	KNOWLEDGE/SKILL
1-6-8.	Describe authorized techniques to isolate faults on the Mobile Construction Battalion Vehicles - Deployed system, which cannot be located using procedures contained in the prescribed documentation.
1-6-9.	Describe the post-repair procedures for the Mobile Construction Battalion Vehicles - Deployed system.
1-6-10.	Describe personnel and equipment safety precautions which are to be observed while performing maintenance on the Mobile Construction Battalion Vehicles - Deployed system.
1-7.	DOCUMENTATION
1-7-1.	Describe the organization, content, and use of all technical documentation provided for use with the Mobile Construction Battalion Vehicles - Deployed system.
2.	<u>SYSTEM SKILLS</u>
2-1.	OPERATION
2-1-1.	Perform tasks for operation of the Mobile Construction Battalion Vehicles - Deployed system. <ul style="list-style-type: none"> a. Pre-operational procedures b. Operational procedures c. Post-operational procedures
2-1-2.	Recognize and interpret all indications occurring during performance of operating procedures and perform appropriate operator actions in proper sequences for the Mobile Construction Battalion Vehicles - Deployed system.
2-1-3.	Perform tasks for casualty/degraded/abnormal/not full mission capable mode(s) of operation of the Mobile Construction Battalion Vehicles - Deployed system.
2-1-4.	Perform data logging requirements for the Mobile Construction Battalion Vehicles - Deployed system.
2-1-5.	Adhere to personnel and equipment safety precautions during operation of the Mobile Construction Battalion Vehicles - Deployed system.

FIGURE 4. Example System PPP Table - Continued

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System)	
ITEM No.	KNOWLEDGE/SKILL
2-2.	MAINTENANCE
2-2-1.	Use special tools and test equipment required for maintenance of the Mobile Construction Battalion Vehicles - Deployed system.
2-2-2.	Perform preventive maintenance procedures, including quality assurance procedures for the Mobile Construction Battalion Vehicles - Deployed system, as scheduled by the Planned Maintenance System (PMS).
2-2-3.	Perform alignment, adjustment, and calibration procedures on the Mobile Construction Battalion Vehicles - Deployed system.
2-2-4.	Perform operational tests used for maintenance of the Mobile Construction Battalion Vehicles - Deployed system.
2-2-5.	Recognize and interpret all malfunction indications for the Mobile Construction Battalion Vehicles - Deployed system.
2-2-6.	Perform systematic fault isolation on the Mobile Construction Battalion Vehicles - Deployed system, using procedures contained in prescribed maintenance documentation.
2-2-7.	Use authorized methods to isolate faults on the Mobile Construction Battalion Vehicles - Deployed system, which cannot be located using the procedures contained in the prescribed maintenance documentation.
2-2-8.	Perform post-repair procedures, including quality assurance procedures, on the Mobile Construction Battalion Vehicles - Deployed system.
2-2-9.	Adhere to personnel and equipment safety precautions when performing maintenance on the Mobile Construction Battalion Vehicles - Deployed system.

FIGURE 4. Example System PPP Table - Continued

PPP TABLE CHECKLISTS

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

INTRODUCTION

The following tables provide a means of performing a content check on new or updated PPP Tables. E/SS/S and Non-Hardware PPP Table Checklists are included.

Read each category provided in the checklist and compare the new or updated PPP Table that you are working on against the same

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE 6. Checklist for Equipment PPPs

<u>Category/Topic</u>	<u>Category/Topic</u>
1-1 GENERAL (Knowledge)	1-2 PHYSICAL DESCRIPTION (Knowledge)
Purpose —	Equipment identification/nomenclature —
Functional loops of which the equipment is a part —	Name —
Model differences —	Physical appearance —
Terminology and abbreviations —	Reference symbols/designator —
Operational characteristics (including but not limited to) —	Location —
Capabilities (limitations) —	Equipment construction —
Temperature operating ranges —	Weight/size requirements —
Tape storage —	Space requirements —
Logic levels —	Major components —
Coordinate systems —	Associated components/module recognition and mounting —
Word length —	Maintenance provisions —
Timing scheme —	Chassis slides —
Arithmetic considerations —	Tilt mechanisms —
General/special purpose —	Access panels —
Types of memory —	Controls, displays, and indicators —
Types of recording —	Name —
Frequency ranges —	Location —
Formatting —	Reference designator —
Accuracies —	Positions and/or colors —
Power requirements —	Connectors/connections —
Security —	Signal input/output —
	Power —

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE 6. Checklist for Equipment PPPs - Continued

<u>Category/Topic</u>	<u>Category/Topic</u>
1-2 PHYSICAL DESCRIPTION (Knowledge) - Continued	Power supplies and distribution —
Wire routing —	Protective devices (fuses, interlocks, etc.) —
Shock mounting —	Modes of operation (all levels) —
Hydraulic and pneumatic —	Purpose —
Ventilation and cooling —	Conditions for use —
1-3 FUNCTIONAL DESCRIPTION (Knowledge)	Programs —
Logical functional breakdown (proceeding from the whole to the single functional stage; e.g., amplifier stage, digital logic block, synchros, motors etc.) —	Function of each control and/or indicator in each position/condition/color —
Functional levels (functional subdivisions at all levels) —	Programming —
Functional control —	Types and uses —
Mechanization (all levels) —	Methods of solution —
Functional loops (within the equipment) —	General —
Time and phase relationships —	Glossary of terms and symbols —
Significant incidents —	Instruction complement (repertoire) —
Time and/or mechanical sequences —	Word structure —
Signal flow —	Instruction format —
Mathematical analysis —	Coding —
Functional/physical relationships —	Memory maps —
Alarm circuits —	Program flow diagrams —
Test circuits —	Program listings —
	Special diagrams —

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PPP TABLE DEVELOPMENT

TABLE 6. Checklist for Equipment PPPs - Continued

<u>Category/Topic</u>	<u>Category/Topic</u>
1-3 FUNCTION DESCRIPTION (Knowledge) - Continued	1-4 INTERFACE DESCRIPTION (Knowledge) - Continued
Program, subprogram, routine, subroutine, etc. requirements	Power requirements/sources
Analytical description	Input/output signals
Purpose	Types
Capabilities/limitations	Interpretation
Modes and sequences	Format
Logic functional breakdown	Source/destination
Mathematical analysis	1-5 OPERATIONAL DESCRIPTION (Knowledge)
Mechanization	Procedures
1-4 INTERFACE DESCRIPTION (Knowledge)	Regulation and authority
Identification	Pre-operational (includes tape installation, etc.)
Name	Typical
Physical appearance	Emergency/casualty
Reference symbols/designator	Post-operational
Location	Security requirements
Physical	Data and records
Electrical	Analysis of operation information (displays, readouts, etc.)
Mechanical	Use of data (by whom, where, when, why)
Hydraulic	Logs
Pneumatic	
Functional	

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE 6. Checklist for Equipment PPPs - Continued

<u>Category/Topic</u>		<u>Category/Topic</u>	
1-5 OPERATIONAL DESCRIPTION (Knowledge) - Continued		1-6 MAINTENANCE DESCRIPTION (Knowledge) - Continued	
Conditions of external equipment	—	CM requirements	—
Signals	—	Symptom recognition	—
Power	—	Diagnosing	—
Modes	—	Procedures	—
Safety	—	Authorized techniques	—
If there are no operation tasks associated with the equipment, the statement "No operation involved" will follow the heading.	—	Signal tracing, electrical or mechanical measurements	—
1-6 MAINTENANCE DESCRIPTION (Knowledge)		Alignment, adjustment, and calibration	—
Maintenance policy	—	Disassembly and reassembly procedures (repair and/or replacement)	—
Regulations and authority	—	Safety	—
Levels of preventive and corrective maintenance	—	Security	—
Preventive (schedules and records)	—	1-7 DOCUMENTATION (Knowledge)	
Corrective (replaceable/repairable philosophy and techniques)	—	Documentation (for each consider knowledge of organization, contents, use, classification, function, interpretation, and use of symbols and terminology presented, etc.)	—
Special tools and test equipment	—	Equipment level technical documentation	—
PM requirements	—	2-1 OPERATION (Skills)	
Inspection	—	Pre-operational	—
Cleaning	—	Locate controls	—
Lubrication	—	Initial control settings	—
Alignment, adjustment, and calibration	—		
Performance checks	—		

NAVEDTRA 131A, VOLUME I SUPPLEMENT
PPP TABLE DEVELOPMENT

TABLE 6. Checklist for Equipment PPPs - Continued

<u>Category/Topic</u>	<u>Category/Topic</u>
2-1 OPERATION (Skills) - Continued	2-1 OPERATION (Skills) - Continued
Condition of external equipment	
Signals	Safety
Power	Security
Loads	If there are no operation tasks associated with the equipment, the statement "No operation involved" will follow the heading.
Install tapes/ribbons/paper	
Turn-on	2-2 MAINTENANCE (Skill)
Warmup	Special tools and test equipment
Initialize	Preventive
Program load	Inspection
Parameter insertion	Cleaning
Checkout procedures	Lubrication
Operational	Alignment, adjustment, and calibration
Modes	Performance checks
Procedures	Corrective
Emergency/casualty	Fault isolation
Modes	Symptom recognition
Procedures	Diagnosing
Post-operational	Procedures
Procedures	Authorized techniques
Shutdown	Signal tracing (electrical/mechanical measurements)
Typical	Alignment, adjustment, and calibration
Emergency/casualty	Removal and replacement (repair)
Data reduction	Disassembly
Log entries	

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PPP TABLE DEVELOPMENT

TABLE 6. Checklist for Equipment PPPs - Continued

<u>Category/Topic</u>		<u>Category/Topic</u>	
2-2 MAINTENANCE (Skills) - Continued			
Assembly	—	Alignments/adjustments	—
Postcorrective	—	Safety	—
Performance checks	—	Security	—

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PPP TABLE DEVELOPMENT

TABLE 7. Checklist for Subsystem PPPs

<u>Category/Topic</u>	<u>Category/Topic</u>
1-1 GENERAL (Knowledge)	Connection or signal flow
Purpose	Time sequence
Major components	Physical/functional relationships
Operational capabilities	Controls and indicators
Operational characteristics	Mathematical analysis
Limitations	Functional loops
Outputs and displays	Function
Model differences	Blocks
Special terminology, symbols, and abbreviations	Signals
Subsystem components	Control
Subsystem functions	Mechanical or optical assemblies
Subsystem tie-in	Sequential modes of operation
System tie-in	Alternate mode description
Operational characteristics	Test modes
Power requirements	Emergency (bypass) capabilities
Signal requirements	Capabilities for operational change in environmental extremes
Security	Programming
1-2 PHYSICAL DESCRIPTION (Knowledge)	1-4 INTERFACE DESCRIPTION (Knowledge)
Arrangement/construction features	Physical interface
Recognition of major components (controls, displays, and indicators)	Electrical
1-3 FUNCTIONAL DESCRIPTION (Knowledge)	Mechanical
Major functional block level	Hydraulic
Block names	Pneumatic
Signal names	Functional interface
	Power sources/requirements
	Power characteristics
	Input signal sources

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PPP TABLE DEVELOPMENT

TABLE 7. Checklist for Subsystem PPPs - Continued

<u>Category/Topic</u>	<u>Category/Topic</u>
1-4 INTERFACE DESCRIPTION (Knowledge) - Continued	Theory —
Output signal destinations —	Functions —
Interface component locations —	Interpretation —
Interface component identification —	Safety —
Interface signals —	Security —
Types of signals —	If there are no operation tasks associated with the equipment, the statement "No operation involved" will follow the heading. —
Interpretation of signals —	
Format of data —	1-6 MAINTENANCE DESCRIPTION (Knowledge)
1-5 OPERATION DESCRIPTION (Knowledge)	Maintenance policy —
Operational theory (relationships of subsystem to system purpose) —	Special tools and test equipment —
Operational controls (positions) —	Preventive maintenance procedures —
Operational modes —	Indications —
Purposes —	Records —
Effects —	Reports —
Sequence —	Instructions —
Conditions for use —	Alignment, adjustment, and calibration —
Interpretation of operational information (displays, readouts, etc.) —	Operational test —
Operational procedures (include tape, paper installation) —	Corrective maintenance —
Emergency operation procedures —	Symptom recognition —
Operational logs —	Fault isolation —
Operating regulations and authority —	Alignment, adjustment, and calibration —
Operational programs —	Repair/assembly procedures —
	Safety —
	Security —

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PPP TABLE DEVELOPMENT

TABLE 7. Checklist for Subsystem PPPs - Continued

<u>Category/Topic</u>	<u>Category/Topic</u>
1-7 DOCUMENTATION (Knowledge)	Operational communications —
Documentation (for each consider knowledge of organization, contents, use, and classification) —	Post-operational procedures —
Subsystem level technical documentation —	Data reduction (consider interpretation and use) —
2-1 OPERATION (Skills)	Operational log entry —
Operational conditions of external power sources —	If there are no operation tasks associated with the equipment, the statement "No operation involved" will follow the heading. —
Operational conditions of external signal sources —	2-2 MAINTENANCE (Skills)
Operational condition of external loads (dummy or real) —	Special tools and test equipment —
Pre-operational procedures —	Preventive —
Safety —	Alignment, adjustment, and calibration —
Security —	Operational test —
Turn-on procedures —	Corrective —
Warmup/standby sequence —	Fault isolation —
Typical operation —	Symptom recognition —
Normal procedures (various modes) —	Alignment, adjustment, and calibration —
Abnormal environment procedures —	Repair procedures —
Emergency operation —	Safety —
Shutdown —	Security —
Normal —	
Emergency —	

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PPP TABLE DEVELOPMENT

TABLE 8. Checklist for System PPPs

<u>Category/Topic</u>		<u>Category/Topic</u>	
1-1 GENERAL (Knowledge)		1-3 FUNCTIONAL DESCRIPTION (Knowledge) -Continued	
Purpose	—	Function of each control and indicator	—
Major components and functions	—	1-4 INTERFACE DESCRIPTION (Knowledge)	
Model/series variations	—	Interface with other systems	—
Special terminology, abbreviations, and symbols	—	Signal source	—
Operational characteristics and capabilities	—	Signal destination	—
Power requirements	—	Signal characteristics	—
Environmental conditions	—	Power requirements	—
Accuracies	—	Power characteristics	—
Operational flexibility	—	1-5 OPERATIONAL DESCRIPTION (Knowledge)	
Security	—	Authority and regulations	—
Unique knowledge factors not related to categories 1-2 through 1-7	—	Operational tasks/conditions	—
1-2 PHYSICAL DESCRIPTION (Knowledge)		Readiness condition procedures	—
Identification of system and subsystem components	—	Modified procedures	—
Location and description of displays, controls, and indicators	—	Casualty/emergency/alternate procedures	—
1-3 FUNCTIONAL DESCRIPTION (Knowledge)		Monitoring	—
Functional operation/simulation	—	Operational sequence	—
Control	—	Analysis of indications	—
Signal flow	—	Alarms	—
Sequential modes of operation	—	Displays	—
Indications	—	Readouts	—
Programming	—	Printouts	—
Functional loops	—	Data logging requirements	—
Logical functional breakdown	—	Data reduction	—
		Safety	—

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PPP TABLE DEVELOPMENT

TABLE 8. Checklist for System PPPs - Continued

<u>Category/Topic</u>		<u>Category/Topic</u>	
1-6 MAINTENANCE DESCRIPTION (Knowledge)		2-1 OPERATION (Skills) - Continued	
Maintenance policy	—	Pre-operational procedures	—
Maintenance procedures	—	Safety	—
System test	—	Security	—
Malfunction indications	—	Turn-on procedures	—
Fault isolation	—	Warmup/standby sequence	—
Repair	—	Typical operation	—
Assembly	—	Normal procedures (various modes)	—
Safety	—	Abnormal environment procedures	—
Security	—	Emergency operation	—
1-7 DOCUMENTATION (Knowledge)		Shutdown	—
Documentation (for each consider knowledge of organization, contents, use, classification, etc.)	—	Normal	—
System manual	—	Emergency	—
One-function diagram	—	Operational communications	—
Preventive maintenance management plan	—	Post-operation procedures	—
Standard maintenance procedures	—	Data reduction	—
Standard operating procedures	—	Operational log entry	—
System level programs and procedures	—	If there are no operation tasks associated with the system, the statement "No operation involved" will follow the heading.	—
2-1 OPERATION (Skills)		2-2 MAINTENANCE (Skills)	
Operational condition of external power sources	—	To be covered in the sub-system/equipment level tables.	—
Operational condition of external signal sources	—		
Operational condition of external loads (dummy or real)	—		

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TABLE 9. Checklist for Task/Function PPPs

<u>Category/Topic</u>		<u>Category/Topic</u>	
1. KNOWLEDGE		Functional description	—
Task purpose	—	Safety	—
Function purpose	—	2. SKILLS	
Abbreviations	—	Use of tools	—
Terms	—	Use of test equipment	—
Symbols	—	Procedure performance	—
Completed Task characteristics	—	Policy compliance	—
Completed Function characteristics	—	Security	—
Policies	—	Precaution compliance	—
Authorities	—	Safety	—
Data Usage	—	Use of documentation	—
Logs	—	Security	—
Records	—	Tools	—
Procedures	—	Test equipment	—
Physical description	—	Organization	—
		Content	—
		Regulations	—

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PPP TABLE DEVELOPMENT

TABLE 10. Checklist for Background PPPs

<u>Category/Topic</u>	<u>Category/Topic</u>
1. KNOWLEDGE	Symbology
Principles	Terminology
Rules	2. SKILLS
Concepts	Mental
Phenomena	Physical

DEVELOPMENT USING

EXPANDED TRAINING OBJECTIVE STATEMENTS (TOS)

AND CREATING THE

TABLE ASSIGNMENT CHART

COORDINATE TASK SET
T0 B/G (BACKGROUND) AND T/F (TASK/FUNCTION
SKILL/KNOWLEDGE TOS

T0 TOS Category – Includes: The background skill and knowledge which is *prerequisite* to the understanding of the operation and maintenance of the system, subsystem or equipment **AND** The task/function skill and knowledge *which is not unique* to the operation or maintenance of a particular system/subsystem/equipment:

S – B/G Skill:

Completion of training provides the PREREQUISITE (Background), PHYSICAL or MENTAL Skills necessary to support follow-on training in *COORDINATING* the operation or maintenance of a system/ subsystem/or equipment, or further background training

B1 – B/G Knowledge:

Completion of training provides the level of knowledge necessary to recognize or recall ideas, phenomena, symbology and terminology which are *PREREQUISITE* to comprehension of a task or function

B2 – B/G Comprehension:

Completion of training provides the comprehension of principles, rules and concepts necessary to solve given problems and situations and performance

J – T/F SKILL:

Completion of training provides the *PHYSICAL AND/OR MENTAL* Skills required to *COORDINATE* the job or task/function

Q – T/F KNOWLEDGE:

Completion of training provides the knowledge required to *COORDINATE* the job or task/function

COORDINATE TASK SET

E/SS/S FAMILIARIZATION TOS

F1 – Knowledge

Completion of training provides *FAMILIARITY* with the:

- Purpose, operational concepts, location, capabilities, and limitations of a system/subsystem/equipment
- Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment

F1 Knowledge Training will provide:

The coordinator with introductory information required for a basic understanding of the system/ subsystem/equipment. This knowledge may be applied to general shipboard coordination duties and preparation for further training. F1 Knowledge may include, but is not limited to, familiarization with the purpose, function, and location of system/subsystem/equipment and familiarization with supporting documentation.

COORDINATE TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

O1 – Skill

Completion of training provides the ability to coordinate operation and maintenance.

The skills related to the duties of the coordinator are identified within this TOS Set as O1. These skills are primarily cognitive exercises and are implemented through the coordination of unit exercises, operations, and system level team training. During these coordination efforts, the coordinator is required to determine the effects that related subsystem and equipment operation, maintenance, or casualties may have on system operation and to ensure adherence to applicable security requirements and safety precautions.

O1 Skill Training may include, but is not limited to, the following:

- (1) All applicable security requirements.
- (2) All applicable safety precautions.
- (3) Familiarity with normal and casualty/degraded/abnormal/not full mission capable operation and maintenance procedures.
- (4) Use of applicable publications, data sheets, and records.
- (5) Recognition of the effect of subsystem malfunctions on system operation.

COORDINATE TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

T1 – Knowledge

Completion of training provides the knowledge to coordinate operation and maintenance:

- Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment

T1 Training provides the knowledge required for the coordinator to understand overall system/subsystem/equipment operation and maintenance. This knowledge will support the coordination responsibilities.

T1 Theory may include, but is not limited to, the following:

- (1) Purpose, function, and location of system/subsystem/equipment/software package.
- (2) All applicable security requirements.
- (3) All applicable safety precautions.
- (4) Capabilities and limitations of the system/subsystem/equipment.
- (5) Reference data such as weights, dimensions, and nomenclature.
- (6) Description of the manner in which the system/subsystem/equipment/software package performs to the functional level, including modes of operation, operational sequences and input and output requirements and interface without coverage of functional circuit details, or program flow diagrams.
- (7) Normal and casualty/degraded/abnormal/not full mission capable operational procedures.

COORDINATE TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS (CONTINUED)

- (8) Maintenance policy and procedures.
- (9) Knowledge of documentation.
- (10) System/subsystem/equipment interface definition.
- (11) Description of the effect of subsystem malfunctions on system operation.
- (12) Knowledge of procedural discipline.

DIRECT TASK SET
T0 B/G (BACKGROUND) AND T/F (TASK/FUNCTION
SKILL/KNOWLEDGE TOS

T0 TOS Category – Includes: The background skill and knowledge which is *prerequisite* to the understanding of the operation and maintenance of the system, subsystem or equipment **AND** The task/function skill and knowledge *which is not unique* to the operation or maintenance of a particular system/subsystem/equipment:

S – B/G Skill:

Completion of training provides the PREREQUISITE (Background), PHYSICAL or MENTAL Skills necessary to support follow-on training in *DIRECTING* the operation or maintenance of a system/subsystem/or equipment, or further background training

B1 – B/G Knowledge:

Completion of training provides the level of knowledge necessary to recognize or recall ideas, phenomena, symbology and terminology which are *PREREQUISITE* to comprehension of a task or function

B2 – B/G Comprehension:

Completion of training provides the comprehension of principles, rules and concepts necessary to solve given problems and situations and performance

J – T/F SKILL:

Completion of training provides the *PHYSICAL AND/OR MENTAL* Skills required to *DIRECT* the job or task/function

Q – T/F KNOWLEDGE:

Completion of training provides the knowledge required to *DIRECT* the job or task/function

DIRECT TASK SET

E/SS/S FAMILIARIZATION TOS

F1 – Knowledge

Completion of training provides *FAMILIARITY* with the:

- Purpose, operational concepts, location, capabilities and limitations of a system/subsystem/equipment
- Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment

F1 Knowledge Training will provide:

The supervisor with introductory information required for a basic understanding of the system/ subsystem/equipment. This knowledge may be applied to general shipboard responsibilities and preparation for further training. F1 theory will include familiarization with the purpose, function, and location of system/subsystem/equipment and supporting documentation.

DIRECT TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

O1–Skill

Completion of training provides the ability to direct normal operations

O1 Skill Training will provide the supervisor with the basic skills required to direct normal operation of the system/subsystem/ equipment.

O1 Skill Training may include, but is not limited to, the following:

1. Location and function of system/subsystem/equipment controls and indicators related to directing normal operation.
2. All applicable security requirements.
3. All applicable safety precautions.
4. Familiarity with normal operating procedures.
5. Use of applicable publications, data sheets, and records.

DIRECT TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

O2–Skill

Completion of training provides the ability to direct:

- Normal operations requiring advanced analysis
- Abnormal operations (defined as casualty/degraded/not full mission capable)

O2 Skill Training provides the ability to direct casualty, degraded, abnormal, not full mission capable, and normal operational procedures requiring advanced analysis. O2 Skill Training is supported by T2 knowledge.

O2 Skill Training may include, but is not limited to, the following:

1. Location and function of all system/subsystem/equipment controls and indicators related to casualty/degraded/abnormal/not full mission capable operation and normal operational procedures requiring advanced analysis.
2. All applicable security requirements.
3. All applicable safety precautions.
4. Familiarity with all casualty/degraded/abnormal/not full mission capable operation procedures and all normal operating procedures requiring advanced analysis.
5. Use of applicable publications, data sheets, and records.

DIRECT TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

M1–Skill

Completion of training provides the ability to direct maintenance

M1 Skill Training provides the ability to direct all system, subsystem, and equipment maintenance tasks. M1 Skill Training is supported by T2 Knowledge Training.

M1 Skill Training may include, but is not limited to, the following:

- (1) All applicable security requirements.
- (2) All applicable safety precautions.
- (3) Special tools, test equipment, and accessory equipment.
- (4) Familiarity with preventive and corrective maintenance procedures.
- (5) Applicable publications, data sheets, and records.

DIRECT TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

T1–Knowledge

Completion of training provides the knowledge to direct normal operations:

- Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment

T1 Training is defined by the requirements of O1 skill and T2 knowledge. In supporting O1, T1 will provide the knowledge to understand all normal operational tasks. In supporting T2, T1 will provide the basic knowledge required to understand the theory of casualty operation and maintenance.

T1 Training may include, but is not limited to, the following:

1. Purpose, function, and location of system/subsystem/equipment/ software package.
2. All safety requirements applicable to normal operation.
3. All applicable security requirements.
4. Capabilities and limitations.
5. Reference data such as weights, dimensions, and nomenclature.
6. Description of the manner in which the system/subsystem/equipment/software package performs to the functional level, including input and output requirements and interface without coverage of logic, circuits, or program flow diagrams.
7. Modes of operation and operational sequences.

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TRAINING OBJECTIVE STATEMENT (TOS) DEVELOPMENT

DIRECT TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS (CONTINUED)

8. Knowledge of documentation applicable to normal operation.
9. System/subsystem/equipment interface definitions.

DIRECT TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

T2–Knowledge

Completion of training provides the knowledge to direct:

- Normal operations requiring advanced analysis
- Abnormal operations (defined as casualty/degraded/not full mission capable)
- Maintenance

T2 Training is defined by the requirements for O2 and M1 skills. In supporting O2, T2 shall provide the knowledge required to understand casualty/degraded/abnormal/not full mission capable operational tasks and normal operational tasks requiring advanced analysis. In supporting M1, T2 shall provide the knowledge required to understand all maintenance procedures.

T2 Training may include, but is not limited to, the following:

1. Purpose, function, and location of system/subsystem/equipment/ software package.
2. All applicable security requirements.
3. All applicable safety precautions.
4. Capabilities and limitations of the system/subsystem/equipment software package.
5. Reference data unique to casualty operation.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
TRAINING OBJECTIVE STATEMENT (TOS) DEVELOPMENT

DIRECT TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS (CONTINUED)

6. Description of the manner in which the system/subsystem/equipment/software package performs to the functional level, including input and output requirements and interface without coverage of logic circuits, or individual program flow diagrams.
7. Casualty/degraded/abnormal/not full mission capable operation and operational sequences requiring advanced analysis.
8. Maintenance policy and procedures.
9. Detailed operational and functional sequences to the extent required to direct diagnosis of malfunctions.
10. Knowledge of documentation.
11. System/subsystem/equipment/software package interface definition.
12. Alignment, adjustment, and calibration procedures contained in publications, data sheets, and records.

PERFORM TASK SET
T0 B/G (BACKGROUND) AND T/F (TASK/FUNCTION
SKILL/KNOWLEDGE TOS

T0 TOS Category – Includes: The background skill and knowledge which is *prerequisite* to the understanding of the operation and maintenance of the system, subsystem or equipment **AND** The task/function skill and knowledge *which is not unique* to the operation or maintenance of a particular system/subsystem/equipment:

S – B/G Skill:

Completion of training provides the PREREQUISITE (Background), PHYSICAL or MENTAL Skills necessary to support follow-on training in *PERFORMING* the operation or maintenance of a system/subsystem/or equipment, or further background training

B1 – B/G Knowledge:

Completion of training provides the level of knowledge necessary to recognize or recall ideas, phenomena, symbology and terminology which are *PREREQUISITE* to comprehension of a task or function

B2 – B/G Comprehension:

Completion of training provides the comprehension of principles, rules and concepts necessary to solve given problems and situations and performance

J – T/F SKILL:

Completion of training provides the *PHYSICAL AND/OR MENTAL* Skills required to *PERFORM* the job or task/function

Q – T/F KNOWLEDGE:

Completion of training provides the knowledge required to *PERFORM* the job or task/function

PERFORM TASK SET

E/SS/S FAMILIARIZATION TOS

F1 - Knowledge

"Completion of training provides *FAMILIARITY* with the:

- "Purpose, operational concepts, location, capabilities and limitations of a system/subsystem/equipment
- "Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment"

Completion of F1 Knowledge Training provides:

Introductory information required for a basic understanding of the system/subsystem/equipment. This knowledge may be applied to general shipboard responsibilities and preparation for further training. F1 theory will include familiarization with the purpose, function, and location of system/subsystem/equipment and supporting documentation.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

O1–Skill

"Completion of training provides the skill to perform normal operations"

Completion of O1 Skill Training provides:

The ability to perform, with supervision, normal operational procedures. O1 skills are performed using step by step procedures during the normal operational modes. These skills do not require advanced analysis. O1 Training is supported by T1 Knowledge and is normally taught in the replacement training environment. O1 Training may include, but is not limited to, the following:

1. Location and function of all system/subsystem/equipment controls and indicators; including names and reference designators, control positions and indicator colors.
2. Applicable security requirements.
3. Applicable safety precautions.
4. Power-on and shutdown procedures.
5. Preparation, pre-operation, operation, and post-operation.
6. Use of applicable publications, data sheets, and records.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

O2–Skill

"Completion of training provides the skill to perform:

- "Normal operations requiring advanced analysis
- "Abnormal operations (defined as casualty/degraded/not full mission capable)"

Completion of O2 Skill Training provides:

The ability to perform, with supervision, casualty/degraded/abnormal/not full mission capable operational procedures, and normal operating procedures requiring advanced analysis. Advanced analysis related to operational tasks may require the operator to use related skills and knowledge to analyze data and anticipate the subsystem and equipment reactions in different operational modes. For example, certain operational conditions not supported by documented procedures will require advanced analysis. O2 advanced analysis, in general, applies to those complex operational procedures which require additional training. O2 Training may include, but is not limited to, the following:

1. Location and function of all system/subsystem/equipment controls and indicators, including names and reference designators, control positions, and indicator colors.
2. Applicable security requirements.
3. Applicable safety precautions.
4. Power-on and shutdown procedures.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS (CONTINUED)

5. Preparation, pre-operation, operation, and post-operation.
6. Casualty/degraded/abnormal/not full mission capable operational procedures.
7. Use of applicable publications, data sheets, and records.
- (8) Normal operational procedures requiring advanced analysis.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

P1–Skill

"Completion of training provides the skill to perform preventive maintenance"

Completion of P1 Skill Training provides:

The ability to perform, with supervision, preventive maintenance procedures. P1 Training is supported by T2 knowledge. P1 Training is normally taught in the replacement training environment. P1 Training may include, but is not limited to, the following:

1. All applicable security requirements.
2. All applicable safety precautions.
3. Special tools, test equipment, and accessory equipment.
4. Preventive maintenance procedures contained in publications, data sheets, and records.
5. Pre-maintenance and post-maintenance procedures.
6. Alignment, adjustment, and calibration procedures contained in publications, data sheets, and records.
7. Those operational tests and procedures required to support preventive maintenance.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

C1–Skill

"Completion of training provides the skill to perform to the authorized maintenance level, systematic fault isolation procedures"

Completion of C1 Skill Training provides:

The ability to perform, with supervision, basic fault isolation and repairs. Documented procedures associated with the C1 skill provide step by step procedures that do not require advanced analysis. This may include the use of functional block diagrams, built-in test equipment or test program, and automated test programs such as PM/FL, or other maintenance aids not requiring the application of knowledge of detailed logic, circuit analysis, or detailed mechanical breakdown. C1 Training is supported by T2 knowledge. C1 Training is normally taught in the replacement training environment. C1 Training may include, but is not limited to, the following:

1. Recognizing and isolating malfunctions of the system/sub-system/equipment.
2. All applicable security requirements.
3. All applicable safety precautions.
4. Locating and replacing faulty components.
5. Alignment, adjustment, and calibration procedures.
6. Special tools, test equipment, and accessory equipment.
7. Use of procedures contained in applicable publications, such as data sheets, and records, such as diagnostics, fault isolation trees.

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TRAINING OBJECTIVE STATEMENT (TOS) DEVELOPMENT

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS (CONTINUED)

8. Applicable operational tests and procedures required to support documented fault isolation and repair.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

C2–Skill

"Completion of training provides the skill to perform to the authorized maintenance level:

- "Systematic fault isolation procedures that require advanced analysis
- "Authorized techniques to isolate faults that cannot be isolated using procedures contained in prescribed documentation"

Completion of C2 Skill Training provides:

The technician with the ability to perform, with supervision, corrective maintenance procedures that are not contained in prescribed documentation or documented procedures requiring advanced analysis. C2 advanced analysis may include documented maintenance procedures in which additional maintenance steps or diagnoses are required. C2 Training is supported by T3 knowledge. C2 Training is normally taught in the advanced training environment. This may include, but is not limited to, the following:

1. Recognizing, diagnosing, and isolating malfunctions.
2. All applicable security requirements.
3. All applicable safety precautions.
4. Locating and replacing faulty components.
5. Alignment, adjustment, and calibration procedures.
6. Special tools, test equipment, and accessory equipment.
7. Use of procedures contained in applicable publications, data sheets, and records.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
TRAINING OBJECTIVE STATEMENT (TOS) DEVELOPMENT

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS (CONTINUED)

8. Replacement of piece-part components to the level of on board spares in systems/equipments whose primary maintenance policy is module or card replacement.
9. Operational tests and procedures required to support un- documented faults isolation and repair and documented faults and isolation and repair requiring advanced analysis.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE SKILL TOS

C3–Skill

"Completion of training provides the skill and knowledge to perform, without supervision:

- "Diagnosis of equipment malfunctions, fault isolation, and all repairs
- "This skill is acquired through on-the-job experience, and reflects a continuous learning process that is supported by the skills and knowledge taught in the formal school environment
- "The Training Locator Indicator Code "1" will always be used to show this skill is acquired via "operational experience," i. e. , shipboard performance"

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

T1–Knowledge

"Completion of training provides the knowledge to perform normal operations:

- "Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment"

T1 Knowledge Training provides:

The depth of knowledge required to support performance of normal operational tasks, including only that functional operation necessary to understand normal operation. T1 Knowledge Training is defined by the requirements for O1 Skill Training. In supporting T2, T1 shall provide the basic knowledge required to understand the theory of casualty operation and all maintenance. T1 knowledge is normally taught in the replacement training environment. When applied to documentation, completion of training provides the level of knowledge required to use supporting documentation. T1 Training may include, but is not limited to, the following:

1. Purpose, function, and location of system/subsystem/equipment/software package.
2. All applicable security requirements.
3. All applicable safety precautions.
4. Capabilities and limitations.
5. Reference data such as weights, dimensions, and nomenclature.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS (CONTINUED)

6. Description of the manner in which the system/subsystem/equipment/software package performs to the functional level, including input and output requirements and interface without coverage of logic, circuits, or program flow diagrams.
7. Modes of operation and operational sequences.
8. Applicable terminology and symbology.
9. Normal operational tasks.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

T2–Knowledge

"Completion of training provides the knowledge to perform:

- "Normal operations requiring advanced analysis
- "Abnormal operations (defined as casualty/degraded/not full mission capable)
- "Preventive maintenance
- "Basic corrective maintenance"

Completion of T2 Knowledge Training provides:

The depth of knowledge required to support the performance of the O2 Skills of casualty/degraded/abnormal/not full mission capable operation tasks and normal operational tasks requiring advanced analysis. In supporting the P1 Preventive Maintenance Skills and the C1 Corrective Maintenance Skills, T2 shall provide the depth of knowledge required to support the performance of all routine preventive maintenance and documented fault isolation and repair. T2 Training is defined by the requirements for O2, P1, and C1 Skills and T3 knowledge. In supporting T3, T2 shall provide the basic knowledge required to understand the theory of that corrective maintenance which is undocumented or requires advanced analysis. T2 Knowledge is normally taught in the replacement training environment. T2 Training may include, but is not limited to, the following:

1. Purpose, function, and location of the major subdivisions of the system/subsystem/equipment/software package.
2. Applicable security requirements.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS (CONTINUED)

3. Applicable safety precautions.
4. Description of the manner in which the function of each major subdivision within the system/subsystem/equipment/software package is accomplished, including data flow and interfaces without coverage of detailed logic, circuit analysis, or individual program flow diagrams.
5. Mechanical, electrical, and electronic characteristics of the major subdivision of the system/subsystem/equipment or program concepts of the software concepts.
6. Modes of operation and operational sequences, including time or phase relationships.
7. Procedures for casualty/degraded/abnormal/not full mission capable operation and normal operation requiring advanced analysis.
8. System/subsystem/equipment interface definition.
9. Preventive and corrective maintenance policy and procedures.
10. Procedures for the use of built-in test equipment.
11. Procedures for the use of automated test programs and Performance Monitoring/Fault Localization (PM/FL).
12. Applicable terminology and symbology.
13. Alignment, adjustment, and calibration procedures contained in publications, data sheets, and records.

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

T3–Knowledge

"Completion of training provides the knowledge to perform advanced corrective maintenance"

Completion of T3 Knowledge Training provides:

The knowledge to support performance of undocumented fault isolation and repair and that documented fault isolation and repair requiring advanced analysis. T3 Training is defined by the requirements for C2 Skill. To identify and determine required T3 Knowledge, the developer must always analyze the maintenance function. For example, adjustment of a power supply may be classified as C2 Corrective Maintenance due to a requirement for advanced analysis; therefore, the knowledge supporting that maintenance will be classified as T3 even though it may describe input/out signals and potentiometer adjustments. T3 Knowledge is normally taught in the advanced training environment. The T3 Training may include, but is not limited to, the following:

1. Purpose, function, and identification of logic elements, circuits, or programs.
2. All applicable security requirements.
3. All applicable safety precautions.
4. Description of the manner in which the function of each block of logic, group of circuits, or program segment is accomplished, including individual logic elements, circuits of program steps, as applicable. T3 Theory shall not cover signal, electron flow, or computer instructions, except for those logic elements or circuits unique to the equipment or program whose understanding is essential to support of maintenance beyond automated test programs such as PM/FL

PERFORM TASK SET

E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS (CONTINUED)

(that is, those circuits not covered at the background theory level).

5. Mechanical, electrical, and electronic characteristics of the logic elements or circuits.
6. Detailed operational and functional sequences, utilizing applicable documentation to the extent that malfunctions can be diagnosed.
7. Maintenance policy and procedures, including emergency provisions.
8. All applicable terminology and symbology.
9. Authorized alignment, adjustment, and calibration procedures.

HOW TO CREATE A TABLE ASSIGNMENT CHART

- The *Optional* Table Assignment Chart (TAC) results when related courses are displayed in graph form with—
 - ▶ their course titles
 - ▶ course identification numbers
 - ▶ the related PPP Table Titles/Numbers
 - ▶ the appropriate TOS Codes
 - ▶ sequenced in the order taken

- A TAC is a horizontally arranged block diagram
 - ▶ A series of blocks, or vertical solid or dashed lines, (command/developer preference) divide the TAC into different training areas—“background,” “replacement/conversion,” “advanced,” “onboard,” etc.—from one another
 - ▶ Blocks, each representing a separate course, are placed within the appropriate training areas in the same sequence as the courses are taken
 - ▶ PPP tables covered by the course are listed within the blocks in alpha/numeric order, reading top-to-bottom, left-to-right
 - ▶ CIN and course title are written above the block
 - ▶ When several courses are interrelated and require a sequence of instruction, the blocks are arranged vertically to indicate sequence, reading top to bottom, and left-to-right
 - ▶ When more than one block/course is shown they are also connected by a single line
 - ▶ When a training area requires more than a single, vertical column of

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TRAINING OBJECTIVE STATEMENT (TOS) DEVELOPMENT

blocks, a second vertical column is started to the right of the first column—a line connects the first column bottom box with the second column top box

- A *PPP Table Index* lists the titles of those PPP numbers which have been placed within the blocks
 - ▶ The PPP Table Index is placed on the TAC
 - ▶ When the list is extensive, the PPP Table Index may be placed on a separate page
- Conversion training implies training is available in another training path—to show this training
 - ▶ Draw a line to enter the TPC at the appropriate block/course, and label the line with the number of that Training Path

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EXERCISE CONTROLLER GUIDE DEVELOPMENT

CURRICULUM DEVELOPER AID

FOR

EXERCISE

CONTROLLER GUIDE

DEVELOPMENT

INTRODUCTION

This chapter describes the form and content of Exercise Controller Guides (ECG) and provides development guidelines. An ECG may be a bound set of exercises for use as a part of a formal curriculum *and* programmed by a Lesson Plan (LP). An ECG can also be a document which provides a set of exercises for use in the formal or informal training environment and *is not* programmed by an IG (e.g., team training). ECG exercises consist of operational scenarios and selected training procedures designed to accomplish specific, predetermined training objectives.

ECG's have the following purposes:

- Training—to satisfy specific operational and laboratory training requirements at both the individual and team levels.
- Diagnosis—to assess trainee/team proficiency throughout the entire spectrum of operational or laboratory tasks and to establish an appropriate starting point for the trainee/team to accomplish the desired training.
- Evaluation—to evaluate a trainee's/team's proficiency and/or operational readiness.

The *Exercise Controller* is the individual tasked with administration of ECG exercises . The Exercise Controller may use the ECG in administering laboratory exercises as part of a formal curriculum programmed by an IG. The Exercise Controller may use the ECG as a guide for use with operational trainers or for demonstration purposes. The ECG is also used as a stand alone document for conducting independent training and provides definition of training objectives and direction for equipment operation, safety, and selection and use of the exercises.

ECG DEVELOPMENT

APPLICATION CONSIDERATIONS

One of the most important factors to be considered in developing an exercise is its intended application; application affects both the range of content and the required level of coverage.

ASSESSMENT CRITERIA

In the case of diagnostic or performance evaluation exercises, the criteria for accomplishing desired diagnosis and performance evaluation must be determined prior to exercise development to facilitate incorporation into exercise events and activities. The following assessment criteria are based on the established TLOs and other pertinent data:

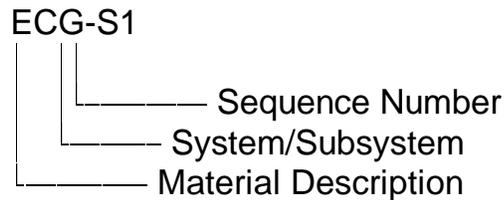
- Use of exercises—Exercises are developed to train, diagnose, or evaluate the trainee. Exercises may utilize any or all of these features.
- Required Participants—Instructor only (used for demonstration) or Instructor–Trainee (used by the instructor to conduct training and assessment of the trainee).
- Exercise Scenario—The exercise scenario is based on consideration of the exercise objectives and the desired exercise difficulty.
- Training Approach—The training approach is a statement which correlates the exercise objectives and the instructor's actions. The following is an example of training approach:

After first demonstrating the indications of a normal fan room lineup, insert the various alarm conditions as listed within this exercise and direct the trainee to identify the likely causes of the alarms using the SWSSSM(D5) as necessary. This exercise must be used conscientiously to obtain maximum training from limited resources.

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EXERCISE CONTROLLER GUIDE DEVELOPMENT

ECG ALPHANUMERIC DESIGNATORS

ECGs are identified by an alphanumeric designation, as shown in the following example:



The letters describe the type of training support material and the applicable system or subsystem. The Arabic number which follows the letters is a sequence number to aid in training support material identification. Examples of the system/subsystem letter designators are:

- | | |
|-------------------------|-------------------------|
| F — Fire Control | N —Navigation |
| L — Launcher | S —Sonar |
| M —Missile | W —Weapon System |

ECG CONTENT REQUIREMENTS

The ECG consists of Front Matter, Exercises, Reference Material, and Blank Exercise Forms. The ECG may be organized into two or more volumes, depending on the quantity of exercises. The ECG is prepared as illustrated in the figures in this chapter and contains the elements described in the following paragraphs.

ECG Front Matter—ECG Front Matter consists of the following:

- **Title Page**—The ECG has front and back covers and a binding. The Title Page contains the identification number or CIN, the volume number (if applicable), the security classification (if applicable), revision data (if applicable), the title, the date of issue and change data, and the authority notice.

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EXERCISE CONTROLLER GUIDE DEVELOPMENT

- List of Effective Pages (LOEP)—The LOEP is numbered page ii. When necessary, the LOEP is carried over to pages iiA, iiB, etc.

See Figure 1-1 for specific content requirements for the LOEP. **NOTE: All Figures are located following the last page of this narrative. Sample ECG's are found in Volume II as TAB A-9 and TAB A-10.**

- Letter of Promulgation—The Letter of Promulgation is provided by the cognizant activity. The Letter of Promulgation appears in only the first volume of a multivolume ECG and is considered page iii; however, this number does not appear on the page.
- Change Record—Not required when the ECG is used in conjunction with a Lesson Plan. The Change Record for a stand alone ECG is numbered page iv. In subsequent volumes of a multivolume ECG, the Letter of Promulgation is omitted; therefore, the Change Record is numbered page iii. When necessary, the Change Record is carried over to page iiiA or ivA, as appropriate.

Refer to Volume II, *Lesson Plan and Trainee Guide*, for example Change Record pages.

- Hazard Awareness Notice (HAN)—The HAN is of paramount importance to the exercise controller for safety. The HAN must be tailored to the ECG it is written for and must include all the cautions and warnings associated with the exercises including the information contained in CNETINST 1500.20 (series). The HAN is included in each volume of a multivolume ECG.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
EXERCISE CONTROLLER GUIDE DEVELOPMENT

- Table of Contents (TOC)—The TOC lists the Front Matter, exercises, and Reference Material. The first volume of a multivolume set contains a TOC for all volumes in the set. Each succeeding volume of the set contains a TOC for that volume only.

See Figure 1-2 for specific content requirements.

- How To Use The Exercises—The How To Use The Exercises section of the ECG appears in all volumes of an ECG. This section should be tailored to meet the needs of the exercises in the ECG and should contain the following information. The specific content is determined by the unique requirements of the particular ECG and the associated training equipment and/or tactical system/subsystem.

See Figure 1-3 for specific content requirements.

- ▶ *Introduction*—Includes an overview of the specific training equipment and associated training materials to be used with the ECG. This paragraph also includes a description of the composition, function, and use of the ECG, and directions for its maintenance. Specific operating controls, theory of operation, and maintenance and repair data contained in the technical manuals developed for the training equipment are not discussed.
- ▶ *Exercise Selection*—Presents the procedures for selecting exercises contained within the ECG. A detailed discussion describes exercise selection both by diagnostic evaluation and by use of the Exercise Selection Index (ESI). This paragraph also includes a discussion of the indexing criteria used in the ESI.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
EXERCISE CONTROLLER GUIDE DEVELOPMENT

- ▶ *Instructional and Diagnostic Methods*—This paragraph discusses the exercise controller's role in maximizing the effectiveness of training and any special considerations and constraints which may influence training effectiveness. Discussion is also provided on the utilization of diagnostic exercises in establishing a realistic training baseline.
- ▶ *Locally Prepared Exercises*—This paragraph provides directions for the development of new exercises, or the modification or expansion of existing exercises, if such development is not prohibited by the promulgating authority. Detailed information is provided in this section on the use of the blank exercise sheets contained in the ECG and on applicable procedures required to submit locally prepared exercises for approval and incorporation in the associated ECG.
- ▶ *Exercise Security*—This paragraph contains a reminder to the exercise controller concerning the security measures which must be observed in the use of the ECG.
- ▶ *Exercise Safety Precautions*—This paragraph contains a reminder to the exercise controller concerning the safety measures which must be observed in the use of the equipment and ECG.
- **Exercise Selection Index (ESI)**—The ESI is a matrix of significant considerations associated with specific exercises and provides a means of exercise selection for any given training situation. This index contains, as a minimum, the indexing criteria described below:

See Figure 1-4 for a discussion of
ESI components.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
EXERCISE CONTROLLER GUIDE DEVELOPMENT

- ▶ *Exercise Number*—Each exercise is identified by the applicable Personnel Performance Profile (PPP) table number and an assigned sequence number.
- ▶ *Exercise Objective*—A descriptive statement encompassing all of the exercise objectives.
- ▶ *Exercise Scenario*—A synopsis of conditions under which the exercise is to be performed, including the tactical situation, environmental considerations, or equipment condition (e.g., Battle Stations Missile, Sea State 5, multiple faults inserted).
- ▶ *System/Subsystem Configuration*—The major status, lineup, or mode of operation of the system/subsystem (e.g., Passive Broadband Search and Detection, Navigate, Missile Jettison).
- ▶ *Exercise Length*—The average length of time, in minutes, to complete each exercise. If the exercise length is variable due to the flexibility of the exercise, the entry will be a time span (e.g., "20-40") or the word "variable."
- ▶ *Training Level*—The Training Level of each exercise is specified in terms of the Training Objective Statement (TOS) which indicates the highest level of skill training accomplished within the exercise.
- ▶ *Difficulty Index*—The Difficulty Index indicates the degree of difficulty relative to the appropriate TOS for each exercise. The degree of difficulty is used in addition to the training level because exercises at one level may require varying degrees of proficiency for satisfactory completion. For example, a normal operating procedure requiring advanced analysis may require advanced operator proficiency, while a casualty operating procedure may require only basic operator proficiency. The degree of difficulty relative to the assigned TOS is indicated as BASIC, INTERMEDIATE, or ADVANCED.
- ▶ *Additional Criteria*—Additional indexing criteria is included if required for the particular training equipment and ECG.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
EXERCISE CONTROLLER GUIDE DEVELOPMENT

ECG Exercises

The exercise is the basic unit of the ECG. The exercise developer must ensure that the form, content, and level of the exercise is appropriate for its intended use. An exercise consists of an Exercise Title Sheet, an Exercise Data Sheet (if applicable), and one or more Event-Activities Sheet, as applicable. The ECG and included exercises are used in one or more of the following personnel/document relationships:

- Exercise controller only—used for demonstration
- Exercise controller–team—used to conduct team training and assessment
- Exercise controller–individual—used to conduct individual training and assessment
- Exercise controller–trainee only—written so as to allow either independent use by a trainee or use by an exercise controller for diagnostic or evaluation purposes
- Trainee only—used for individual, independent training

ECG Exercises are identified in the following manner:

- Each exercise is identified by the applicable PPP table number and an assigned sequence number, for example: *E3500-3*. **E3500** is the PPP Table Number and **-3** indicates Exercise Sequence Number .

Exercise components, and their functions, are:

- Exercise Title Sheet (ETS)—The ETS includes the elements described below.
 - ▶ The exercise number
 - ▶ An exercise title which is descriptive of the exercise objectives.
 - ▶ A phrase describing the location of the exercise objectives (TLOs).

NAVEDTRA 131A, VOLUME I SUPPLEMENT
EXERCISE CONTROLLER GUIDE DEVELOPMENT

- ▶ The exercise length as approximated during exercise development. (Final exercise length is determined and assigned during the Pilot course.)
- ▶ The training level (TOS) indicating the highest level of training accomplished within the exercise.
- ▶ The difficulty index. The final assignment of the difficulty index is made during the validation phase.
- ▶ Support requirements necessary for performance of the exercise.
- ▶ The training approach.
- ▶ Any special instructions necessary for conducting the exercise.

See Figure 1-5 for specific content requirements.

- Exercise Data Sheet (EDS)—The EDS is required only for exercises which use faults (hardware or software). The EDS provides the exercise number and title, the sheet number, applicable fault information, and pertinent exercise data relevant to the safety and security.

See Figure 1-6 for specific content requirements.

NAVEDTRA 131A, VOLUME I SUPPLEMENT
EXERCISE CONTROLLER GUIDE DEVELOPMENT

- Event-Activities Sheet (EAS)—The EAS includes the exercise number, title, and sheet number. Other information or instructions are provided, as necessary, for the exercise, including event times, event descriptions, instructor activities, trainee activities, equipment setup procedures, operating situations/conditions, equipment control settings, and equipment securing procedures. The columnar format may be varied as required (e.g., omission of the "Time" column) to best suit the needs of a particular exercise. (See figure 1-7.)
- Reference Material—The Reference Material section of the ECG immediately follows the last exercise. In the case of a multivolume ECG, Reference Material appears only in the last volume. Reference Material consists of the elements described in the following paragraphs.
- Resource Requirements List (RRL)—The RRL catalogs all equipment, materials, documentation, and special tools required to support performance of the exercises. The RRL includes the exercise number and title, and a list of all support materials and equipment required for performance of the exercises.

See sample RRL in Volume II,
Training Course Control Document.

- Profile Item-To-Exercise Objective Assignment Chart (OAC)—The OAC is structured to correlate PPP item coverage to specific exercise objectives. The chart includes the PPP table numbers and item/subitem, applicable training level (TOS), ECG volume and exercise numbers, and exercise objective numbers. (See figure 1-8.)
- Blank Exercise Sheet Forms—Where applicable, one blank form of each appropriate exercise sheet is included in the ECG immediately following the OAC. The blank sheets are used as reproduction masters for locally prepared exercises.

EXERCISE CONTROLLER GUIDE

CHANGE 2
ECG-S1 REV B VOLUME 1

LIST OF EFFECTIVE PAGES

Exercise/ Page No.	Change in Effect	Exercise/ Page No.	Change in Effect	Exercise/ Page No.	Change in Effect	Exercise/ Page No.	Change in Effect
Title Page	Change 2						
ii	Change 2						
Letter of Promulgation	Original						
iv thru xii	Original						
E3500-1	Change 1						
E3500-2	Original						
E3500-3	Original						
E3500-4	TC-1						
E3500-5	Original						
E3500-6	Original						
E3500-7	Original						
E3500-8	Change 2						
(1) thru (5)	Original						

TABLE OF CONTENTS

Exercise	Page	Exercise	
FRONT MATTER		E3500-5	
Title Page	i	NORMAL OPERATION OF THE SWS INTERIOR COMMUNICATIONS EQUIPMENT, MISSILE TUBE, MISSILE TUBE GAS SYSTEM, AND MISSILE TUBE HYDRAULIC SYSTEM DURING A MISSILE EMERGENCY AND SUBSEQUENT SUBMERGED JETTISON LAUNCH	
List of Effective Pages	ii		
Letter of Promulgation	iii	E3500-6	
Change Record	iv	NORMAL OPERATION OF THE SWS INTERIOR COMMUNICATIONS EQUIPMENT, MISSILE TUBE, MISSILE TUBE GAS SYSTEM, AND MISSILE TUBE HYDRAULIC SYSTEM DURING A MISSILE EMERGENCY AND SUBSEQUENT SURFACED LAUNCH	
Hazard Awareness Notice	v		
Table of Contents	vii		
How To Use The Exercise	viii		
VOLUME 1			
E3500-1			Page
MISSILE COMPARTMENT CONDITIONS OF READINESS (WP 100)		REFERENCE MATERIAL	
E3500-2		Resource Requirements List	(1)
CAMP WATCH OPERATIONS			
E3500-3		Profile Item-to Exercise Objective Assignment Chart	(5)
NORMAL OPERATION OF THE SWS INTERIOR COMMUNICATIONS EQUIPMENT, MISSILE TUBE, MISSILE TUBE GAS SYSTEM, AND MISSILE TUBE HYDRAULIC SYSTEM DURING A STRATEGIC LAUNCH			
E3500-4			
NORMAL OPERATION OF THE SWS INTERIOR COMMUNICATIONS EQUIPMENT, MISSILE TUBE, MISSILE TUBE GAS SYSTEM, AND MISSILE TUBE HYDRAULIC SYSTEM DURING A WEAPON SYSTEM READINESS TEST (WSRT)			

Figure 1-2. Exercise Controller Guide (ECG) Table of Contents (TOC)
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EXERCISE CONTROLLER GUIDE

ECG-S1 REV B VOLUME 1

HOW TO USE THE EXERCISES

INTRODUCTION

This Exercise Controller Guide (ECG) is a compilation of interrelated exercises to be used with sonar training. These exercises are used by the exercise controller to conduct training and for assessment of performance. Each exercise is designed to implement either normal watch routine or an evolution. Those exercises that implement normal watch routine are continuous exercises. All exercises will be initiated in response to an environmental scenario. The scenario is the device by which the exercise controller will achieve the stated training goals. The scenario is the simulation of those functions and phenomena encountered at sea by the SSBN.

Each exercise will consist of Exercise Title Sheets (ETS), Exercise Data Sheets (EDS) (for those exercises requiring fault insertion), and Event-Activities Sheets (EAS).

The ETS is self-explanatory.

The EDS provides setup information for conducting various evolutions and procedures. The exercise controller uses the EDS for equipment setup, exercise simulation, special information, and selection of various problems and errors. Also included in the EDS is training materials available to the exercise controller which can be used to enhance training. The EDS is not

a step-by-step procedure and should be used as a guideline for conducting the specific exercise.

The EAS grants specific authority for the exercise controller and operator to perform an evolution by deferring to the Force Commander's directives, instruction, and operating procedures. All step-by-step procedures that are included in these directives, instructions, and operating procedures will be followed as closely as possible.

EXERCISE INITIATION

Exercises will be implemented by the operator or the exercise controller (acting as Sonar Supervisor) in response to the dynamic scenario. Thus, the exercise controller initiates the exercises by creating a situation through the scenario that causes the operator to respond as required by authorized operating procedures, so that the operator can be evaluated and critiqued. Because each exercise is designed to initiate and monitor different aspects of watchstanding and specific evolutions, more than one exercise may be in progress at the same time and will depend upon the operational environment created by the scenario. The following two general scenarios will be employed by the exercise controller to initiate the exercises.

a.AT-SEA: The ship is underway on patrol.

EXERCISE CONTROLLER GUIDE

ECG-S1 REV B VOLUME 1

HOW TO USE THE EXERCISES (Continued)

b. BATTLE STATIONS MISSILE: The ship is at battle stations missile.

EXERCISE SELECTION

This section presents a procedure for selection of training exercises contained in this volume. Two selection procedures are available: (1) diagnostic assessment and (2) use of the Exercise Selection Index (ESI). Diagnostic assessment is used to objectively determine watchstander proficiency and to assign training exercises based on identified watchstander training needs. The ESI provides a matrix of significant sonar training considerations with specific exercises. The ESI provides the shipboard training supervisor with a method for independent exercise selection for any given training session.

EXERCISE SELECTION BY DIAGNOSTIC EVALUATION

The diagnostic assessment procedures are structured to determine sonar watchstander training needs. They are used to specify a series of training exercises which address the watchstander's training requirements at three levels. These levels are: (1) Basic, (2) Intermediate, and (3) Advanced. They are also used in the ESI. The diagnostic procedure determines a specific level for each individual sonar watchstander while the ESI uses levels

as a general indication of complexity. Based on the results of diagnostic assessment, the watchstander will be directed to specific training exercises within Category IIIA; for example, to improve proficiency in the areas of search/detection, classification, tracking/evaluation, and communication/coordination.

The diagnostic assessment exercises are structured as follows:

a. An in situ problem is presented which involves the use and application of pertinent publications to select sonar equipment lineups from sonar performance/range prediction criteria. Evaluation of the answers to the in situ problem will determine which exercises are most valuable to the sonar watchstander. Advanced and intermediate level watchstanders proceed to exercises with in situ problems compatible with their ability. The basic level watchstander is directed to review current doctrine and publications addressing in situ, before attempting another problem.

b. Sonar equipment lineup and search procedures are used to determine watchstander training needs in the areas of functional equipment lineup and implementation of an associated sonar search plan. The various exercises selected can range from Category II for the towed array through the advanced detection exercise in Category IIIA.

EXERCISE CONTROLLER GUIDE

ECG-S1 REV B VOLUME 1

HOW TO USE THE EXERCISES (Continued)

c. Sonar detection events will determine watchstander training needs in target detection procedures. The evaluation criteria associated with target detection will delineate specifically where training emphasis is needed.

d. The various aspects of target classification and analysis are evaluated. The evaluation criteria are specific to key desired behavioral responses. As in previous diagnostic functions the advanced level watchstander is directed to a more advanced exercise in the next serial sonar task, (i.e., tracking or evaluation for this situation) while the basic and intermediate watchstanders are assigned exercises to improve proficiency in classification.

e. Target tracking/evaluation is the final aspect of the diagnostic assessment exercise. This aspect of the exercise provides an opportunity for watchstanders to demonstrate proficiency in target tracking/evaluation. If the watchstander proves proficient in tracking/evaluation and all previous areas, training is recommended at the team level in Category IIIB.

f. In summary, the diagnostic assessment exercise evaluates the watchstander training needs in the sonar tasks, establishes a baseline to implement a training program, and specifies training exercises tailored to individual watchstander proficiency levels and training requirements.

EXERCISE SELECTION BY INDEX

Exercise selection utilizing the ESI is an alternate method of selecting one or more exercises for a training session. This method is useful when needed training emphasis is known. With the various indexing criteria presented, specific training requirements can be readily addressed. The specific indexing criteria follow with a brief explanation of each indexing criterion.

a. The Exercise Objective specifies the detailed purpose of the particular exercise and may complement the ship's operational requirements, spelling out needed operator proficiency in a particular situation.

b. The Exercise Scenario column provides a synopsis of conditions under which the exercise is to be performed, including the tactical situation or environmental considerations.

EXERCISE CONTROLLER GUIDE

ECG-S1 REV B VOLUME 1

HOW TO USE THE EXERCISES (Continued)

c.The System/Subsystem Configuration column specifies the equipment lineup, readiness condition, or mode of operation required to conduct the exercise.

d.Exercise Length is a consideration used to aid in identifying when the best time to use the exercise will exist with minimum effect on own ship's evolutions.

e.The Training Level (TOS) column specifies the TOS for each exercise.

f.The Difficulty Index indicates the degree of exercise difficulty relative to the appropriate Training Objective Statement (TOS). It is helpful in selecting exercises appropriate to the proficiency of the operators.

LOCALLY PREPARED EXERCISES

This section presents procedures for local development of training exercises. This volume provides a cross-section of training exercises ready for immediate use within the Shipboard Training Plan. Optimal use of the training system may result in the need for additional materials beyond the limited number of training exercises provided. A portion of this need can be resolved through local training exercise development. This will

accomplish two functions: (1) tailor exercises to specific training requirements, and (2) increase the initial exercise library.

Locally prepared exercises should make significant contributions to the effectiveness of sonar training and extend the versatility of the training system. To realize these goals, exercise development involves considerably more than just selection of a target and setup geometry derived from a rough track chart. Exercises must be carefully developed by using an organized approach based on a structure to achieve training. The exercises presented involve extensive developmental and background efforts. For shipboard exercise development, the basic considerations are explained to aid in meaningful development.

The component parts within any exercise are:

- a.Exercise Objectives
- b.Setup Requirements
- c.Exercise Scenario and Tactical Background
- d.Exercise Events

EXERCISE CONTROLLER GUIDE

ECG-S1 REV B VOLUME 1

HOW TO USE THE EXERCISES (Continued)

An overall consideration which determines how these components are used within an exercise, and where training should be emphasized, is the training approach. This relationship between the training approach and the component parts of an exercise will be defined in the paragraph following. For uniformity, it is highly recommended that the format of exercises in this ECG be used for locally prepared exercises.

SHIPBOARD EXERCISE DEVELOPMENT

Local exercise development provides another dimension to the training plan, resulting in additional exercises within the library, specifically structured to address the training requirements. The procedure for developing exercises is the same as was used in developing exercises contained in this ECG. These exercises will be provided to the ECG promulgating authority for review and approval once the ship is satisfied the exercise is proper and correct.

The following guidelines for specific exercise development explain the training approach concept and its role in developing the components within the exercise. A discussion of the training approach concept is contained in the Diagnostic Evaluation paragraph. For

each exercise a training approach must be defined which tells the exercise controller exactly how he will administer the exercise. The exercise objective must be determined coincident with the selection of a training approach. The exercise objective defines the subject as well as the object of the training. This involves relating the training need to a specific task such as search/detection, classification, or a specific ship evolution such as Battle Stations Torpedo. Exactly what training is to be accomplished must be defined. It is not advisable to include other training aspects within the same exercise, but to concentrate the objective to the need.

EXERCISE SETUP

Once the training approach and the exercise objective have been defined, the actual exercise setup must be developed. This includes such considerations as:

- a. Exercise length - Expected time to accomplish the objective.
- b. Target type - Three general considerations should be followed:
 - (1) The target must complement the training objective.

EXERCISE CONTROLLER GUIDE

ECG-S1 REV B VOLUME 1

HOW TO USE THE EXERCISES (Continued)

(2) A particular target type may be selected as part of the objective.

(3) The target exists in the current library.

c. Exercise Geometry - Must incorporate considerations a. and b., ensuring that such items as target course and speed are consistent with the exercise length, the target type, and the exercise objective. The overall exercise track chart should be developed in advance and verified using a maneuvering board, plotting on DRT paper, or the FCS Position Keeper.

EXERCISE SCENARIO

The tactical situation and environment provides the setting in which the training will occur, and must complement the exercise objective. In establishing the exercise environment, it must be kept in mind how the actual external environment (SVP, sea state, weather) is expected to affect the training, and what limits should be established for this:

The Exercise Scenario should include:

a. Assumed Op Area or location

b. Assumed ship operation or evolution

c. Work tasks for sonar operators

d. Information for operators, such as intelligence data and/or statement of objective

EXERCISE EVENTS

The exercise events are the logical step-by-step method by which the exercise presents the training problem to the operators. They include:

a. Pre-Comex events that are normally used for briefing the operators on the assumed tactical situation versus the training problem, setting up equipment and trainer inputs, and performing items such as FOM calculation and range prediction.

b. Comex is the point in the exercise at which the trainer hardware function is started and target injection occurs.

c. Training Events are the principal events required to accomplish the intended training. The specific number of events is based on the requirements of the training objectives.

EXERCISE CONTROLLER GUIDE

ECG-S1 REV B VOLUME 1

HOW TO USE THE EXERCISES (Continued)

d. Finex is when the trainer is secured, and no further target injection occurs.

e. Review occurs upon completion of the training session. The specifics of this review are a function of the Training Approach for that particular exercise. The exercise controller may review what training was considered important, how it was or was not achieved, and the approach to correct less-than-effective areas of operation. A question and answer period may also occur at this time.

ADDITIONAL EXERCISE
DEVELOPMENT APPROACHES

There are several additional approaches which may be taken to expand the usefulness of training exercises, which include alternatives to complete shipboard exercise preparation. These alternatives can provide additional effective training and include:

a. Expanding objectives of existing exercises, such as continuation of an exercise with the running of a Battle Stations Torpedo evaluation following the last planned event in the original timing of the exercise.

b. Modifying the scenario of an exercise to accomplish the intended objective in a different tactical setting.

c. Substituting target types which provide additional search/detection and classification problems.

d. Revising existing exercise geometry, such as changing initial target range, relative bearings, angles-on-the-bow, speed, and/or depth. This may include any combination of the above parameters.

e. Any modification to an approved exercise which yields an essentially new or different exercise shall be provided to the promulgating authority for review, approval, and inclusion in the exercise library.

TRAINING MATERIALS
SUPPORT PROGRAM

The Training Materials Support Program has been established for the purpose of improving the curriculum and other training material. It is each exercise controller's responsibility to become familiar with this program as outlined in the applicable management documentation. You are to submit all of your suggestions for improvement in accordance with NAVEDTRA 38004 and OD 60803. These suggestions should include discrepancies

EXERCISE CONTROLLER GUIDE

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HOW TO USE THE EXERCISES (Continued)

found or any comments that you feel will improve training. There will be no changes in this curriculum until authorized by the Chief of Naval Technical Training.

SECURITY

In the event that classified information is added to this volume as a result of exercise controller personalization, this volume shall be marked and handled in accordance with the regulations of the latest edition of the Department of the Navy Supplement to the DoD Information Security Program Regulation (OPNAVINST 5510.1).

SAFETY PRECAUTIONS

Voltages present in the equipment are extremely dangerous. The delicacy of some equipment and the stringent ventilation requirements for solid-state electronic circuits must be continuously stressed. Extreme caution must be exercised when working with or handling this equipment. Some components are extremely heavy. Hazard awareness dictates that this equipment must always be viewed as an integral part of a system and not as a component. Safety must be part of each day of training so that the trainee will develop safe working habits. Anytime a trainee or instructor has apprehension

concerning personnel safety or that of another, they shall verbally signal "TRAINING TIME OUT" (TTO), stop the exercise, and receive or provide additional instruction as appropriate in accordance with CNETINST 1500.20 (series). When a verbal signal may not be heard, a raised clenched fist will be used to signal a "TRAINING TIME OUT" (TTO). PRACTICE AND TEACH SAFETY!

EXERCISE CONTROLLER GUIDE

ECG-S1 REV B VOLUME 1

EXERCISE SELECTION INDEX

EXERCISE NUMBER	EXERCISE OBJECTIVE	EXERCISE SCENARIO	SYS/SUBSYSTEM CONFIGURATION	EXER LENGTH (MIN)	TRNG LEVEL (TOS)	DIFF INDEX
820-3	Provide training in manual and ATF passive broadband tracking on a sonar contact with a changing signal level	Few contacts, optimum conditions	PBB Search and Detection	45	02	Intermediate 832-1
Provide Training in PNB search and detection under normal conditions	Few contacts, optimum conditions	PNB Search and Detection	45	02	Intermediate 832-2	Provide training in target classification through PNB analysis
Optimum conditions	Target Classification	60	02	Interme- diate 832-3	Provide training in PNB search and detection while tracking multiple	Contacts and own ship is maneuvering
Multiple contacts own ship evasion maneuvering	PNB Search and Detection	40	02	Advanced S838-1	Provide training in PBB search and detection with multiple equipment casualties	Battle stations torpedo, sea state 5, multiple casualties
PBB Search and Detection	75	02	Advanced			

EXERCISE CONTROLLER GUIDE

ECG-W1 VOLUME 1

EXERCISE TITLE SHEET

EXERCISE NO. 060-6	TITLE: STRATEGIC LAUNCH FAULTED COUNTDOWN	Sheet 1 of 8
<u>OBJECTIVE:</u> 1. Conduct all launch operations, ensuring adherence to safety precautions and security requirements. 2. Recognize launcher subsystem operational abnormalities, and provide authoritative decisions to support SWS operational readiness conditions and requirements. 3. Determine launch status under deteriorated weapon system operation.		Exercise Length (Min.) Variable
		Training Level (TOS) 02
		Difficulty Index Intermediate
<u>REQUIREMENTS:</u> 1. Stations Manned: a. <u>Trainee</u> <u>MCC Lab:</u> LCHR <u>MC/OAG Lab:</u> SMO, MSL FWD, CAS TEAM b. <u>Exercise Controller</u> <u>(Roll Play:</u> CONN, WPNS, SUPR, ITOP, GDNC FWD, GDNC AFT, MSL AFT	<u>TRAINING APPROACH:</u> Upon completion of this setup procedure, direct the trainee to stand watch and then "Man Battle Stations" (reference WP 184). During the course of the exercise, several failures will be experienced. In most instances, the capability to launch is not affected if proper casualty actions are carried out.	
	<u>SPECIAL INSTRUCTIONS:</u> This countdown can be conducted in WTS mode "J" or "I". Those controller activities marked with an asterick (*) are to be performed in mode "I" only.	

Figure 1-5. Exercise Controller Guide (ECG) Exercise Title Sheet (ETS)
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EXERCISE CONTROLLER GUIDE

A-121-0534 REV A VOLUME 2

EXERCISE DATA SHEET

EXERCISE NO. E3500-9	TITLE: CASUALTY OPERATION OF THE MISSILE TUBE, MISSILE TUBE GAS SYSTEM, AND MISSILE TUBE HYDRAULIC SYSTEM DURING A STRATEGIC LAUNCH SEQUENCE			Sheet 4 of 49
This data sheet lists faults which when inserted, are deemed to create a countdown of intermediate difficulty.				
Fault Insertion Point in Count- down	Fault No.	Casualty	A/I Location	CP/FIT NO.
2SQ	NONE	WATER IN TRAP TANK	CONDITION: FLOAT SWITCH WET	FIT 1- 16AE
	LCHR 831	AUTOHOLD - LIQUID IN EJECT CHAMBER	HATCH FAULTS: NO LIQUID IN EJ CHMBR XL-15	FIT 1- 17C
MAN BSM	LCHR 812	MG-61 INDICATES	PRESSURIZATION FAULTS: OPEN ISOLATION L-38	CP 228
	LCHR 815	MG PROCESSOR FAILURE	PRESSURIZATION FAULTS: SEA PRESS CHECK PT10.3	CP 214
	LCHR 813	WATER IN TRAP TANK (INVALID ALARM)	PRESSURIZATION FAULTS: FLOAT SW DRY FS-9	CP 210
PRIOR TO PREPRESS	LCHR 805	SOLENOID, TUBE 5	PRESSURIZATION FAULTS: OPEN SUPPLY LHI- LO-71	CP 227
PRIOR TO 1SQ		NONE		
PRIOR TO DENOTE	LCHR 802	SOLENOID, TUBE 5	PRESSURIZATION FAULTS: OPEN VENT 1-72	CP 227

Figure 1-6. Exercise Data Sheet (EDS)
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EXERCISE CONTROLLER GUIDE

ECG-W1 VOLUME 1

EVENT-ACTIVITIES SHEET

EXERCISE NO. 060-12	TITLE: STRATEGIC LAUNCH FAULTED COUNTDOWN		Sheet 4 of 11
TIME	EVENT	CONTROLLER ACTIVITY	OPERATOR ACTIVITY
T+0	2. Comex	<p>(3) Clear any comparator alarms at TOD panel (Mode J).</p> <p>(4) Allow sufficient time after "Run Active" for update of standby computations (Mode J).</p> <p>(5) Run Control - Select <u>Reset UH Pres ISOL VLV MG - 74</u>, tubes 5-24.</p> <p>2. Direct trainees to man assigned Battle Stations.</p>	2. Man assigned Battle Stations.
T+1 thru T+10	3. Battle Stations	<p>3. Using the procedures for the conduct of WP 184, make and receive all required announcements/reports for the following stations (X43J, 1MC, and 35MC only):</p> <p>CONN, WPNS, SUPR, ITOP, GDNC FWD, GDNC AFT, MSL AFT (and other stations not manned)</p>	

Figure 1-7. Exercise Controller Guide (ECG) Event-Activities Sheet (EAS)
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EXERCISE CONTROLLER GUIDE

ECG-W1 VOLUME 2

PROFILE ITEM-TO-EXERCISE OBJECTIVE ASSIGNMENT CHART

TABLE	ITEM/ SUBITEM	TRNG LEVEL (TOS)	ECG VOL.	EXERCIS E NO.	EXER. OBJ.
060	2-1-11	01	1	060-1	1
	2-1-11	01		060-2	
	2-1-11	01		060-3	
	2-1-11	01		060-4	
	2-1-11	01		060-5	
	2-1-11	02		060-6	
	2-1-11	02		060-7	
	2-1-11	02		060-8	
	2-1-11	02		060-9	
	2-1-11	02		060-10	
	2-1-11	02		060-11	
	2-1-11	02		060-12	
	2-1-11	02		2	
	2-1-11	02	060-14		

TABLE	ITEM/ SUBITEM	TRNG LEVEL (TOS)	ECG VOL.	EXERCIS E NO.	EXER. OBJ.	
	2-1-11	02		060-19	1	
	2-1-11	02		060-20	1	
	2-1-11	02		060-21	1	
	2-1-11	02		060-22	1	
	2-1-11	02		060-23	1	
	2-1-11	02		060-24	1	
	2-1-11	02		060-25	1	
	2-1-11	02		060-26	1	
	2-1-14	02		1	060-6	2
	2-1-14	02			060-7	2
	2-1-14	02			060-8	2
	2-1-14	02			060-9	2
	2-1-14	02			060-10	2
	2-1-14	02	060-11		2	
2-1-14	02					

(9)

Figure 1-8. Exercise Controller Guide (ECG) Profile Item-To-Exercise Objective Assignment Chart (OAC)
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