

**NOT MEASUREMENT  
SENSITIVE**

**MIL-PRF-63016B (TM)  
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SUPERSEDING  
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**PERFORMANCE SPECIFICATION  
MANUALS, TECHNICAL:  
MUNITIONS EQUIPMENT**

This specification is approved for use by the Department of the Army and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE.

1.1 Scope. This specification contains requirements for the preparation of operator and maintenance technical manuals for munitions equipment (e.g., chemical, mechanical, electrical, electronic, pneumatic, hydraulic, or combination thereof). Manuals prepared using this specification cover equipment including commercial items adapted for military use; specifically designed test, handling, measuring, and diagnostic equipment; and non-explosive equipment which is a separate component of a munitions system.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: Executive Director, USAMC Logistics Support Activity, Acquisition Logistics Center, ATTN: AMXLS-AP, Redstone Arsenal, AL 35898-7466 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC A7275

AREA TMSS

**DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.**

1.2 Classification. The types of technical manuals to be prepared in accordance with this specification are:

- Type 10 - Operator's Manual
- Type 12 - Operator's and Unit Maintenance Manual
- Type 13 - Operator's, Unit and Direct Support Maintenance Manual
- Type 14 - Operator's, Unit, Direct Support and General Support Maintenance Manual
- Type 20 - Unit Maintenance Manual
- Type 23 - Unit and Direct Support Maintenance Manual
- Type 24 - Unit, Direct Support, and General Support Maintenance Manual
- Type 30 - Direct Support Maintenance Manual
- Type 34 - Direct Support and General Support Maintenance Manual
- Type 40 - General Support Maintenance Manual

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in section 3 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in section 3 of this specification, whether or not they are listed.

### 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this specification to the extent specified herein. Unless otherwise specified, the issue of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

## STANDARDS

### DEPARTMENT OF DEFENSE

MIL-STD-12	—	Abbreviations for Use on Drawings, Specifications, Standards, and in Technical Documents
MIL-STD-38784	—	Standard Practices For Manuals, Technical: General Style and Format Requirements.
MIL-STD-40051	—	Technical Manual Preparation

(Unless otherwise indicated, copies of the above standard are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

#### 3.1 General.

3.1.1 Style and format. Unless otherwise specified herein, the general style and format of technical manuals (TM) for operation and maintenance of munitions equipment shall be prepared in accordance with MIL-STD-38784.

3.1.2 National stock numbers (NSN) and part numbers. NSN shall not be used in the narrative portion of the TM. Unless essential for identification, manufacturer's part numbers shall not be used in procedures and the narrative portion of the TM.

3.1.3 Level of coverage. The information provided in the TMs for operation and maintenance of munitions equipment shall be directed to the least experienced personnel expected to use them. The reading grade level shall be the level specified by the contracting activity and in accordance with MIL-STD-38784 (see 6.2).

3.1.4 Abbreviations and acronyms. Abbreviations used throughout the manual shall be in accordance with MIL-STD-12. Use of acronyms shall be consistent throughout the TM; but shall be held to a minimum. The first use of abbreviations and acronyms shall be spelled out completely with the abbreviation or acronym in parenthesis immediately after the word(s).

3.1.5 Equipment names and nomenclature. Only approved names and nomenclature shall be used. Terms, names, and nomenclature shall be used consistently throughout the TM.

3.1.6 Illustrations. Only line drawing illustrations shall be used unless otherwise authorized by the contracting activity. Illustrations shall be integrated with the text and shall be used when text alone cannot adequately communicate the message. Illustrations shall be black or shades of black (one color).

3.1.7 Page and paragraph numbering. Pages and paragraphs shall be numbered in accordance with MIL-STD-38784.

3.1.8 Repair parts and special tools list (RPSTL). The inclusion of a RPSTL in the TM shall be indicated by adding "Including Repair Parts and Special Tools List" to the title and "&P" to the TM number. These lists shall be prepared in accordance with the technical content requirements of MIL-STD-40051 except lists shall not be prepared in accordance with work package format. The style and format shall conform to the requirements of MIL-STD-38784. RPSTLs shall be included as an appendix to the pertinent TM.

3.1.9 Referencing. Reference to other documents and information within the TM shall be held to a minimum. Reference shall not be made to other documents unless they are normally available to the user. If reference to other documents is necessary, reference shall include the document name and publication number only. Reference made within the TM shall include the necessary location data only. For example, if the entire chapter is applicable, only the chapter number shall be referenced; if the data needed is found in one or more paragraphs, reference to the paragraph number(s) shall be made.

3.1.10 Manual size. TMs shall be prepared in the size selected from table I as specified by the contracting activity (see 6.2). The maximum printing area shall include all printed matter including publication and page numbers.

TABLE I. Manual sizes (in inches).

Style	Trim Size	Format	Maximum Printing Area
Pocket	4 x 5-1/2	Vertical	3-3/8 x 5-1/4
	5-1/2 x 4	Horizontal	5-1/4 x 3-3/8
Logbook	6-1/2 x 9-1/2	Vertical	5-5/16 x 8-3/4
	9-1/2 x 6-1/2	Horizontal	8-3/4 x 5-5/16
Standard	8-1/2 x 11	Vertical	7 x 10
	11 x 8-1/2	Horizontal	10 x 7
Double standard	17 x 11	Horizontal Only	15-1/2 x 9

3.1.10.1 Pocket TM. Pocket TM numbers shall appear on the front and back cover only. Page numbers shall appear on lower, outer edges of each page.

3.1.10.2 Horizontal TM. Unless otherwise specified by the contracting activity (see 6.2), TMs prepared in horizontal format shall be printed head to foot with holes punched at the bottom of even numbered pages and at the top of odd numbered pages. Except for pocket TMs, the TM number shall appear on the upper right corner of all pages. The upper pages shall have even numbers, and the lower pages shall have odd numbers.

3.1.10.3 Font size. Except for pocket size TMs, font size shall be no smaller than 8 point.

3.1.10.4 Foldout/foldup pages. Foldout/foldup pages shall not be used.

3.1.11 Security classification markings. Security classification markings, if required, shall be applied in accordance with MIL-STD-38784.

3.2 Type 10 - Operator's manual. Unless otherwise specified, the arrangement of the manual shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	Operating Instructions
Chapter 3	Maintenance Instructions
Appendix A	References
Appendix B	Expendable and Durable Items List
Glossary	
Index	

3.2.1 Front matter. Front matter shall be prepared in accordance with MIL-STD-38784.

3.2.2 Chapter 1 - introduction. This chapter shall consist of the following sections:

3.2.2.1 Section 1 - general. This section shall consist of the following paragraphs:

a. Scope. This paragraph shall contain the following statement: “These instructions are for use by operator/crew. They apply to (name of equipment).”

b. Forms, records, and reports. This paragraph shall contain the following statement: “Department of the Army equipment maintenance forms and reporting procedures are prescribed in DA PAM 738-750, Functional Users Guide for the Total Army Maintenance Management System (TAMMS).”

3.2.2.2 Section II - description and data. This section shall consist of the following paragraphs:

a. Description. This paragraph shall provide a brief general description indicating the purpose, use, capabilities, and features of the equipment. Reference shall be made to an external view illustration (or illustrations) which best shows the parts described. Nomenclature callouts, not index numbers, on the illustration shall be used to identify parts described in this paragraph. Subparagraphs shall be devoted to each major subassembly and shall follow the same general format as the main paragraph.

b. Functional description. A brief general description to help the operator understand how the equipment works shall be included. A simple block diagram shall supplement the text.

c. Differences between models. This paragraph shall briefly describe only those parts which relate to the differences. The serial number group or registration numbers and model numbers shall be included and may be presented in tabular form. An illustration or illustrations showing only the differentiating characteristics shall be referenced. Nomenclature callouts shall identify illustrated parts.

d. Tabulated data. This paragraph shall include a table containing nomenclature, model number, dimensions, weight, Department of Defense Identification Code (DODIC), and other tabular information considered necessary to the task.

3.2.2.3 Section III - safety, care, and handling. This section shall contain all specific safety, care, and handling information associated with those items covered by this manual. A statement of all hazards associated with the items shall be included in this section. Clear explanations and official definitions of such safety-related terms as misfire, hangfire, cook-off, etc. which describe characteristics associated with the specific item(s) covered by the TM being prepared shall also be included.

3.2.3 Chapter 2 - operating instructions. This chapter shall contain the following sections:

3.2.3.1 Section I - operating procedures. This section shall be prepared in accordance with the technical content requirements of MIL-STD-40051 except procedures shall not be prepared in accordance with work package format. The style and format shall conform to the requirements of MIL-STD-38784.

3.2.3.2 Section II - operation under unusual conditions. This section shall be done in accordance with the content requirements of MIL-STD-40051 without reference to “Work Package(s)” and style and format requirements of MIL-STD-38784.

3.2.3.3 Section III - operation of auxiliary materiel used in conjunction with the major item. This section shall contain or reference instructions required to operate and perform operator’s services on all auxiliary equipment which is used in conjunction with an end-item and which the operator must know how to operate. Operating instructions which are two pages or less in length, or which can be reduced to two pages shall be repeated rather than referenced.

3.2.4 Chapter 3 - maintenance instructions. This chapter shall contain the following sections:

3.2.4.1 Section I - lubrication. This section shall refer to the Lubrication Order (LO). General instructions for lubrication not contained in the LO and which must be performed by the operator/crew shall be briefly described in narrative text or shown by illustrations.

3.2.4.2 Section II - preventive maintenance checks and services (PMCS). This section shall be prepared in accordance with the technical content requirements of MIL-STD-40051 except procedures shall not be prepared in accordance with work package format. The style and format shall conform to the requirements of MIL-STD-38784.

3.2.4.3 Section III - troubleshooting. This section shall consist of a scope paragraph and a table which lists malfunctions, stoppage tests and inspections necessary to determine cause of the malfunctions, and corrective actions. The table shall be prepared in accordance with the technical requirements of MIL-STD-40051 except procedures shall not be prepared in accordance with work package format. The style and format shall conform to the requirements of MIL-STD-38784.

3.2.4.3.1 Scope. The scope paragraph shall contain the following:

a. “This section contains troubleshooting or malfunction information and tests for locating and correcting most of the troubles which may develop in the (insert types of equipment or system). Each malfunction or trouble symptom for an individual component, unit, or system is followed by a list of tests or inspections for determining probable causes and suggested actions to remedy the malfunctions.”

b. “This manual cannot list all possible malfunctions which may occur or all tests or inspections, and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious), or is not corrected by listed corrective actions, you should notify higher level maintenance.”

c. “Table (insert number) lists the common malfunctions that you may find during the operation or maintenance of the (insert type of equipment or system) or its components. You should perform the tests/ inspections and corrective actions in the order listed.”

3.2.4.3.2 Format. The following note shall precede the troubleshooting table. The first sentence shall be included only if operational checks exist for the equipment or system. The layout of the troubleshooting table shall be in accordance with figures 1 and 2.

“NOTE

Before you use this table, be sure you have performed all normal operational safety, care, and handling checks and procedures. If you have a malfunction which is not listed in this table, notify the next higher level of maintenance.”

3.2.4.4 Section IV - operator’s maintenance instructions. This section shall contain instructions for the performance of maintenance functions authorized by the Maintenance Allocation Chart including replacement of parts authorized by the RPSTL. Each paragraph shall be devoted to an assembly or part and shall be arranged to include, as applicable, removal, disassembly, inspection, cleaning, assembly, installation, and test. This paragraph shall be arranged in a sequence which will afford the most logical approach to maintenance. The first paragraph shall cover the assembly or part that can be removed for repair or replacement by disassembling the least number of parts.

3.2.5 Appendix A - references. This appendix shall contain a listing of the publications referenced in the manual and any additional references furnished by the contracting activity (See 6.2).

3.2.6 Appendix B - expendable and durable items list. This appendix shall have two sections - Section I, Introduction, and Section II, Expendable and Durable Items List (tabular listing). The introduction shall be prepared and shall include the applicable information as shown in figure 3. This appendix shall not include illustrations. The list shall be formatted and shall include the applicable information under the headings shown on figure 4.

3.2.7 Glossary. When specified by the contracting activity (See 6.2), a glossary shall be prepared in accordance with MIL-STD-38784.

3.2.8 Index. The index shall be prepared in accordance with MIL-STD-38784.

3.3 Type 12 - Operator and Unit Maintenance Manual. This manual shall include instructions for performing the operations and maintenance allowed to the operator/crew and to unit maintenance by the MAC. The arrangement of the manual shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	Operating Instructions
Chapter 3	Operator Maintenance Instructions
Chapter 4	Unit Maintenance Instructions
Appendix A	References
Appendix B	MAC
Appendix C	RPSTL
Appendix D	Expendable and Durable Items List
Glossary	
Index	

3.3.1 Front matter. Front matter shall be prepared in accordance with MIL-STD-38784.

3.3.2 Chapter 1 - Introduction. This chapter shall consist of the following sections:

3.3.2.1 Section I - general. This section shall consist of the following paragraphs:

a. Scope. This paragraph shall contain the following statement: "These instructions are for use by operator/crew and unit maintenance personnel. They apply to ( name of equipment)."

b. Forms and records. (See 3.2.2.1b)

c. Destruction of army materiel to prevent enemy use. This paragraph shall reference the appropriate technical manual(s) covering the destruction of the equipment to prevent enemy use.

3.3.2.2 Section II - description and data. (See 3.2.2.2)

3.3.2.3 Section III - safety, care, and handling. (See 3.2.2.3)

3.3.3 Chapter 2 - operating instructions. (See 3.2.3)

3.3.4 Chapter 3 - operator maintenance instructions. (See 3.2.4)

3.3.5 Chapter 4 - unit maintenance instructions. This chapter shall contain information for unit maintenance and shall consist of the following sections:

3.3.5.1 Section I - service upon receipt. This section shall contain instructions for removing the equipment from its shipping containers and performing all necessary installation and set-up procedures as authorized by the MAC. Separate paragraphs shall describe handling new, used, and reconditioned material.

3.3.5.2 Section II - lubrication. This section shall refer to the LO and any lubrication procedures not covered in the operator/crew instructions. Supplemental instructions for lubrication contained in the LO, but which must be performed by unit maintenance, shall be briefly described in a narrative text or shown by illustrations.

3.3.5.3 Section III - PMCS. This section shall contain a table of prescribed checks and services which unit maintenance must perform at prescribed intervals to maintain the equipment in combat serviceable condition (See 3.2.4.2).

3.3.5.4 Section IV - troubleshooting. (See 3.2.4.3 and adjust to unit maintenance.)

3.3.5.5 Section V - unit maintenance instructions. (See 3.2.4.4 and adjust to unit maintenance.)

3.3.5.6 Section VI - preparation for shipment and storage. This section shall contain the following:

a. Preparation for shipment. This paragraph shall contain instructions for repackaging material for shipment to another organization for use or for maintenance.

b. Preparation for storage. This paragraph shall contain special instructions pertaining to the preparation of material for storage.

3.3.6 Appendix A - references. (See 3.2.5)

3.3.7 Appendix B - MAC. Information contained in this appendix shall be that furnished by the contracting activity. For format, see figure 5. (See 6.2)

3.3.8 Appendix C - RPSTL. When specified by the contracting activity (See 6.2), this appendix shall be prepared in accordance with the technical content requirements of MIL-STD-40051 except data shall not be prepared in accordance with work package format. The style and format shall conform to the requirements of MIL-STD-38784.

3.3.9 Appendix D - expendable and durable items list. (See 3.2.6)

3.3.10 Glossary. (See 3.2.7)

3.3.11 Index. (See 3.2.8)

3.4 Type 13 - Operator, unit, and direct support maintenance manual. This manual shall contain instructions for performing the operations and maintenance allowed to the operator/crew, unit, and direct support (DS) maintenance by the MAC. The arrangement of the manual shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	Operating Instructions

Chapter 3	Operator Maintenance Instructions
Chapter 4	Unit Maintenance Instructions
Chapter 5	DS Maintenance Instructions
Appendix A	References
Appendix B	MAC
Appendix C	RPSTL
Appendix D	Expendable and Durable Items List
Glossary	
Index	

3.4.1 Front matter. Front matter shall be done in accordance with MIL-STD-38784.

3.4.2 Chapter 1 - introduction. This chapter shall consist of the following sections:

3.4.2.1 Section I - general. This section shall consist of the following paragraphs:

a. Scope. This paragraph shall contain the following statement: “These instructions are for use by operator/crew, unit, and DS maintenance personnel. They apply to ( name of equipment).”

b. Forms and records. (See 3.2.2.1b)

c. Destruction of army materiel to prevent enemy use. (See 3.3.2.1c)

3.4.2.2 Section II - description and data. (See 3.2.2.2)

3.4.2.3 Section III - safety, care, and handling. (See 3.2.2.3)

3.4.3 Chapter 2 - operating instructions. (See 3.2.3)

3.4.4 Chapter 3 - operator maintenance instructions. (See 3.2.4)

3.4.5 Chapter 4 - unit maintenance instructions. (See 3.3.5)

3.4.6 Chapter 5 - DS maintenance instructions. This chapter shall cover maintenance instructions authorized by the MAC for DS maintenance. It shall include the following sections.

3.4.6.1 Section I - functioning of equipment. This section shall explain mechanical, electrical, electro-mechanical, , electronic, pneumatic, and hydraulic functioning of components and assemblies only when not self-evident, when not covered in prior chapters, and when an understanding on how the equipment works is essential for proper maintenance. Non repairable, replaceable components shall not be explained in detail. Pertinent data that will enable DS maintenance to isolate a defective part shall be given. Reference shall be made to the unit maintenance chapter of the manual for additional explanations of equipment functioning.

3.4.6.2 Section II - troubleshooting. (See 3.2.4.3 and adjust to DS level.)

3.4.6.3 Section III - direct support maintenance. (See 3.2.4.4 and adjust to requirements of DS maintenance.)

3.4.7 Appendix A - references. (See 3.2.5)

3.4.8 Appendix B - MAC. (See 3.3.7)

3.4.9 Appendix C - RPSTL. (See 3.3.8)

3.4.10 Appendix D - expendable and durable items list. (See 3.2.6)

3.4.11 Glossary. (See 3.2.7)

3.4.12 Index. (See 3.2.8)

3.5 Type 14-operator, unit, direct support, and general support maintenance manual. This manual shall include instructions for performing the operations and maintenance allowed to the operator/crew, unit, DS and general support (GS) maintenance by the MAC. The arrangement of the manual shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	Operating Instructions
Chapter 3	Operator Maintenance Instructions
Chapter 4	Unit Maintenance Instructions
Chapter 5	DS Maintenance Instructions
Chapter 6	GS Maintenance Instructions
Appendix A	References
Appendix B	MAC
Appendix C	RPSTL
Appendix D	Expendable and Durable Items List
Glossary	
Index	

3.5.1 Front matter. Front matter shall be prepared in accordance with MIL-STD-38784.

3.5.2 Chapter 1 - introduction. This chapter shall consist of the following sections:

3.5.2.1 Section I - general. This section shall consist of the following paragraphs:

a. Scope. This paragraph shall contain the following statement: "These instructions are for use by operator/crew, unit, DS, and GS maintenance personnel. They apply to ( name of equipment)."

b. Forms and records. (See 3.2.2.1b)

c. Destruction of army materiel to prevent enemy use. (See 3.3.2.1c)

3.5.2.2 Section II - description and data. (See 3.2.2.2)

3.5.2.3 Section III - safety, care, and handling. (See 3.2.2.3)

3.5.3 Chapter 2 - operating instructions. (See 3.2.3)

3.5.4 Chapter 3 - operator maintenance instructions. (See 3.2.4)

3.5.5 Chapter 4 - unit maintenance instructions. (See 3.3.5)

3.5.6 Chapter 5 - DS maintenance instructions. (See 3.4.6)

3.5.7 Chapter 6 - GS maintenance instructions. This chapter shall cover maintenance instructions authorized by the MAC for GS maintenance. It shall include the following sections.

3.5.7.1 Section I - functioning of equipment. This section shall explain mechanical, electrical, electro-mechanical, , electronic, pneumatic, and hydraulic functioning of components and assemblies only when not self-evident, when not covered in prior chapters, and when an understanding on how the equipment works is essential for proper maintenance. Non repairable, replaceable components shall not be explained in detail. Pertinent data that will enable GS maintenance to isolate a defective part shall be given. Reference shall be made to the unit and DS maintenance chapters of the manual for additional explanations of equipment functioning.

3.5.7.2 Section II - troubleshooting. (See 3.2.4.3 and adjust to GS level.)

3.5.8 Appendix A - references. (See 3.2.5)

3.5.9 Appendix B - MAC. (See 3.3.7)

3.5.10 Appendix C - RPSTL. (See 3.3.8)

3.5.11 Appendix D - expendable and durable items list. (See 3.2.6)

3.5.12 Glossary. (See 3.2.7)

3.5.13 Index. (See 3.2.8)

3.6 Type 20 - unit maintenance manual. This manual shall contain instructions for performing maintenance allocated by the MAC to unit maintenance. The arrangement of the manual shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	Maintenance Instructions
Appendix A	References
Appendix B	MAC
Appendix C	RPSTL
Appendix D	Expendable and Durable Items List
Glossary	
Index	

3.6.1 Front matter. Front matter shall be prepared in accordance with MIL-STD-38784.

3.6.2 Chapter 1 - introduction. This chapter shall consist of the following sections:

3.6.2.1 Section I - general. This section shall consist of the following paragraphs:

a. Scope. This paragraph shall contain the following statement: "These instructions are for use by unit maintenance personnel. They apply to ( name of equipment)."

b. Forms, records, and reports. (See 3.2.2.1b)

c. Destruction of army materiel to prevent enemy use. (See 3.3.2.1c)

3.6.2.2 Section II - description and data. This section shall consist of the following paragraphs:

a. Description. This paragraph shall provide a brief general description indicating the purpose, use, capabilities, and features of the equipment not covered in the operator's manual which are pertinent to unit maintenance. Reference shall be made to the operator's manual.

b. Maintenance standards. This paragraph shall include data such as pressure settings, torque values, and fits and tolerances which are pertinent to unit maintenance and not contained in a lower level manual.

3.6.2.3 Section III - safety, care, and handling. (See 3.2.2.3)

3.6.3 Chapter 2 - unit maintenance instructions. (See 3.3.5)

3.6.4 Appendix A - references. (See 3.2.5)

3.6.5 Appendix B - MAC. (See 3.3.7)

3.6.6 Appendix C - RPSTL. This appendix shall be included when the contracting activity requires that a RPSTL is to be combined with the narrative manual. This section shall be prepared in accordance with the technical content requirements of MIL-STD-40051 except RPSTL shall not be prepared in accordance with work package format. The style and format shall conform to the requirements of MIL-STD-38784.

3.6.7 Appendix D - expendable and durable items list. (See 3.2.6)

3.6.8 Glossary. (See 3.2.7)

3.6.9 Index. (See 3.2.8)

3.7 Type 23 - Unit and DS maintenance manual and type 24 - unit, DS, and GS maintenance manual. Unless otherwise specified, the arrangement of the manuals shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	Unit Maintenance Instructions
Chapter 3	DS Maintenance Instructions
Chapter 4	GS Maintenance Instructions (not used in the -23 manual)
Appendix A	References
Appendix B	MAC
Appendix C	RPSTL
Appendix D	Expendable and Durable Items List
Glossary	
Index	

3.7.1 Front matter. Front matter shall be prepared in accordance with MIL-STD-38784.

3.7.2 Chapter 1 - introduction. This chapter shall consist of the following sections:

3.7.2.1 Section I - general. This section shall consist of the following paragraphs:

a. Scope. This paragraph shall contain the following statement: “These instructions are for use by unit, DS, and GS maintenance personnel. They apply to (name of equipment).” (Note: Delete “GS” for -23 manuals.)

b. Forms, records, and reports. (See 3.2.2.1b)

c. Destruction of army materiel to prevent enemy use. (See 3.3.2.1c)

3.7.2.2 Section II - description and data. (See 3.6.2.2 and adjust to cover DS and GS levels (only DS for -23 manuals).)

3.7.2.3 Section III - safety, care, and handling. (See 3.2.2.3)

3.7.3 Chapter 2 - unit maintenance instructions. (See 3.3.5)

3.7.4 Chapter 3 - DS maintenance. (See 3.4.6)

3.7.5 Chapter 4 - GS maintenance. (not used in type -23 manuals). (See 3.5.7)

3.7.6 Appendix A - references. (See 3.2.5)

3.7.7 Appendix B - MAC. (See 3.3.7)

3.7.8 Appendix C - RPSTL. (See 3.3.8)

3.7.9 Appendix D - expendable and durable items list. (See 3.2.6)

3.7.10 Glossary. (See 3.2.7)

3.7.11 Index. (See 3.2.8)

3.8 Type 30 - DS maintenance manual. This manual shall contain instructions for performing maintenance allocated by the MAC to DS maintenance. The arrangement of the manual shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	DS Maintenance Instructions
Appendix A	References
Appendix B	RPSTL
Appendix C	Expendable and Durable Items List
Glossary	
Index	

3.8.1 Front matter. Front matter shall be prepared in accordance with MIL-STD-38784.

3.8.2 Chapter 1 - introduction. This chapter shall consist of the following sections:

3.8.2.1 Section I - general. (See 3.2.2.1) (Adjust scope paragraph to DS maintenance.)

3.8.2.2 Section II - description and data. This section shall consist of the following paragraphs:

a. Description. This paragraph shall provide a brief general description indicating the purpose, use, capabilities, and features of the equipment not covered in the lower level equipment publications, which shall be referenced.

b. Maintenance standards. This paragraph shall include data such as pressure settings, torque values, and fits and tolerances which are pertinent to DS maintenance and not contained in lower level manuals.

3.8.2.3 Section III - safety, care, and handling. (See 3.2.2.3)

3.8.3 Chapter 2 - DS maintenance instructions. (See 3.4.6)

3.8.4 Appendix A - references. (See 3.2.5)

3.8.5 Appendix B - RPSTL. (See 3.3.8)

3.8.6 Appendix C - expendable and durable items list. (See 3.2.6)

3.8.7 Glossary. (See 3.2.7)

3.8.8 Index. (See 3.2.8)

3.9 Type 34 - DS and GS maintenance manual. This manual shall include instructions for performing the operations and maintenance allowed to the DS and GS maintenance by the MAC. The arrangement of the manual shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	DS Maintenance Instructions
Chapter 3	GS Maintenance Instructions
Appendix A	References
Appendix B	RPSTL
Appendix C	Expendable and Durable Items List
Glossary	
Index	

3.9.1 Front matter. Front matter shall be prepared in accordance with MIL-STD-38784.

3.9.2 Chapter 1 - introduction. This chapter shall consist of the following sections:

3.9.2.1 Section I - general. (See 3.2.2.1 and adjust scope to DS and GS maintenance.)

3.9.2.2 Section II - description and data. This section shall consist of the following paragraphs:

a. Description. This paragraph shall provide a brief general description indicating the purpose, use, capabilities, and features of the equipment pertinent to DS and GS maintenance but not covered in lower level equipment publications. Reference shall be made to the operator's and unit maintenance manual(s).

b. Maintenance standards. This paragraph shall include data such as pressure settings, torque values, and fits and tolerances which are pertinent to DS and GS maintenance and not contained in the lower level manuals.

3.9.2.3 Section III - safety, care, and handling. (See 3.2.2.3)

3.9.3 Chapter 2 - DS maintenance. (See 3.4.6)

3.9.4 Chapter 3 - GS maintenance. (See 3.5.7)

3.9.5 Appendix A - references. (See 3.2.5)

3.9.6 Appendix B - RPSTL. (See 3.3.8)

3.9.7 Appendix C - expendable and durable items list. (See 3.2.6)

3.9.8 Glossary. (See 3.2.7)

3.9.9 Index. (See 3.2.8)

3.10 Type 40 - GS maintenance manual. This manual shall contain instructions for performing maintenance allocated by the MAC to GS maintenance. The arrangement of the manual shall be as follows:

Front Matter	
Chapter 1	Introduction
Chapter 2	GS Maintenance Instructions
Appendix A	References
Appendix B	RPSTL
Appendix C	Expendable and Durable Items List
Glossary	
Index	

3.10.1 Front matter. Front matter shall be prepared in accordance with MIL-STD-38784.

3.10.2 Chapter 1 - introduction. This chapter shall consist of the following sections:

3.10.2.1 Section I - general. (See 3.2.2.1) (Adjust scope paragraph to GS maintenance.)

3.10.2.2 Section II - description and data. This section shall consist of the following paragraphs:

a. Description. This paragraph shall provide a brief general description indicating the purpose, use, capabilities, and features of the equipment not covered in the lower level equipment publications. Lower level equipment publications shall be referenced.

b. Maintenance standards. This paragraph shall include data such as pressure settings, torque values, and fits and tolerances which are pertinent to GS maintenance and not contained in a lower level manuals.

3.10.2.3 Section III - safety, care, and handling. (See 3.2.2.3)

3.10.3 Chapter 2 - GS maintenance instructions. (See 3.5.7)

3.10.4 Appendix A - references. (See 3.2.5)

3.10.5 Appendix B - RPSTL. (See 3.3.8)

3.10.6 Appendix C - expendable and durable items list. (See 3.2.6)

3.10.7 Glossary. (See 3.2.7)

3.10.8 Index. (See 3.2.8)

#### 4. VERIFICATION

4.1 Verification. Verification shall be as specified by the contracting activity in the contract or order (see 6.2).

#### 5. PACKAGING

5.1 Packaging. For acquisition purposes, packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DOD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

#### 6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory).

6.1 Intended use. This specification is intended to be used for acquisition of the technical manuals specified herein. The requirements of this specification are normally invoked by contract. When the Government prepares the subject manuals, the Government preparing activity assumes the role of the contractor and is responsible for meeting the requirements specified herein.

6.2 Acquisition requirements. Acquisition documents should specify the following items:

- a. Title, number, and date of this specification.
- b. The issue of the DODISS to be cited in the solicitation, and, if required, the specific issue of the individual documents referenced (see 2.2.1).
- c. Title and publication number of the manual(s) to be prepared.
- d. Description of target audience and reading grade level (see 3.1.3).
- e. Size of TM (see 3.1.9).
- f. Format of horizontal technical manual (if applicable), unless specified (see 3.1.9.2).
- g. Identification of reference information to be furnished by the government (see 3.2.5).
- h. Glossary for technical manual (see 3.2.7).
- i. Required information for Maintenance Allocation Chart (see 3.3.7)

j. Repair Parts and Special Tools List (see 3.3.8).

k. Verification requirements (see 4.1).

l. Packaging requirements (see 5.1).

m. Specification tailoring by selection of optional requirements on the content/format selection summary (see appendix).

6.3 Technical manuals. The requirement for technical manuals should be considered when this specification is applied on a contract. If technical manuals are required, specifications and standards that have been cleared and listed in DoD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL) must be listed on a separate Contract Data Requirements List (DD Form 1423), which is included as an exhibit to the contract. The technical manuals must be acquired under separate contract line item in the contract.

#### 6.4 Definitions.

6.4.1 Contracting activity. The DOD component, activity, or organization of a using military service, or that organization designated by a using service, that is responsible for the selection and determination of requirements for technical manuals.

6.4.2 Warning. A statement or other notification about an operation or maintenance procedure, practice, or condition that, if not strictly observed, could result in the injury or death of the personnel performing the operation or maintenance.

#### 6.5 Subject term (key word) listing.

Ammunition Peculiar Equipment (APE)  
Chemical equipment  
Diagnostic equipment  
Electrical equipment  
Electronic equipment  
Hydraulic equipment  
Mechanical equipment  
Nonexplosive equipment  
Pneumatic equipment

<b>MALFUNCTION</b>		
	<b>TEST OR INSPECTION</b>	<b>CORRECTIVE ACTION</b>
1. (MALFUNCTION)	LIST THE MALFUNCTION	
	Step 1. (Test)	Tell what test or inspection to perform
		(Corrective Action) Tell what action to take.
	Step 2. (Test)	Tell what test or inspection to perform.
		(Corrective Action) Tell what action to take.

FIGURE 1. Alignment of headings and text in a troubleshooting table.

**Table 3-1. Operator Troubleshooting****NOTE**

Before you use this table, make sure you have performed your PMCS.

**MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****1. ENGINE FAILS TO CRANK**

Step 1. Improper starting procedure.

Perform starting procedure as outlined in para 2-6.

Step 2. Corroded battery cable terminals and battery post.

Clean battery post and battery cable terminals (para 3-4).

**2. ENGINE CRANKS BUT FAILS TO START.**

Step 1. Improper starting procedure.

Perform starting procedure as outlined in para 2-6.

Step 2. Low or no fuel supply.

Service fuel tank (para 3-45), or use auxiliary fuel supply (para 3-45).

Step 3. Water in fuel, contaminated or incorrect grade of fuel.

Drain entire fuel system. Service with clean fuel of proper grade (para 3-45).

Service fuel filter (para 3-22).

Drain day tank assembly (para 3-21).

Drain fuel tank and service with clean fuel of proper grade (para 3-45).

Step 4. Air in fuel lines.

Bleed fuel system (para 3-21, 3-22, 3-45).

Step 5. Clogged fuel strainers or filters.

Service fuel strainers and filter assembly (para 3-22).

Step 6. Dirty air filter element.

Notify higher level of maintenance.

**3. ENGINE STARTS CORRECTLY, BUT STOPS WHEN START/RUN/STOP SWITCH IS RELEASED.**

Step 1. Switch not held in START position long enough.

Hold switch in START position until engine oil pressure reaches 20 psi (para 2-6).

Step 2. High coolant temperature.

Refer to malfunction 11 of this table.

FIGURE 2. Typical troubleshooting table.

## APPENDIX C

### EXPENDABLE AND DURABLE ITEMS LIST

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#### SECTION I. INTRODUCTION

##### C-1. SCOPE

This appendix lists expendable and durable items you will need to maintain the (list the name of the equipment). This listing is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

##### C-2 EXPLANATION OF COLUMNS

- a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, Appendix C").
- b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew  
O - Unit Maintenance  
F - Direct Support Maintenance  
H - General Support Maintenance

- c. Column (3) - National Stock Number. This is the national stock number assigned to the item; use it to requisition the item.
- d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Commercial and Government Entity (CAGE) code in parenthesis followed by the part number.
- e. Column (5) - Unit of Measure (U/M)/Unit of Issue (U/I). This measure is expressed by a two-character alphabetical abbreviation (e.g., EA, IN, PR). If the unit of measure differs from the unit of issue as shown in the Army Master Data File (AMDF), requisition the lowest unit of issue that will satisfy your requirements.

FIGURE 3. Example of expendable and durable items list introduction.

**Section II. EXPENDABLE/DURABLE ITEMS LIST**

(1) ITEM	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) (U/M)/ (U/I)
1	O	8040-01-154-0038	Adhesive Kit, no mix, adhesive and activator: (05972) 00206	KT
2	O	8040-00-880-7332	Adhesive, liquid rubber, Type II, 12-ounce can: (81348) MIL-A-46106	OZ
3	O	8040-00-273-8708	Adhesive, sealant: (81349) MIL-A-3316	GL
4	O	8040-00-118-2695	Adhesive, sealant, Type I, 3-ounce tube: (80244) MIL-A-46146	OZ
5	O	8040-00-877-9872	Adhesive, sealant, Type I, 3-ounce tube: (81348) MIL-A-46106	OZ
6	O	8040-01-009-1562	Adhesive, sealant, Type II, 3-ounce tube: (80244) MIL-A-46146	OZ
7	O	8040-00-900-6296	Adhesive, Type I: (80244) MMM-A-134	KT
8	O	8040-00-142-9193	Adhesive, Type I, Class I, 1-ounce bottle: (81349) MIL-A-46050	OZ
9	O	8040-00-664-2912	Adhesive, Type I, Class 3, 1-pint can: (80244) MMM-A-132	PT
10	O	8040-00-664-4318	Adhesive, Type II, 1-pint can: (81348) MMM-A-1617	PT
11	O	8040-00-332-4034	Adhesive, Type II, Class 3: (80244) MMM-A-132	PT
12	O		Adhesive, Type A: (59997) Swift 17135	EA
13	O	8040-01-123-0082	Adhesive, Type B: (19200) 11669677	GL
14	O	8030-00-597-5367	Antiseize Compound, 1050F temperature rating, 2.5-pound can: (81349) MIL-A-907	LB
15	O	8105-00-837-7754	Bag, plastic, package of 1000: (81348) PPP-B-26	EA

FIGURE 4. Example of expendable and durable items list table.

**Section II. MAINTENANCE ALLOCATION CHART  
FOR  
TSEC/ST-34**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS	
			UNIT		DS	GS	DEPOT			
			C	O	F	H	D			
00	TSEC/ST-34	Inspect	0.1						A	
		Service	0.2						B	
		Replace	0.4					1	C	
		Replace	0.1						D	
		Test	0.3						E	
		Repair			1.5				1-2	F
		Repair				2.0			1-5	G, J
		Repair					2.0		1-9	H
		Overhaul					16.0		1-9	I
01	STP-34 Power Unit	Inspect	0.1						A	
		Test	0.3						E	
		Repair			1.8				1-2	F
		Repair				2.0			1-5	G, J
		Repair					2.0		1-9	H
0101	STP-34 Printed Circuit Boards									
010101	E-EBO/1	Inspect			0.1				A	
		Test			0.5			1,2	E	
		Test					1.0		1-3, 6-8	I
		Replace			0.5			1		
		Repair					2.0		1-4, 6-8	G
010102	Switching Assembly	Inspect			0.1				1	A
		Replace			0.5				1	
		Test					1.0		1-3, 6-8	
		Repair					2.0		1-4, 6-8	H
02	STB-34 Logic Unit	Inspect	0.1							A
		Test	0.5							E
		Repair			1.0				1-2	F
		Repair				2.0			1-5	G, J
0201	STB-34 Printed Circuit Boards	Inspect			1.0					A
		Test			0.2					E
		Test				1.0			1-3, 5	J
		Replace			0.3			1		
		Repair				2.0			2-5	G, 7

FIGURE 5. Example of a maintenance allocation chart (MAC).

**APPENDIX**

**CONTENT/FORMAT SELECTION SUMMARY FOR  
MUNITIONS EQUIPMENT (TM)**

A.1 GENERAL.

A.1.1 Scope. This appendix may be used to tailor out the optional requirements that are not to be contractually imposed in the acquisition of munitions equipment TMs. The information contained herein is intended for compliance when the Content/Format Selection Summary is completed by the Government.

A.1.2 Application. This appendix is intended to be copied/reproduced, completed, used for contract solicitation, and incorporated into the contract.

A.1.3 Tailoring. The contracting activity should evaluate the individual requirements of this specification to determine the extent to which they are most suitable for the acquisition and modify the requirements to ensure that each achieves the optimal balance between operational needs and cost. Exclusions of sections, paragraphs, or sentences shall be indicated on the Content/Format Selection Summary. When necessary, remarks should be expanded and included on a separate sheet of paper attached to the Summary List. In all cases, tailoring shall be compatible with this specification.

A.1.4 Explanation of columns - content/format selection summary. Column (1), Item no., self explanatory. Column (2) is the type of requirement and column (3) identifies the applicable paragraph in the specification. Column (4) Options Selected, subcolumn (a) "yes", should be marked with an "X" for each item/requirement applicable to the solicitation/acquisition as written. Column (4), subcolumn (b), "no", should be marked with an "X" for each item that is not applicable as written, but is applicable as specified in subcolumn (c). Subcolumn (c), Explanation/Remarks is provided for clarity.

A.2 APPLICABLE DOCUMENTS.

This section is not applicable to this appendix.

**APPENDIX**

**CONTENT/FORMAT SELECTION SUMMARY SHEET**

**EQUIPMENT NAME/NOMENCLATURE** \_\_\_\_\_

**CONTRACT NO.** \_\_\_\_\_

**NOTE: Applicable requirements are indicated by an “x” in column 4a or explained in column 4b.**

(1) Item No.	(2) Requirements	(3) Applicable Paragraph No.	(4)		
			(a)	(b)	(c)
			Options Selected		Explanation/Remarks
(yes)	(no)				
1.	Glossary	3.2.7			
2.	RPSTL	3.2.8			

NOTE: The above selected requirements tailoring options identified by an “X” in the Options Selected column 4, subcolumn 4(a) or 4(b), or the explanation provided in the Remarks subcolumn 4(c) are a mandatory part of this contract.

COMPLETED BY: \_\_\_\_\_  
(authorized signature)

PUBLICATIONS ACTIVITY: \_\_\_\_\_ DATE: \_\_\_\_\_

Custodian:  
Army - TM

Preparing Activity:  
Army - TM

Review Activities:

Project: TMSS A309

Army - AL, AR, AT, CR, CU, EA, MI



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