

NOTICE OF CHANGE

NOT MEASUREMENT SENSITIVE

MIL-HDBK-1222A
NOTICE 1
15 February 2001

**DEPARTMENT OF DEFENSE
HANDBOOK**

**GUIDE TO THE GENERAL STYLE AND FORMAT OF
U.S. ARMY WORK PACKAGE TECHNICAL MANUALS**

TO ALL HOLDERS OF MIL-HDBK-1222A:

1. THE FOLLOWING PAGES OF MIL-HDBK-1222A HAVE BEEN REVISED AND SUPERSEDE THE PAGES LISTED:

<u>NEW PAGE</u>	<u>DATE</u>	<u>SUPERSEDED PAGE</u>	<u>DATE</u>
ix	15 Feb 01	ix	30 Jul 99
x	30 Jul 99	x	Reprinted without change
3	15 Feb 01	3	30 Jul 99
4	30 Jul 99	4	Reprinted without change
43	30 Jul 99	43	Reprinted without change
44	15 Feb 01	44	30 Jul 99
51	15 Feb 01	51	30 Jul 99
52	15 Feb 01	52	30 Jul 99
57	15 Feb 01	57	30 Jul 99
58	30 Jul 99	58	Reprinted without change
131	30 Jul 99	131	Reprinted without change
132	15 Feb 01	132	30 Jul 99
132a	15 Feb 01	New page	
132b blank	15 Feb 01	New page	
133	15 Feb 01	133	30 Jul 99
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180	15 Feb 01	180	30 Jul 99
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DD Form 1426	15 Feb 01	DD Form 1426	30 Jul 99

2. Changes are indicated by vertical bars in the margin of the page.

3. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

4. Holders of MIL-HDBK-1222A will verify that page changes and additions indicated above have been entered. This notice page will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the handbook is completely revised or canceled.

Custodians:

Army - TM

Review Activities:

Army - AC1, AL, AR, AT,
AV, CR, EA, MI,
PT

Preparing Activity:

Army - TM

Project Number:

TMSS A363

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(Copies of DOD 5200.1-R and Joint Pub 1-02 are available from the National Technical Information Service. U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. Copies of the DOD 5220.22-M and GPO Style Guide are available from the U.S. Government Printing Office, ATTN: Superintendent of Documents, Washington, DC 20402-0001.

2.3 Non-Government publications. The following documents form a part of this document to the extent specified therein. Unless otherwise specified, the issues of the documents that are DOD adopted are those listed in the latest issue of the DODISS, and supplement thereto.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Y14.15	—	Electrical and Electronic Diagrams.
ANSI Y32.10	—	Diagrams, Fluid Power, Graphic Symbols for.
ISO 8879	—	Information Processing - Text and Office Systems - Standard Generalized Markup Language (SGML).

(Copies of the documents listed above are available from the American National Standards Institute Inc., 1430 Broadway, New York, NY 10018-3308.)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME Y14.38	—	Abbreviations and Acronyms
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(Copies of this document are available from the American Society of Mechanical Engineers, 3 park Avenue, New York, NY 10016-5990)

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 91-84	—	Graphic Symbols for Logic Functions.
IEEE 200-75	—	Reference Designators for Electrical and Electronics Parts and Equipments.
IEEE 260-78	—	IEEE Standard Letter Symbols for Units of Measurement.
IEEE 280-85	—	Letter Symbols for Use in Electrical Science and Electrical Engineering.
IEEE 315A-86	—	Graphic Symbols for Electrical and Electronic Diagrams.
IEEE 945-84	—	IEEE Recommended Practice for Preferred Metric Units for Use in Electrical and Electronics Science and Technology.

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(Copies of the documents listed above are available from the Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, NY 10017 or from the Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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

3. DEFINITIONS.

3.1 Acronyms used in this handbook. The acronyms used in this handbook are defined as follows:

AAL	—	Additional Authorization List.
ASCII	—	American Standard Code for Information Interchange.
AMDF	—	Army Master Data File.
AMSC	—	Acquisition Management System Control.
ANSI	—	American National Standards Institute.
ASTM	—	American Society for Testing Materials.
AVIM	—	Aviation Intermediate Maintenance.
AVUM	—	Aviation Unit Maintenance.
BII	—	Basic Issue Items.
BITE	—	Built-in Test Equipment.
BOI	—	Basis of Issue.
CAGEC	—	Commercial and Government Entity Code.
CALS	—	Continuous Acquisition and Life-cycle Support.
CCSS	—	Commodity Command Standard System.
CGM	—	Computer Graphics Metafile.
COEI	—	Components of End Item.
DFAR	—	Defense Federal Acquisition Regulation Supplement.
DID	—	Data Item Description.
DMWR	—	Depot Maintenance Work Requirement.
DOD	—	Department of Defense.
DODISS	—	Department of Defense Index of Specifications and Standards.
DS	—	Direct Support.
DTD	—	Document Type Definition.
IETM	—	Interactive Electronic Technical Manual.
EIC	—	End Item Code.
EIR	—	Equipment Improvement Recommendation.
EDS	—	Electronic Display System
ESD	—	Electrostatic Discharge.
FAR	—	Federal Acquisition Regulation.
FDEP	—	Final Draft Equipment Publication.
FGC	—	Functional Group Code.
FOSI	—	Formatting Output Specification Instance.
FRC	—	Final Reproducible Copy.
GL	—	Grade Level.
GPO	—	Government Printing Office.
GS	—	General Support.

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4.9.11 Placement of text and illustrations.4.9.11.1 Text formatting requirements.

a. Preferred text format for 8-1/2 by 11-inch manuals is single column (page wide), although double column can be used. Both single and double column formatted WPs can be included in a single TM if it would make the data more readable or comprehensible, however, both formats should not be used in the same chapter. Text is single spaced (double spaces between procedural steps).

b. The first line of a paragraph should not be located at the bottom of the page or column. The last line of a paragraph should not be placed at the top of a new page. Do not place the title or header on the last line of a page or column. Widows and orphans are not allowed.

4.9.11.2 Placement of text and related illustrations.

a. Do not place procedural steps in illustrations.

b. Place text and illustrations in such a manner that will conserve space without crowding or degrading the usability or clarity of the material. Avoid blank spaces whenever possible. Whenever possible, place illustrations on the same or facing page of associated text. If this is not possible (for example, more than one full-page illustration), place the illustration as close to the related text as possible.

4.9.11.2.1 Placement of text and related illustrations for pocket TMs. Place text for pocket-size manuals on the right-hand pages with supporting illustration on the facing left-hand pages.

4.9.11.3 Text wrapping. Always position text within the required image area. Do not wrap text around illustrations. (Refer to figure 33.)

4.9.11.4 Illustration placement options. Illustrations are placed either immediately above or below the supporting text or the procedural step or group of steps. Illustrations may float on a page to reduce the white space on a page. If there is not enough room on a page to place a supporting illustration, place the illustration on a facing page, if possible.

Author's Note: When developing an SGML document instance, use the following words to indicate placement options for digital illustrations: "Above", "Below", "Immediate (default)", "Facing", and "Float". Tag the appropriate position in the text with the correct option. (Refer to figure 34.)

a. Use the "Above" reference to place the illustration above the referenced text or steps.

b. Use the "Below" reference to place the illustration below the referenced text or steps.

c. Use the "Intermediate (default)" reference to place the illustration immediately below the referenced text or steps.

d. Use the "Facing" reference to place the illustration on the page facing the referenced text or steps.

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e. Use the “Float” reference to place the illustration anywhere on the page with the referenced text or steps.

For additional information on the methods used to indicate how to place illustrations in a document instance, refer to MIL-STD-2361.

4.9.11.5 Multiple tasks using same illustrations. When two separate tasks appear on the same page one illustration can be used to support both tasks if space permits.

4.9.11.6 Repeating illustrations. Illustrations are not repeated unless necessary to support multipage descriptions of tasks or to support a different requirement in another part of the TM.

4.10 Style.

4.10.1 Abbreviations and acronyms.

a. At the first use of abbreviations and acronyms, spell out words completely and place the abbreviation or acronym in parentheses immediately after the word(s). When a phrase is abbreviated as an acronym, capitalize the first letter of each word and do not separate letters in the acronym by periods (for example, “Repair Parts and Special Tools List (RPSTL)”). Abbreviations and acronyms accepted as words, such as radar, sonar, laser, etc., need not be spelled out.

b. Do not create new abbreviations or acronyms to duplicate those presently listed in ASME Y14.38. Abbreviations and acronyms may be plural or possessive.

c. Define all nonstandard abbreviations and acronyms (except acronyms for Electrostatic Discharge (ESD) and Hardness-Critical Processes (HCP)) in the list of abbreviations/acronyms paragraph of the general information WP.

d. Spell out abbreviations and acronyms used in tables, but not found in the text or other portion of the TM, in a footnote to the applicable table. Spell out abbreviations and acronyms used in illustrations or figures, but not found in the text or other portion of the TM, in a note on the applicable illustration or figure.

e. When abbreviations or acronyms are used as markings on equipment (placarding), use the same abbreviation or acronym in the TM.

4.10.2 Equations. The use of equations should be held to the minimum use required by the needs of the TM user. (Refer to figure 35.)

4.10.2.1 Symbols.

a. Any enclosing symbol, such as parentheses () or braces { }, are prepared just wide enough to align with the highest and lowest points of the matter enclosed. Similarly, any dividing or covering element, such as the horizontal division symbol (_____) or the top of the radical sign $\sqrt{\quad}$, is prepared just wide enough to align with the right and left outer edges of the matter divided or covered. For example,

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Author's Note: The typical examples provided for introductory matter and planning information (Figures 37 through 40) illustrates a suggested method of displaying the required content information. Depending on the type of presentation system used the required data may be displayed in various formats. It is recommended that the proponent activity be provided with samples of the display formats prior to finalizing the display format of this data.

5.11.1.1 Introductory matter and planning information. As applicable, the following introductory matter should be included.

- a. IETM installation data.
- b. CD content frame
- c. Revision summary frame.
- d. Identification information.
- e. List of IETM contents.
- f. "How To Use This IETM" information.
- g. General information work package.
- h. General information work package (**Preventive Maintenance Services Manual only**).
- i. General information work package (**Phased Maintenance Manual only**).

Author's Note: Refer to MIL-STD-40051A for detailed requirements for the preparation of general information.

Figure 37a shows how the introductory frames (b through e above) should be assembled on the CD.

5.11.1.1.1 IETM installation data. Information on installing the CD-ROM on the computer and launching the IETM should be prepared. Refer to MIL-STD-40051A. Instructions for uninstalling the CD-ROM should also be prepared. The IETM installation data should be included as part of the packaging of the CD on the CD cover or flyleaf. See appendix A. It should not be included on the CD itself.

5.11.1.1.2 CD content frame. When more than one IETM is resident on a CD, the first information that appears on the EDS is the CD content frame. This frame provides the IETM number and title of all technical manuals that are contained on the CD. Refer to figure 37 for a typical example of a CD content frame.

5.11.1.1.3 Revision summary frame. When a change/revision to a IETM is issued, a revision summary frame should be displayed containing a list of work packages by title that have been revised. For each work package listed, a brief description of the major changes should be provided. Refer to figure 38 for a typical example of a revision summary frame. The revised work packages listed on the revision summary frame should be linked to the work packages containing the revised data.

5.11.1.1.4 Identification information (title frame). Identification information should be prepared for each IETM and DMWR. Refer to figure 39 for a typical example of an identification information frame.

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5.11.1.1.5 List of IETM contents. A list of IETM contents should be prepared. The subject matter of the IETM should be in alphabetical order by system/subsystem, equipment. Official nomenclature from the parts information database should be used. Refer to figure 40 for a typical example of a list of contents frame.

5.11.1.1.6 "How To Use This IETM" information. Information to familiarize the user with special or unusual features of the IETM should be prepared. Refer to MIL-STD-40051A.

5.11.1.1.7 General information work package. Each IETM should include general information about the IETM and about the weapon system/equipment being covered. Information about the level of maintenance information provided in the IETM, the model numbers and names of the equipments being covered and a brief description of the purpose of the equipment should be included. Refer to MIL-STD-40051A for detailed requirements for general information.

5.11.2 Description and theory of operation. Description and theory of operation data is divided into the following specific types of work packages, as applicable to the weapon system/equipment.

- a. Equipment description and data work package.
- b. Theory of operation work package.

5.11.3 Operator instructions. Operator instructions data is divided into the following specific work packages, as applicable to the weapon system/equipment.

- a. Description and use of controls and indicators work package.
- b. Operation under usual conditions work package(s).
- c. Operation under unusual conditions work package(s).
- d. Stowage and decal/data plate guide work package.
- e. On-vehicle equipment loading plan work package.

5.11.4 Troubleshooting procedures. Troubleshooting procedures data is divided into the following specific work packages, as applicable to the weapon system/equipment.

- a. Troubleshooting index work package.
- b. Preshop analysis work package (**DMWRs only**).
- c. Component checklist work package (**DMWRs only**).
- d. Operational checkout and troubleshooting work package.

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5.12.3 Warnings, cautions, and notes.5.12.3.1 Use and placement.

a. A warning precedes the text of any procedure involving a clear danger to the person doing that procedure. A caution precedes the text of any procedure involving a clear risk of damage to the equipment. A note, used to highlight essential procedures, conditions, or statements may either precede or follow the text. If multiple warnings, cautions, or notes apply to the same text, the warnings appear first, cautions second, notes last.

b. Warnings, cautions, and notes should not be numbered. When a warning, caution, or note consists of two or more paragraphs, the header **WARNING**, **CAUTION**, or **NOTE** should not be repeated above each paragraph. Warnings, cautions and notes on unrelated topics may not be contained under one heading.

c. When warnings or cautions exist in separate categories for the same set of technical information, they should be successively displayed in decreasing order of severity: Warnings first, followed by cautions. Warnings or cautions in the same category should be successively displayed. However, there should be no requirement to determine an order of importance within the same category. When related warnings or cautions of the same category are for the same block of technical information, it is permissible to group them within a common alert border but they should be visually distinct. In such a case the title indicates the combined danger.

5.12.3.1.1 Display requirements for warnings, cautions, and notes. Warnings, cautions, and notes should be prominently displayed and treated as an alert. The warning, caution, and note alert should stay active as long as the condition exists. The alert remains displayed until the user manually acknowledges the alert. The warnings and cautions are contained within a border. Preferred styles and formats for borders are provided in figure 45.

5.12.3.2 Hazardous material warnings. Procedures prescribed for the operation and maintenance of equipment are consistent with the safety standards established by the Occupational Safety and Health Act (OSHA) Public Law 91-596 and Executive Order 12196. When exposure to hazardous chemicals or other adverse health factors or use of equipment cannot be eliminated, guidance pertaining to the exposure is included in the TM. A list of personnel protective devices should also be included. Hazardous materials warnings are presented in the standard warning format without an icon (as described above in 5.12.3.1.1). Hazards that result from a combination of materials must clearly be identified to indicate that mixing or combining the materials creates the hazard.

5.12.4 Work packages. Each work package includes the work package identification information described in MIL-STD-40051-1A through MIL-STD-40051-6A, as applicable. Work package identification information should be displayed in the title bar area of the user's EDS.

5.12.4.1 Work package initial setup information. Initial setup information (Refer to figure 46) should be included in each work package immediately following the WP identification information and prior to the initial task step. It provides the maintenance technician with general information, equipment, parts, material, and authorized personnel required to perform and complete all the maintenance tasks included in the work package. For initial setup information requirements for specific types of work packages, refer to MIL-STD-40051-2A through MIL-STD-40051-4A.

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5.12.4.2 Work package identification number. For data base retrieval purposes, a unique number should be assigned to each work package. This WP identification number will not appear when viewed on the user's EDS display page. If LSA/LMI has been developed, the LCN numbers assigned to the information or task data may be used to identify the WP. If LSA/LMI data is not available, optional identification numbers will be assigned by the acquiring activity in accordance with the requirements contained in MIL-STD-40051A.

5.12.4.3 Maintenance tasks and descriptive information. Procedural maintenance tasks or descriptive information contained in a WP should have a title. The title should be identical to the title in the list of contents. The words "END OF WORK PACKAGE" should be placed below the last data item (i.e., text, illustration, etc.) at the end of any WP containing procedural tasks.

5.12.5 Paragraphs.

5.12.5.1 Paragraph numbering. Paragraphs within a WP should be unnumbered.

5.12.5.2 Paragraph titles. Paragraphs may have titles. Paragraph titles should be in capital letters.

5.12.6 Procedural steps. Procedural steps should be used to present detailed step-by-step instructions for performing an operational or maintenance task. Subordinate steps may be used to differentiate an expert step from a novice step. Unless otherwise authorized by the acquiring activity, only one expert step at a time should appear on the user's EDS. When subordinate steps are used in combination with an expert step, the subordinate steps should appear indented under the expert step on the user's EDS. Novice subordinate steps should be scrollable on the user's EDS.

5.12.6.1 Procedural step numbering. Unless otherwise specified by the acquiring activity, procedural steps and substeps should be numbered. If numbering is used the following guidelines should be followed.

- a. Procedural steps should be numbered consecutively with Arabic numerals.
- b. If subordination is used to indicate novice steps, substep letters (a, b, c, etc.) should be used.

5.12.6.2 Procedural step titles. Procedural steps should not have titles.

5.12.7 Tables and lists.

5.12.7.1 Table locations. Placement of tables should be in accordance with MIL-PRF-87268.

5.12.7.2 Table numbering. Tables should not be numbered.

5.12.7.3 Table titles. In general, tables should have a title. The table title should appear above the table. The table title should also appear in the title bar. If a table is scrollable, the table title should have a "sticky" table title.

5.12.7.4 Table format. Tables designated as "standard information" tables in MIL-STD-40051A have no deviations to the number of columns and the titles in the column headings. The format and table headings are automatically generated by the applicable DTD and FOSI or style sheet used for the functional information.

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In a given amount of time, t , mass moves from one side of the shock front to the other side. By definition, mass, m , is given as function of density, ρ , and volume, V , by the equation:

$$m = \rho V \quad \text{EQ 1}$$

The volume, can be expressed in terms of area, A , and length, L , by the equation:

$$V = AL \quad \text{EQ 2}$$

The length, L , is the distance a particle travels in our assumed time interval, t , times the velocity, v :

$$L = tv \quad \text{EQ 3}$$

By figure 3 the velocity can be seen to equal:

$$v_0 = (v - u_0) \quad \text{EQ 4}$$

and

$$v_1 = (v - u_1) \quad \text{EQ 5}$$

=====

By equations 1 through 5:

momentum change/ t - [$\rho_1 A t u_1 (v - u_1) - \rho_0 A t u_0 (v - u_0)$]/ t

EQ 9

FIGURE 36. Example of numbering equations.

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—	CD CONTENTS		
<p>CD CONTENTS</p> <p>This CD contains the following IETMs:</p> <p style="padding-left: 40px;">TM 11-5821-260 - Organizational, Direct Support and General Support Maintenance Repair/RPSTL, Radio Set AN/ARC-115</p> <p style="padding-left: 40px;">TM 11-5841-286 - Direct Support Maintenance/RPSTL, Radio Set AN/ARC-164 (V) 12 and Radio Set AN/ARC-164 (V) 16</p> <p style="padding-left: 40px;">TM 11-6665-236 - General Support Maintenance, Radio set AN/PDR-75</p>			

FIGURE 37. Example of a CD content frame.
(See figure 37a for assembly guidance)

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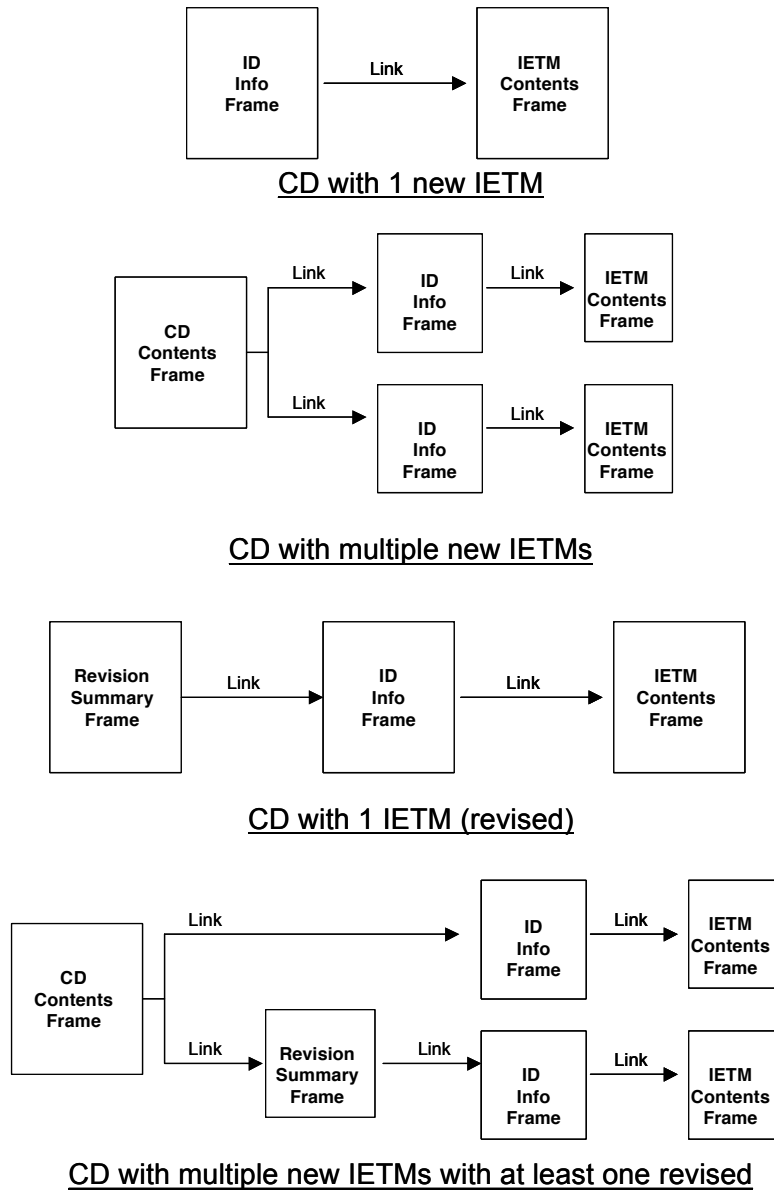


FIGURE 37a. Examples of assembly of introductory Frames.

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REVISION SUMMARY	
REVISION SUMMARY	
The following work packages have been changed in this IETM:	
<u>WP TITLE</u>	<u>REASONS FOR CHANGE</u>
Generator Assembly AM1 Removal and Installation.	Addition of a new electrical connector.
10-AMP Cold Start System Circuit Breaker on Driver Lip Shuts Off Troubleshooting.	Additional test equipment required to perform Troubleshooting.
[]	[]

FIGURE 38. Example of a revision summary frame.
(See Figure 37a for assembly guidance)

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IDENTIFICATION INFORMATION	
SECURITY CLASSIFICATION	
	TM NUMBER
TECHNICAL MANUAL	
TM Title	
Subtitle	
NSN	
EIC	
Illustration	
<u>Availability Statement</u>	
<u>Supersedure Notice</u>	
<u>Disclosure Notice</u>	
<u>Distribution Statement</u>	
<u>Export Control Notice Warning</u>	
<u>Destruction Notice</u>	
<u>Reproduction Notice</u>	
<u>Copyright Information</u>	
SERVICE NOMENCLATURE	
	TM DATE
<input type="button" value="OK"/>	

FIGURE 39. Example of identification information (title frame).
(See Figure 37a for assembly guidance)

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LIST OF IETM CONTENTS	
SYSTEM/SUBSYSTEMS	
<p> AH-64D GENERAL INFORMATION AIR VEHICLE LONGBOW AIRCRAFT GENERAL MAINTENANCE AIRCRAFT STORAGE AIRCRAFT SURVIVABILITY EQUIPMENT AIRFRAME STRUCTURE APU SYSTEM ARMAMENT SYSTEM COMMUNICATION SYSTEM CONTROLS/DISPLAYS SYSTEM DATA MANAGEMENT SYSTEM DRIVES SYSTEM ELECTRICAL SYSTEM ACFT HARNESS SET INTERNAL AND EXTERNAL LIGHTING INSTALLATION LIGHT FORMATION LIGHT NAVIGATIONAL LIGHT NAVIGATIONAL LIGHT NAVIGATIONAL LIGHT-ANTI-COLLISION LIGHT-ANTI-COLLISION LIGHT-COCKPIT, UTILITY LIGHTING DISTRIBUTION PANEL </p>	<p> LIGHT FORMATION, FUSELAGE, REMOVE AND INSTALL LIGHT FORMATION, LEFT HAND WING, REMOVE AND INSTALL LIGHT FORMATION, RIGHT HAND WING, REMOVE AND INSTALL LIGHT FORMATION, VERTICAL STABILIZER, REMOVE AND INSTALL </p>

FIGURE 40. Example of an IETM contents frame.
(NOTE: See figure 37a for assembly guidance)

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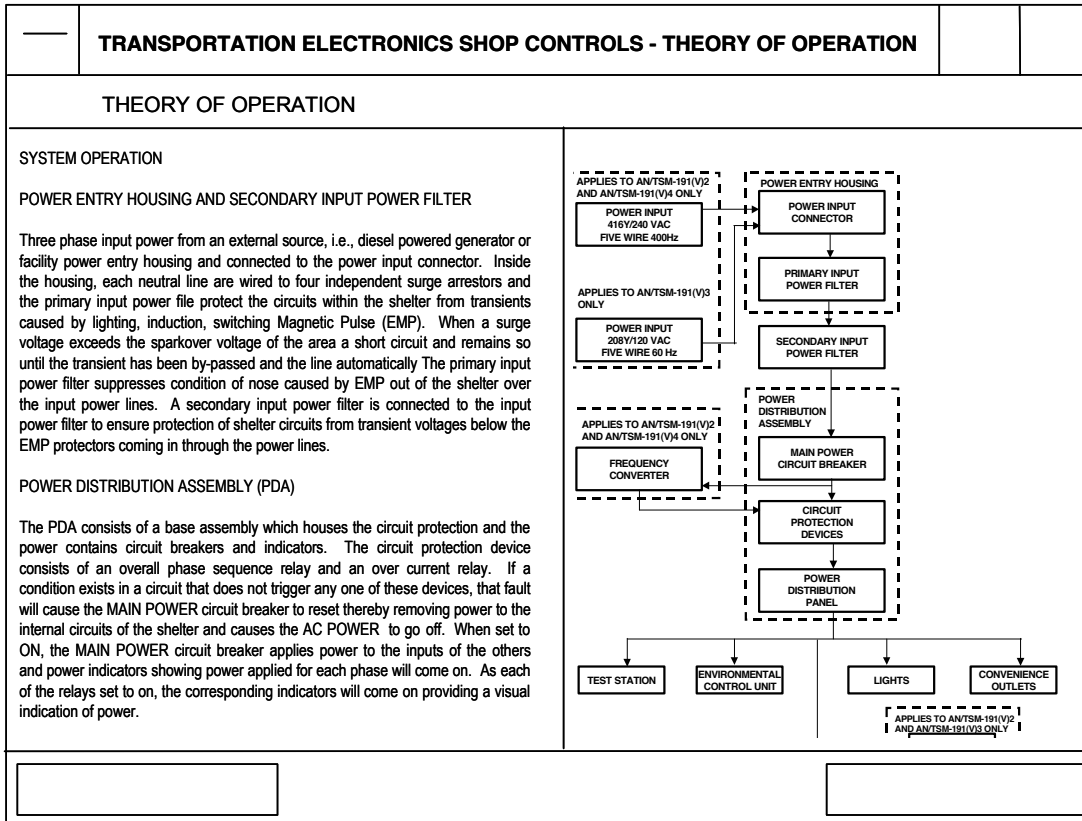


FIGURE 41. Example of descriptive information.

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APPENDIX B

EXAMPLES OF TYPES OF GRAPHICS USED IN
WORK PACKAGE TECHNICAL MANUALS

B.1 SCOPE

B.1.1 Scope. This appendix provides examples of the various types of graphics used in the development of both page-based and frame-based work package technical manuals. All graphics developed in accordance with this appendix should be delivered in one of the three graphic formats: MIL-PRF-28003, Computer Graphic Metafile (CGM); MIL-PRF-28002, Continuous Acquisition and Life-cycle Support (CAL S) Raster; or MIL-PRF-28000, Initial Graphics Exchange Specification (IGES). Other commercial graphic formats are acceptable if approved by the acquiring activity.

- a. The CGM file format is the preferred graphics file format.
- b. All graphics files for a particular TM should be applied in the same graphics format if practical. Otherwise, files may be delivered in any combination of the allowable formats.
- c. Appropriate header and identification information should be included in each graphics file. Refer to the applicable specification for the specific requirements.

B.2 APPLICABLE DOCUMENTS.

The applicable document information in section 2 of this handbook applies to this appendix.

B.3 DEFINITIONS.

The definitions in section 3 of this handbook apply to this appendix.

B.4 GENERAL REQUIREMENTS

B.4.1 Elements of illustrations.

B.4.1.1 Border rules and boxes. Border rules and boxes should not be used for single illustrations, but are used to separate multisection illustrations on the same page or for locator/detail views. (Refer to B.5.8, B.5.12, and B.5.13, and to figure B-1.) For IETMs, border rules and boxes do not apply.

B.4.1.2 Use of the human figure. When necessary, illustrations may include a human figure or parts of the body. The following stipulations apply.

- a. Jewelry should not appear in any illustration.
- b. The illustrated human figure should not obscure necessary details of the item(s) being illustrated.
- c. The clothing for the human figure should be illustrated according to samples provided by the acquiring activity.

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- d. A cross-section of races should be used.
- e. A cross-section of sexes should be used except when a task is gender specific.

B.4.1.3 Credit lines.

- a. The photographer's or illustrator's name should not appear on any illustration.
- b. A manufacturer's name, symbol, or trademark should not appear on illustrations for the purpose of identifying the illustration.

B.4.1.4 Callouts. Index numbers, reference designators, nomenclature, leader lines, sweep arrows, legends, and other identifiers are used, when necessary, to identify significant features.

- a. Use leader lines or sweep arrows to help the readers orient themselves with respect to the illustration and to provide directional movement in tasks.
- b. Callouts are prepared by a mechanical or electronic method, rather than by freehand lettering.
- c. Callouts and their leader lines should be easily distinguishable from components and other lines of the illustration.
- d. Callout leader lines or arrows are straight lines where possible. Don't allow leader lines to cross each other.
- e. When practical, all callouts should be placed outside the boundaries of the parts illustrated so that the parts are not obscured.
- f. Use a type size no smaller than 8 points and no larger than 10 points.
- g. Use uppercase lettering for nomenclature callouts.
- h. Nomenclature may appear on illustrations only if it can be done without crowding or reducing type size so as to make reading difficult. (Use diagram callouts of no smaller than 8 points.)
- i. When an item is first illustrated and its location has not yet been specified, a simplified general locator illustration may be used to identify the location of the equipment item within the system. (Refer to figure B-2.)

B.4.1.4.1 Index numbers. Index numbers start with Arabic numeral 1 and continue consecutively. For page-based TMs, index numbers continue in sequence from one sheet to another in a set of multisheet illustrations.

Author's Note: For page-based TMs, when a series of illustrations are used within the same informational, operational or maintenance work package (e.g., theory, operator instruction, or removal procedure), index numbers should continue from one illustration in that series to the next, however, if an item that already has been assigned an index number is used in more than one illustration in that series, it must retain the same index number.

- a. Index numbers should be in clockwise sequence (beginning at 11 o'clock), disassembly sequence, or in order of mention in the text.

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b. To show orientation, use arrows or text (i.e., "Rotated 180 degrees.") as it relates to the main illustration.

B.5.10 Foldout and multisheet illustrations (Page-based TMs only). When specified by the acquiring activity, foldout/multisheet illustrations may be prepared. Foldout-foldup pages are not permitted. When an illustration must be larger than a single TM page for clarity or to be easily viewed by the TM user, multisheet and foldout presentation should be considered. Multisheet illustrations are the preferred format. When an illustration that normally would be presented as a foldout is instead prepared as a page size multisheet continuous flow diagram (refer to figure B-7), the following guidelines should be followed:

- a. Allowance should be made on each page for the termination of data within a 7-1/2-inch image area.
- b. Data (e.g., nomenclature or symbols), with the exception of horizontal lines, should be placed no closer than 1/8-inch from the image area limit after reduction.
- c. Lines should not be vertically displaced during the transition from the image area on one sheet to the next sheet.

B.5.10.1 Multisheet RPSTL illustrations. Multisheet RPSTL illustrations should only be used as specified by the acquiring activity. If used, they should be limited to 3 or 4 sheets. RPSTL information should not be grouped into multisheet illustrations so as to disrupt the top-down breakdown structure.

B.5.11 Exploded views. An exploded view (refer to figure B-8) is an illustration that shows a unit separated or disassembled but with all the parts positioned in correct relationship to each other. Exploded views are used in Repair Parts and Special Tools Lists (RPSTLs) and, when practical, to support removal/installation and disassembly/reassembly instructions. The following guidelines are recommended to ensure clarity of presentation:

- a. Index numbers, keyed to a legend, list, or text reference, can be used to identify parts.
- b. No more than 20 items should be called out in a 7- by 10-inch area if nomenclature is used.
- c. Whenever possible, the average maximum number of callouts within a 7- by 10-inch area should be 70. All callouts (numerals) should be outside the boundaries of the parts being illustrated.
- d. If the criteria of subparagraphs b. and c. above cannot be met, use detail views of the figure.
- e. If the equipment is of such a nature that it cannot be adequately illustrated by a single exploded view, it may be exploded by subassemblies as separate views. In such cases, locator views can be used, as needed, to orient the user to the proper area. (Refer to B.5.12.)
- f. Items should be numbered sequentially, starting with the number 1 (in clockwise, disassembly, or in the order mentioned in text sequence, depending upon how the exploded view is used).
- g. To assist in location, the relationship of all parts in an exploded view should be clearly indicated by axis lines.
- h. Limit the level of detail to that required to positively identify parts. Excessive detail makes the illustration complex and does not contribute to useability.

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- i. Use straight (not dog-legged) arrowhead leader lines at all times, if possible.
- j. Callout leader lines should not cross each other.
- k. Use broken lines for parts shown merely for reference, but not called out. Ensure that the broken lines are legible.
- l. Center (axis) lines should be used on exploded views to show parts relationship.

B.5.12 Locator views. When required by the complexity of the equipment or to assist in user orientation of part(s), illustrations should contain a locator view. The overall equipment or item is shown with the area covered by the view highlighted. (Refer to figure B-2.)

B.5.13 Detail views. A detail view of a part or subassembly should be illustrated when the subject matter cannot be clearly illustrated in the main view. The desired subject matter may be identified with detail letter(s), index number(s), or a hotspot on the main view and illustrated, as required, in the detail. (Refer to figure B-2.)

B.5.14 Scanned images. Scanned images and photographs should be of such quality and resolution so as to meet reproduction and display requirements.

B.5.15 Cartoons. Do not use cartoon-type drawings and other similar visual techniques unless specified otherwise by the acquiring activity. When used, such drawings should not include copyrighted cartoon characters and must serve a functional purpose.

B.5.16 Diagrams. The following paragraphs describe various types of diagrams that may be required to support the operation and maintenance data contained in the TM.

B.5.16.1 Specification requirements. Use the following specifications as applicable.

TABLE IV. Specifications Requirements for Graphics.

Subject	Equipment Covered	Specification
Abbreviations	All	ASME Y14.38
Drafting Practices	Mechanical Electrical and Electronic	ANSI Y14.15-1966 (R1973)
Engineering Drawings	All	MIL-STD-100
Graphic Symbols	Electrical and Electronic Mechanical Digital (Logic) Fluid Power	IEEE 315A-86, IEEE 280-85 MIL-STD-17 IEEE 91-84 ANSI Y32.10
Reference Designators	Electrical and Electronic	IEEE 200-75
Unit Symbols	All	IEEE 260-78
Logic	All	IEEE 91-84

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C.5.5 Numbering the list of effective pages. The list of effective pages should have a page number "A" for the first page and "B, C, D, etc." for additional pages.

C.5.6 List of Effective Pages for RPSTLS. A list of effective pages for a RPSTL is prepared similarly to other manuals. For RPSTLS prepared entirely in work package format, you list the work package numbers. See figure C- 4 for a sample of a list of effective pages for a RPSTL in work package format. If you prepare only the Introduction in work package format and the remainder of the RPSTL is a CCSS dump you list the front matter, the introduction work package with the number of pages in the introduction work package in parentheses adjacent to the work package number, and then for the remainder of the pages you list figure numbers and page numbers. The figure number should be listed first. For example, if you have 3 figures, you would list fig 1-1, page 1-1, fig 2-1, page 2-1, fig 3-1, page 3-1, etc. See figure C-5 for an example of this type of RPSTL list of effective pages.

C.5.7 Multi-service manuals. For multi-service manuals, the abbreviation of the acquiring service (e.g., USA, USN, USMC, or USAF) will be placed in the lower right-hand corner of the page. See figure C-2 for sample.

C.5.8 Multi-volume manuals. A list of effective pages covering all volumes should be prepared and included in volume 1. List each volume number followed by the pages in that volume. See figure C-6 for sample of an overall list of effective pages for a multi-volume manual that goes in part 1. Each volume, except volume 1, should include a list of effective pages listing the pages provided in that particular volume.

C.5.9 Dates of Issue for changes. At the top of the list of effective pages, list the date of the basic manual and the dates of each change listed in the change number column.

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TM 3-1040-286-12&P

LIST OF EFFECTIVE PAGES/WORK PACKAGES

Date of issue for the original manual is:

Original 13 Jul 98

**TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 20 AND TOTAL
NUMBER OF WORK PACKAGES IS 35, CONSISTING OF THE FOLLOWING:**

Page/WP No.	*Change No.	Page/WP No.	*Change No.
Title	0	WP 0016 00 (4 pgs)	0
Warnings	0	WP 0017 00 (2 pgs)	0
i-iii	0	WP 0018 00 (8 pgs)	0
iv blank	0	WP 0019 00 (12 pgs)	0
Chp 1 title page	0	WP 0020 00 (2 pgs)	0
WP 0001 00 (4 pgs)	0	WP 0021 00 (2 pgs)	0
WP 0002 00 (10 pgs)	0	Chp 7 title page	0
WP 0003 00 (2 pgs)	0	WP 0022 00 (2 pgs)	0
WP 0004 00 (2 pgs)	0	WP 0023 00 (4 pgs)	0
Chp 2 title page	0	WP 0024 00 (6 pgs)	0
WP 0005 00 (2 pgs)	0	WP 0025 00 (4 pgs)	0
WP 0006 00 (6 pgs)	0	WP 0026 00 (4 pgs)	0
WP 0007 00 (2 pgs)	0	WP 0027 00 (4 pgs)	0
Chp 3 title page	0	WP 0028 00 (4 pgs)	0
WP 0008 00 (2 pgs)	0	WP 0029 00 (4 pgs)	0
Chp 4 title page	0	WP 0030 00 (4 pgs)	0
WP 0009 00 (12 pgs)	0	WP 0031 00 (6 pgs)	0
Chp 5 title page	0	WP 0032 00 (6 pgs)	0
WP 0010 00 (2 pgs)	0	WP 0033 00 (2 pgs)	0
WP 0011 00 (2 pgs)	0	WP 0034 00 (2 pgs)	0
Chp 6 title page	0	WP 0035 00 (2 pgs)	0
WP 0012 00 (20 pgs)	0	I-1 thru I-14	0
WP 0013 00 (30 pgs)	0		
WP 0014 00 (30 pgs)	0		
WP 0015 00 (2 pgs)	0		

*Zero in this column indicates an original page.

A

FIGURE C-1. Example of a list of effective pages for a new publication.

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MIL-HDBK-1222A (TM)

TM 3-1040-286-12&P

INSERT LATEST CHANGED PAGES/WORK PACKAGES. DESTROY SUPERSEDED DATA.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: The portion of text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by a vertical line adjacent to the title.

Date of issue for the original manual and changed pages/work packages are:

Original 13 Jul 98
Change 1 10 Dec 98
Change 2 2 Mar 99

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 20 AND TOTAL NUMBER OF WORK PACKAGES IS 35, CONSISTING OF THE FOLLOWING:

Page/WP No.	*Change No.	Page/WP No.	*Change No.
Title	1	WP 0016 00 (4 pgs)	0
Warnings	0	WP 0017 00 (2 pgs)	1
i-iii	2	WP 0018 00 (8 pgs)	1
iv Blank	0	WP 0019 00 (12 pgs)	1
Chp 1 title page	0	WP 0020 00 (2 pgs)	2
WP 0001 00 (4 pgs)	1	WP 0021 00 (2 pgs)	0
WP 0002 00 (10 pgs)	1	Chp 7 title page	0
WP 0003 00 (2 pgs)	0	WP 0022 00 (2 pgs)	0
WP 0004 00 (2 pgs)	2	WP 0023 00 (4 pgs)	2
Chp 2 title page	0	WP 0024 00 (6 pgs)	1
WP 0005 00 (2 pgs)	0	WP 0025 00 (4 pgs)	1
WP 0006 00 (6 pgs)	2	WP 0026 00 (4 pgs)	0
WP 0007 00 (2 pgs)	1	WP 0027 00 (4 pgs) Deleted	2
Chp 3 title page	0	WP 0028 00 (4 pgs)	0
WP 0008 00 (2 pgs)	0	WP 0029 00 (4 pgs)	0
Chp 4 title page	0	WP 0030 00 (4 pgs)	1
WP 0009 00 (12 pgs)	0	WP 0031 00 (6 pgs)	2
Chp 5 title page	0	WP 0032 00 (6 pgs)	0
WP 0010 00 (2 pgs)	0	WP 0033 00 (2 pgs)	1
WP 0011 00 (2 pgs)	1	WP 0034 00 (2 pgs)	0
Chp 6 title page	0	WP 0034 01 (4 pgs) Added	2
WP 0012 00 (20 pgs)	2	WP 0035 00 (2 pgs)	2
WP 0013 00 (30 pgs)	0	I-1 thru I-14	0
WP 0014 00 (30 pgs)	2		
WP 0015 00 (2 pgs)	0		

*Zero in this column indicates an original page.

A

Change 2 USAF

FIGURE C-2. Example of a list of effective pages for a manual with changes.

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MIL-HDBK-1222A (TM)

TM 3-1040-284-12

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: This manual supersedes TM 3-1040-284-12 dated 15 Mar 89.

Date of issue for revision is:

Original 16 Sep 98

**TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 20 AND TOTAL
NUMBER OF WORK PACKAGES IS 35, CONSISTING OF THE FOLLOWING:**

Page/WP No.	*Change No.	Page/WP No.	*Change No.
Title	0	WP 0016 00 (4 pgs)	0
Warnings	0	WP 0017 00 (2 pgs)	0
i-iii	0	WP 0018 00 (8 pgs)	0
iv blank	0	WP 0019 00 (12 pgs)	0
Chp 1 title page	0	WP 0020 00 (2 pgs)	0
WP 0001 00 (4 pgs)	0	WP 0021 00 (2 pgs)	0
WP 0002 00 (10 pgs)	0	Chp 7 title page	0
WP 0003 00 (2 pgs)	0	WP 0022 00 (2 pgs)	0
WP 0004 00 (2 pgs)	0	WP 0023 00 (4 pgs)	0
Chp 2 title page	0	WP 0024 00 (6 pgs)	0
WP 0005 00 (2 pgs)	0	WP 0025 00 (4 pgs)	0
WP 0006 00 (6 pgs)	0	WP 0026 00 (4 pgs)	0
WP 0007 00 (2 pgs)	0	WP 0027 00 (4 pgs)	0
Chp 3 title page	0	WP 0028 00 (4 pgs)	0
WP 0008 00 (2 pgs)	0	WP 0029 00 (4 pgs)	0
Chp 4 title page	0	WP 0030 00 (4 pgs)	0
WP 0009 00 (12 pgs)	0	WP 0031 00 (6 pgs)	0
Chp 5 title page	0	WP 0032 00 (6 pgs)	0
WP 0010 00 (2 pgs)	0	WP 0033 00 (2 pgs)	0
WP 0011 00 (2 pgs)	0	WP 0034 00 (2 pgs)	0
Chp 6 title page	0	WP 0035 00 (2 pgs)	0
WP 0012 00 (20 pgs)	0	I-1 thru I-14	0
WP 0013 00 (30 pgs)	0		
WP 0014 00 (30 pgs)	0		
WP 0015 00 (2 pgs)	0		

*Zero in this column indicates an original page.

A

FIGURE C-3. Example of a list of effective pages for a revised manual.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL		
INSTRUCTIONS		
1. The preparing activity must complete blocks 1,2,3, and 8. In block 1, both the document number and revision letter should be given. 2. The submitter of this form must complete blocks 4,5,6, and 7. 3. The preparing activity must provide a reply within 30 days from receipt of this form.		
NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.		
I RECOMMEND A CHANGE	1.DOCUMENT NUMBER MIL-HDBK-1222A(TM)	2.DOCUMENT DATE (YYMMDD) 990730
3.DOCUMENT TITLE Guide to the General Style and Format of U.S. Army Work Package Technical Manuals		
4.NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)</i>		
5.REASON FOR RECOMMENDATION		
6.SUBMITTER		
a.NAME <i>(Last, First, Middle Initial)</i>	b.ORGANIZATION	
c.ADDRESS <i>(Include Zip Code)</i>	d.TELEPHONE <i>(Include Area Code)</i> (1)Commercial (2)AUTOVON <i>(If applicable)</i>	7.DATE SUBMITTED (YYMMDD)
8.PREPARING ACTIVITY		
a.NAME USAMC Logistics Support Activity	b.TELEPHONE <i>(Include Area Code)</i> (1)Commercial (2)AUTOVON (205) 955-0852 645-0852	
c.ADDRESS <i>(Include Zip Code)</i> ATTN: AMXLS-AP Redstone Arsenal, AL 35898-7466	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, Virginia 22060-6221 Telephone (703) 767-6888 DSN 427-6888	