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DETAIL SPECIFICATION

MANUALS, TECHNICAL - WORK UNIT CODE



Comments, suggestions, or questions on this document should be addressed to AFLCMC/HIAM Technical Data Section, 4170 Hebble Creek Road, Bldg. 280, Door 15, Area A, Wright-Patterson AFB, OH 45433-5653 or emailed to SGMLsupport@us.af.mil. Since contact information can change, the currency of this address information should be verified using the ASSIST Online database at <https://assist.dla.mil/>.

AMSC N/A

AREA TMSS

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

1 SCOPE.

1.1 Scope. This specification prescribes the requirements for the development and preparation of Work Unit Code (WUC) Technical Manuals (TMs) for Air Force equipment. This specification provides for electronic delivery of data through the use of the Document Type Definitions (DTD) listed in Appendix B.

1.1.1 Examples/figures. The figures used in the specification are examples only. The text of this specification takes precedence over the figures.

2 APPLICABLE DOCUMENTS.

2.1 General. The documents listed in this section are specified in sections 3 and 4 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 of documents cited in sections 3 and 4 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 document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract (see 6.2).

DEPARTMENT OF DEFENSE STANDARDS**MIL-STD-38784**

Manuals, Technical: General Style and Format Requirements

(Copies of federal and military specifications, standards, and handbooks are available at <http://quicksearch.dla.mil/>.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

AIR FORCE TECHNICAL MANUALS**TO 00-5-3**

AF Technical Order Life Cycle Management

TO -06-series

Work Unit Code Manuals

TO 00-20-2

Maintenance Data Documentation

TO 2J-1-24

Equipment Comprising a Complete Basic Gas Turbine Engine

(Copies of these documents required by users with "mil" government web address access are available online at <https://www.my.af.mil/etims/ETIMS/index.jsp>. Refer to helpdesk information if obtaining copies without a TO subscription account. Copies of documents required by contractors in connection with specific procurement functions should be obtained from the acquiring activity or as directed by the contracting officer.)

AIR FORCE INSTRUCTIONS**AFI 20-115**

Propulsion Management For Aerial Vehicles

AFI 21-101

Aircraft and Equipment Maintenance Management

AFI 99-103

Capabilities-Based Test and Evaluation

(Copies of these documents may be obtained online at <http://www.e-publishing.af.mil/>. Copies of documents required by contractors in connection with specific procurement functions should be obtained from the acquiring activity or as directed by the contracting officer.)

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets),

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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 Development and preparation. The general manner of development and preparation of WUC manuals shall be in accordance with the requirements of MIL-STD-38784, except as otherwise specified herein (see 6.8).

3.1.1 General criteria. The following applies throughout this specification.

3.1.1.1 Electronic/print-unique functionality/formatting requirements. As specified by the acquiring activity (see 6.2b), the electronic presentation or print presentation unique functionality/formatting requirements shall apply for the development of all manuals specified herein.

3.1.2 Format. The format of the manuals shall be in accordance with the requirements of MIL-STD-38784. Unless otherwise specified by the acquiring activity (see 6.2c), chapters and sections shall be arranged as outlined herein.

3.1.3 Manual size. Electronic Presentation: The restrictions for page sizes are N/A.

Print Presentation: Unless otherwise specified by the acquiring activity (see 6.2d), preliminary manuals shall be 8½ by 11-inches (with the same printing area size as 5 by 8-inch manuals). Formal manuals shall be prepared in 5 by 8-inch size, except training and Support Equipment (SE) manuals which shall be prepared in 8½ by 11-inch size. The standard WUC manual shall always be 5 by 8-inch.

3.1.4 Style of type. For WUC entries, each line entry with a zero as the fifth character of the WUC shall be in upper-case type. Each line entry with other than a zero as the fifth character of the WUC shall be in lower-case type, with the first letter of each word in upper-case type (see figure 1). For support general codes, the title of each code shall be in upper-case type. Tasks within that code shall be in lower-case type, with the first letter of each word in upper-case type. Descriptive text shall follow normal sentence capitalization.

3.1.5 Column arrangement. There shall be a blank line between WUC upper-case line entries (see 3.1.4) and the preceding line entry (excluding support general codes).

Electronic Presentation: Manuals shall be produced in single column format.

Print Presentation: Unless otherwise specified by the acquiring activity (see 6.2e), 5 by 8-inch manuals shall be single column and 8½ by 11-inch manuals shall be double column.

3.1.6 Page numbering. Electronic Presentation: The manual shall be divided and presented by WUC. The System Subsystem Reference Designation Index (SSRDI) and System Subsystem Sub-Subsystem Number (SSSN) shall be marked on the Table Of Contents (TOC). There are no specific requirements for running footer info regarding a SSRDI and SSSN. If the capability exists, the SSRDI and SSSN shall be placed on the bottom left corner of the screen for the data which it applies.

Print Presentation: The TOC, introduction, type maintenance, action taken, when discovered, and how malfunctioned codes pages shall be numbered with a roman numeral for each category (when discovered, how malfunctioned codes avionic/electrical/computer [alphabetic sequence], etc.) and the page sequence within that category (see figure 2 and 6.18). Pages containing WUCs shall be numbered in the lower outer corner of each page by the WUC system (or homogeneous group see 6.4) number and consecutive page number (see 6.18). Pages containing SSRDI numbers shall be numbered in the lower outer corner of each page by the system/subsystem number and consecutive page numbers (see 6.18). Support General Codes 01000, 02000, 05000, 06000, 07000, and 09000 shall be listed on pages prefixed 01-, see TO 00-20-2, Appendix I. Codes 03XXX and 04XXX shall appear on pages prefixed 03- and 04-, respectively, see TO 00-20-2, Appendix I.

3.1.7 Page entries. Electronic Presentation: The manual shall be divided and presented by system number.

Print Presentation: When a change occurs in the system number, i.e., 20-, 21-, 22-, the listing for each system shall begin on a new right-hand page.

3.1.8 Standardization. When similar systems and components are used in two different series of the same mission design aircraft, such as the F-15 A/B and the F-15 C/D, the first three characters of the WUC shall

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be the same in both manuals. To the maximum extent practicable, the fourth and fifth characters of the WUC should also be the same.

3.1.9 Test program. Unless otherwise specified by the acquiring activity (see 6.2f), when the contract contains a requirement for the collection of maintenance management type data during a test program (see 6.9), the WUC manual shall be completed prior to the start of the test program. The contractor shall be responsible for making any necessary changes to the manual resulting from the test program, including the addition of new end items.

3.2 Front matter. Front matter shall be prepared in accordance with the requirements of MIL-STD-38784, except as otherwise specified herein.

3.2.1 Title. If applicable, an effectivity date notice shall be included on the title in accordance with the requirements of MIL-STD-38784. All WUC manual changes, supplements, or revisions, that contain any change to a WUC shall contain an effectivity date notice on the title. The effectivity date provided by the acquiring activity shall be used (see 6.17).

3.2.2 List of effective pages. Electronic Presentation: A list of effective changes shall be prepared in accordance with the requirements of MIL-STD-38784 and linked to the data in which they apply.

Print Presentation: A list of effective pages shall be prepared in accordance with the requirements of MIL-STD-38784.

3.2.3 Table of contents. Electronic Presentation: The TOC entries shall be linked to the data to which it applies.

Print Presentation: Depending on the concept under which the WUC manual is to be prepared (see 3.3), the TOC shall list the code manual contents in the order shown in 3.3.1, 3.3.2, and 3.3.3, in conjunction with the appropriate page reference. The WUC listing shall consist of the first two characters of the support general or equipment end item (except for homogeneously grouped items (see 6.4), and the title or narrative description of each code listed (see figure 2). Homogeneously grouped items shall be listed under the homogeneous group title in alphabetic sequence by end item nomenclature, with the complete end item WUC contained in the code column of the TOC.

3.2.4 Introduction. The introduction shall be prepared in accordance with the requirements of MIL-STD-38784, except as otherwise specified herein.

3.2.4.1 Standard WUC manual. In the standard WUC manual, the introduction shall contain a brief description of the codes and their use. The standard WUC manual shall not contain chapters or sections (see 3.3.1).

3.2.4.2 Two-chapter manual. The following paragraph shall be included in the introduction for each WUC manual prepared in accordance with the two-chapter manual concept (see 3.3.2).

This manual has been prepared in two chapters; Chapter 1 contains Work Unit Code - Noun - System/Subsystem/Reference Designation Index listings for the weapon system and support equipment peculiar to the weapon system. Chapter 2 contains System/Subsystem/Reference Designation Index - Noun - Work Unit Code listings for the weapon system and support equipment peculiar to the weapon system.

3.2.4.3 Three-chapter manual. The following paragraph shall be included in the introduction for each WUC manual prepared in accordance with the three-chapter manual concept (see 3.3.3).

This manual has been prepared in three chapters; Chapter 1 contains Work Unit Code - Noun - System/Subsystem/Reference Designation Index listings for the weapon system equipment. Chapter 2 contains System/Subsystem/Reference Designation Index - Noun - Work Unit Code listings for the weapon system equipment. Chapter 3 contains Work Unit Code listings for support equipment peculiar to the weapon system.

3.2.5 Type maintenance, action taken, when discovered, and how malfunctioned codes. These codes are defined and listed in TO 00-20-2 (see 6.5 and 6.10).

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3.2.5.1 Type Maintenance Code (TMC). This list shall include only those codes that are applicable to the equipment covered by the WUC manual (see 6.5.1).

The following note shall be included in all WUC manuals following the type maintenance codes:

NOTE

Refer to TO 00-20-2, Appendix D for off-equipment and shop type maintenance codes.

3.2.5.2 Action Taken Code (ATC). The complete list of action taken codes shall be included in the manual (see 6.5.2).

3.2.5.3 When Discovered Code (WDC). Only the when discovered codes and definitions, for the equipment to which the WUC manual is applicable, shall be included in the manual (see 6.5.3).

3.2.5.4 How Malfunctioned Code (HMC). The how malfunctioned code shall be listed in both alphabetic and numeric sequence, and shall contain only those codes that are applicable to the specific equipment contained in the WUC manual (see 6.5.4).

3.2.5.4.1 Alphabetic and numeric sequence. The alphabetic and numeric sequence shall be further divided into the following four categories:

- a. Avionics/Electrical/Computer.
- b. Physical/Mechanical.
- c. Engine Related.
- d. No Defect.

3.2.5.4.2 Engine related HMCs. Engine related HMCs are restricted and shall be further divided into six categories:

- a. Observed or Recorded Operational Conditions.
- b. Identified Components.
- c. Condition Monitoring.
- d. Chance Occurrences.
- e. Managerial Decision.
- f. Cause for Removal

These codes shall be used for engine related items (see 6.5.4.1).

3.2.5.4.3 Restricted uses of HMC. The following note shall immediately precede the alphabetical listing of HMC:

NOTE

Technicians must use a How Malfunctioned Code (HMC) from the engine related codes when documenting the removal of engines or engine components that are AFI 20-115 reportable. For all other maintenance actions, on any type of equipment, there are no restrictions on the use of codes by category. If a code is appropriate for an observed malfunction, it may be used regardless of the category in which it is listed. Avionics shops may use engine codes. Engine shops may use avionics codes. Tire shops may use physical/mechanical, avionic, or engine codes, etc. Categories of codes were created primarily for ease in finding a specific code.

3.2.6 Support general codes. See 6.6.

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3.2.7 Work unit code. See 6.7 Construction and application of WUCs shall be in accordance with Appendix A.

3.2.7.1 Used with but not part of. Work Unit Codes for these items shall be included (see 6.11).

3.2.8 Nomenclature. Each WUC in the equipment identification listing shall reflect the information required to properly identify all levels of assembly and shall include the basic noun for each individual item that is coded. If an official military type nomenclature has been assigned (per Illustrated Parts Breakdown (IPB) TM, equipment drawings, etc.), it shall be used for identification. Part numbers may be used to identify items, if no official nomenclature exists. The basic part number only shall be used, (i.e., 47A102212-XX rather than 47A102212-05). Abbreviations may be used when necessary, if approved by the acquiring activity (see 6.2g).

3.2.9 Time Change Item (TCI), configured article, serially controlled, and warranty tracked items. (See 6.12).

3.2.9.1 Two-chapter and three-chapter. Items shall be denoted, between the WUC and its definition (nomenclature), as listed below:

C	Configured article
*	Serially tracked item
T	Time change/significant item
W	Warranty tracked

These symbols may also be used in combinations, except “*” shall not be used with “C” or “W”. Additionally, time change items are further identified by the abbreviation (TCI) following the definition. An explanation of all symbols used shall be provided in the manual introduction (see paragraph 2.1 of figure 3).

EXAMPLE:

Time change (T)

99ABC T Ignitor (TCI)
99ABB T Cable, Igniter (TCI)

Configured article (C)

99DEF C Stator

Serially controlled (*)

99TUV * Housing
12E00 * EJECTION SEAT, ACES II FWD & AFT

Time change items are further identified by the abbreviation (TCI) following the definition.

12EGA T Chute, Personnel 28 Ft (TCI)

Warranty tracked (W)

99XYZ W Amplifier

3.2.10 End item identification. Each end item of SE shall be identified by an “@” (at) symbol between the WUC and its nomenclature (see 6.13). **EXAMPLE:**

EXAMPLE:

SA000 SYSTEMS TEST EQUIPMENT
SAAAM @ Infrared detecting test set, P/N 1978650-1
SAEEW Transmitter, P/N 0N507630-2

3.2.11 Mobile Training Sets (MTS) and Resident Training Equipment (RTE). Items peculiar to the training equipment (not utilized in the operational equipment of the same type) shall be coded in the applicable operational equipment WUC manual. The abbreviation MTS or RTE, as applicable, shall be entered in

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parentheses following the code definition for these items. Codes for peculiar training equipment shall be restricted to items on which it is essential to collect maintenance data, such as, a motor to simulate actuation, or actuating devices necessary to simulate functions. Such items shall be coded following the applicable system codes for the operational equipment, with code spacing allowed to permit expansion of operational equipment codes. The following sentence shall be added to the end of paragraph 2.1 of the introduction when the preceding coding procedure is used:

“The abbreviation (MTS or RTE, as applicable) identifies training equipment (Mobile Training Sets or Resident Training equipment) peculiar items included in this Work Unit Code manual for recording purposes.”

3.2.12 Site effectivity identification. Effectivity symbols may be used for identification of equipment that is not applicable to all sites (squadron or wing) of a specific MDS missile or space system. Numeric characters, in parentheses between the WUC and its nomenclature, shall be used for this purpose and shall be as specified by the acquiring activity (see 6.2h). When effectivity symbols are used in accordance with this paragraph, an appropriate reference explaining their use shall be included in the introduction.

3.2.13 System code/end item code page entries. Electronic Presentation: Data shall be formatted as a scrolling table viewable by WUC.

Print Presentation: Each new system WUC, except support general codes, shall begin on a new right-hand page (i.e., following completion of code assignments for 11000, Code 12000 assignments shall begin on a right-hand page).

3.2.14 New page entries. Electronic Presentation: Data shall be formatted as a scrolling table viewable by WUC.

Print Presentation: When WUCs for a major system or lower level assembly are carried over to a new page, the first WUC entry shall be (1) the system code and title; (2) following that line entry shall be the WUC and title of the second level assembly (fourth character of the WUC) followed by “- Continued” (see figure 1). If crowding will occur the “- Continued” may be placed on the following line (i.e., assuming that the last code of the preceding page is 11AAA Aileron Actuator:

EXAMPLE:

11000	AIRFRAME	System
11AA0	OUTER PANEL - Continued	Second Level Assembly
11AAB	Aileron Follow-up Cable Guide	Third Level Assembly

3.2.14.1 WUC column heading. The first line entry at the top of each WUC column shall be the type of equipment to which the work unit codes apply.

EXAMPLE:

11000	AIRFRAME
25000	SOLID ROCKET
SA000	SYSTEMS TEST EQUIPMENT

3.2.15 Skin diagrams. Skin and access panel diagrams shall be provided for System 11 (Airframe), 14 (Flight Controls), and 23 (Nacelle skin portion). The WUCs developed and published shall provide data on the skin/access panels only; the structure beneath being reportable by other codes (see figure 4).

3.2.15.1 Coded segments. The view of coded segments shall be clearly distinguishable as to location on the airframe. These illustrations shall contain the following (see figure 4):

- a. Specific area. A small plan view of the aircraft with the specific area of the illustration shaded in, or a portion of the area being identified large enough to permit area identification, shall be included. A worded description, such as outboard wing, shall also be included in each diagram.

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- b. Particular Area. The illustration shall show the particular area of the airframe structure as a background figure, with the skin and access panel diagrams shown as exploded parts.

3.2.15.2 Area site. Each access panel which is assigned a number (other than a part number) shall be coded individually (see figure 4 and 6.14).

3.3 Work unit code manual. The content and arrangement shall be specified by the acquiring activity. (see 6.2i and 6.15). If required by the acquiring activity, SE shall be included (see 6.2j and 6.15).

3.3.1 Standard WUC Manual. The standard WUC manual shall be arranged as follows, unless otherwise specified by the acquiring activity (see 6.2i). Appendix B provides the markup language tools for the electronic delivery of this manual.

- a. Table of contents.
- b. Introduction.
- c. Type maintenance codes.
- d. Action taken codes.
- e. When discovered codes (munitions and SE codes, when applicable, shall be in separate lists).
- f. How malfunctioned codes alphabetical listing-avionics/electrical/computer.
- g. How malfunctioned codes alphabetical listing-physical/mechanical.
- h. How malfunctioned codes alphabetical listing-engine related.
- i. How malfunctioned codes numerical listing-avionics/electrical/computer.
- j. How malfunctioned codes numerical listing-physical/mechanical.
- k. How malfunctioned codes numerical listing-engine related.
- l. Support general codes (except 03000 and 04000).
- m. 03000 Support general codes.
- n. 04000 Support general codes.
- o. Work unit code - noun - system/subsystem/reference designation index.
- p. System/subsystem/reference designation index - noun - work unit code.
- q. Work unit codes - noun - equipment identification (SE only).

3.3.2 Two-chapter WUC manual. Use the tagged language tools in Appendix B, if electronic delivery of this manual is required. The two-chapter WUC manual shall be arranged as follows:

- a. Front matter.
- b. Type maintenance codes.
- c. Action taken codes.
- d. When discovered codes.
- e. How malfunctioned codes (alphabetic sequence).
- f. How malfunctioned codes (numeric sequence).
- g. Work unit codes - support general.
- h. Chapter 1. Work unit code - noun - system/subsystem/reference designation index (equipment and SE).
- i. Chapter 2. System/subsystem/reference designation index - noun - work unit code (equipment and SE).

3.3.2.1 Chapter 1. The first chapter of the manual shall be developed to include WUC - Noun - System/Subsystem/Reference Designation Index (S/S/RDI) for the equipment. For a two-chapter manual, both the equipment and peculiar SE shall be listed (see 6.16).

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3.3.2.2 Chapter 2. The second chapter of the manual shall be developed to include S/S/RDI - Noun - WUC for the equipment. For a two-chapter manual, both the equipment and peculiar SE shall be listed (see 6.16).

3.3.3 Three-chapter WUC manual. Use the tagged language tools in Appendix B, if electronic delivery of this manual is required. The three-chapter WUC manual shall be arranged as follows:

- a. Front matter.
- b. Type maintenance codes.
- c. Action taken codes.
- d. When discovered codes (munitions and SE codes, when applicable, shall be in separate lists).
- e. How malfunctioned codes (alphabetic sequence).
- f. How malfunctioned codes (numeric sequence).
- g. Work unit codes - support general (equipment and SE codes shall be separate lists).
- h. Chapter 1. Work unit code - noun - system/subsystem/ reference designation index (equipment only).
- i. Chapter 2. System/subsystem/reference designation index - noun - work unit code (equipment only).
- j. Chapter 3. Introduction (see figure 5). Work unit codes - noun - equipment identification (SE only).

3.3.3.1 Chapter 1. The first chapter of the manual shall be developed to include WUC - Noun - S/S/RDI for the equipment. For a three-chapter manual, only the equipment shall be listed (see 6.16).

3.3.3.2 Chapter 2. The second chapter of the manual shall be developed to include S/S/RDI - Noun - WUC for the equipment. For a three-chapter manual, only the equipment shall be listed (see 6.16).

3.3.3.3 Chapter 3. The third chapter of the manual shall be developed to include WUC - Noun for peculiar SE (see 6.16).

4 VERIFICATION.

4.1 Verification Requirements. When the technical data produced according to this specification is offered for acceptance, all tests, reviews, and verifications required by the acquiring activity to determine that it conforms to the requirements in section 3 of the specification, shall be accomplished as specified (see 6.2k and 6.20).

4.2 Compliance. TMs shall meet all requirements of section 3 and the appropriate Markup Language Tools appendix (see appendix B) of this specification, as specified by the acquiring activity (see 6.2). The requirements set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any requirements in this specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies, submitted to the government for acceptance, comply with all requirements of the contract. Use of sampling inspections shall be at the discretion of the contractor, and in accordance with commercially acceptable Quality Assurance (QA) procedures. However, use of sampling in QA procedures does not authorize submission of known defective material, either indicated or actual, nor does it commit the government to accept defective material.

5 PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2l). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. 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.

MIL-DTL-38769G(USAF)**6 NOTES**

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

6.1 Intended use. WUC manuals are used to identify all “work unit” (support general and equipment identification), “type maintenance,” “action taken,” “when discovered,” and “how malfunctioned” codes that apply to the equipment covered by the manual. Under the Air Force data collection system, each maintenance action performed on Air Force equipment must be fully and accurately documented. The volume of data collected requires the use of Automatic Data Processing (ADP) techniques. The use of ADP equipment requires that the data input be coded in such a manner that it can be read by the data processing machines. Standard codes have been developed for recording the type of maintenance being performed, the action taken to correct a deficiency, when a deficiency was discovered, and the type of malfunction that occurred. Identification codes, called “work unit codes,” are used to identify the specific assembly or part within an end item on which an action was performed.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. Which of either the electronic or print presentation functionality/formatting requirements herein apply throughout; identify any exceptions by specific paragraph number. Assign by individual manual types in cases where they require different presentation requirements than the overall set of manuals (see [3.1.1.1](#)).
- c. If the arrangement of chapters and sections is to be other than as specified in this document (see [3.1.2](#)).
- d. If the size of the preliminary and formal manuals are to be other than as specified in this document (see [3.1.3](#)).
- e. If the column arrangement is to be other than as specified in this document (see [3.1.5](#)).
- f. If the WUC manuals must be completed prior to the start of the test program (see [3.1.9](#)).
- g. If abbreviations may be used as specified in this document (see [3.2.8](#)).
- h. The numeric characters to be used in parentheses between the WUC and the nomenclature (see [3.2.12](#)).
- i. If a standard, 2-chapter, or 3-chapter WUC manual will be other than as specified in this document (see [3.3](#)).
- j. If SE is to be included in the WUC manual (see [3.3](#)).
- k. The requirements for test, reviews, and verifications specified for manuals developed under this specification (see [4](#)).
- l. Packaging requirements (see [5.1](#)).
- m. If system code manuals are to be prepared by individual series (see [A.2.3.2](#)).
- n. If items installed in multiples, within a functional system/homogeneously grouped end item (see [6.4](#)), and perform within the same function/application parameters, except for location, will have a single code assigned as specified in this document (see [A.2.8.8](#)).

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 authorized and assigned an Acquisition Management Systems Control (AMSC) number must be listed on a separate Contract Data Requirements List (CDRL) (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 Homogeneous group. The use of homogeneous group in this document means the use of a major sub-assembly in different end item weapon systems, i.e. ACES II seat installed in different aircraft, ‘common’ power generators used to supply various ground stations, etc. They often have independent managers who are responsible for the codes associated with their hardware.

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6.5 Codes. Type maintenance, action taken, when discovered, and how malfunctioned codes are assigned and controlled by TO 00-20-2. These codes must be approved by AFMC/A4FI (see 3.2.5).

6.5.1 Type Maintenance Code (TMC). This code consists of one alphabetic character and identifies the type of work performed, (e.g., scheduled or unscheduled maintenance) (see 3.2.5.1).

6.5.2 Action Taken Code (ATC). This code consists of one alphabetic or numeric character and identifies what work was done (e.g., removed, replaced, removed and reinstalled same part, etc.). The WUCs and the action taken code, collectively, identify a “unit of work” as defined in AFI 21-101 (Maintenance Management of Aircraft) (example; Work Unit Code 23130, Igniter Assembly, Action Taken Code R - Remove and Replace) (see 3.2.5.2).

6.5.3 When Discovered Code (WDC). This code consists of one alphabetic or numeric character and identifies when a defect was discovered, or when a maintenance requirement was discovered, (i.e., during a periodic inspection, in-flight, etc.) (see 3.2.5.3).

6.5.4 How Malfunctioned Code (HMC). This code consists of three numeric characters and is used to identify how the equipment malfunctioned, (i.e., shorted, cracked, corroded, etc.) (see 3.2.5.4).

6.5.4.1 Engine related HMCs. Engine related HMCs are restricted. Engine maintenance technicians are required to use codes from the engine related group for any items which are AFI 20-115 (Propulsion Management For Aerial Vehicles) reportable (see 3.2.5.4.2).

6.6 Support general codes.

NOTE: Use of the assigned codes (see TO 00-20-2, Appendix I) without change is mandatory.

Support general codes are for recording production credit or repetitive tasks of a general nature (see 3.2.6 and A.2.2.1). These codes are defined in TO 00-20-2, Appendix I.

6.7 Work unit code. The WUC consists of five characters and is used to identify the system, subsystem, or component on which maintenance is required, or was accomplished. WUCs will be reviewed and approved during in-process reviews (see 3.2.7). For construction and application of WUCs, see Appendix A.

6.8 Development and preparation. WUC, TMC, ATC, WDC, HMC, and support general WUCs will be in accordance with TO 00-20-2 (see 3.1).

6.9 Test program. Collection of maintenance management type data during a test program (AFI 99-103, or equivalent) will be in accordance with AFI 21-101 (see 3.1.9).

6.10 Code changes or additions. Changes or additions to TMC, ATC, WDC, HMC, and support general WUCs will be in accordance with the requirements of TO 00-20-2 (see 3.2.5).

6.11 Used with, but not part of. An item which extends the use of equipment beyond its assigned functions and is issued for use with that equipment only under special circumstances, is considered as used with, but not part of, that equipment (see 3.2.7.1).

6.12 Time change, configured article, serially controlled, and warranty tracked items. These items will be approved by the acquiring activity (see 3.2.9).

6.13 End item identification. End item identification is intended to aid the maintenance technicians in identifying what equipment should be entered in the “end item Work Unit Code” block of the maintenance forms (see 3.2.10).

6.14 Area site. In determining the area of skin panel size for individual coding, the rivet lines are normally used as a boundary. It is a matter of judgment to contain an area large enough to provide the ability to localize deficiencies (see 3.2.15.2).

6.15 Work unit code manual. Work unit code manual construction will vary depending on the concept dictated by the equipment to which it applies. SE that is commonly used in the Air Force is included in the TO -06 series Work Unit Code manuals. Clarification of equipment applicability will be provided by the applicable system manager through the acquiring activity (see 3.3).

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6.16 Chapters 1, 2, and 3. These chapters provide information used by maintenance personnel to record maintenance tasks accomplished directly on the end item, components, or equipment undergoing repair, servicing, testing, calibration, or bench check in specialized shops (see [3.3.2.1](#), [3.3.2.2](#), [3.3.3.1](#), [3.3.3.2](#), [3.3.3.3](#)).

6.17 Effectivity date. The effectivity date will be a minimum of 30 days subsequent to the actual distribution date. All effectivity dates will be the first day of the month. The effectivity date will be established by the acquiring activity (see [3.2.1](#)).

6.18 Page numbering. Print Presentation: The first page of the TOC will be I-001, and the fifth page of the HMC engine related (alphabetical sequence) will be X-005. The first page of the support general codes will be 01-001, and the eleventh page of inertial guidance systems codes (air launched missile) will be 62-011. The first page of the engine turbine/turboprop/combustion section will be 72-30-01, and the sixth page of the landing gear/steering section will be 32-50-06 (see [3.1.6](#)).

6.19 Subject term (key word listing).

- Type maintenance code
- Action taken code
- When discovered code
- How malfunctioned code
- Support general WUCs

6.20 Verification requirements. See [4.1](#). The Air Force Technical Order Policy and Procedures (AF TOPP) team, AFMC/A4FI, provides the specific requirements for verification of technical data developed and delivered through this specification, as well as guidance for including these requirements in the solicitation or contract (see TO 00-5-3, AF Technical Order Life Cycle Management, available through the AF ETIMS website - see [2.2.2](#) for information on obtaining copies).

6.21 Changes from previous issue. Marginal notations are used in this revision to identify changes with respect to the previous issue. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

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		TO XX-XX-06
WORK UNIT CODE		
73000	BOMBING NAVIGATION	
73FC0	AN/AJN-8 HEADING VERTICAL REFERENCE SET INSTALLATION-Continued	
73FCC	Electronic Control and Power Supply	
73FCD	Amplifier	
73FCE	Amplifier Azimuth	
73FCF	Compensator	
73FCG	Integrator Bias	
73FD0	J-4 COMPASS INSTL	
73FDA	Control, Directional	
73FDB	Amplifier, Servo	
73FDC	Servo, Azimuth	
73FE0	COMPASS AMPLIFIER INSTL	
73FEA	Amplifier, Compass Signal Power, Type ME-1	
73FEB	Amplifier, Compass Signal Power, Type C-1	
73F99	NOC	
(SAMPLE-NOT TO SCALE)		
		73-17

FIGURE 1. Example of a typical work unit code page.

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		TO XX-XX-06
TABLE OF CONTENTS		
CODE		PAGE
	TABLE OF CONTENTS	I-001
	INTRODUCTION	II-001
	TYPE MAINTENANCE ³ CODES	111-001
	AIRCRAFT ENGINE (SHOP TYPE MAINTENANCE CODES)	IV-001
	CLASS 1 TRAINER TYPE MAINTENANCE CODES	V-001
	ACTION TAKEN CODES	VI-001
	WHEN DISCOVERED CODES	VII-001
	HOW MALFUNCTIONED CODES AVIONIC/ELECTRICAL/ COMPUTER (ALPHABETICAL SEQUENCE)	VIII-001
	HOW MALFUNCTIONED CODES PHYSICAL/MECHANICAL (ALPHABETICAL SEQUENCE)	IX-001
	HOW MALFUNCTIONED CODES ENGINE RELATED (ALPHABETICAL SEQUENCE)	X-001
	HOW MALFUNCTIONED CODES AVIONIC/ELECTRICAL/ COMPUTER (NUMERICAL SEQUENCE)	XI-001
	HOW MALFUNCTIONED CODES PHYSICAL/MECHANICAL (NUMERICAL SEQUENCE)	XII-001
	HOW MALFUNCTIONED CODES NO DEFECT (NUMERICAL SEQUENCE)	XIII-001
(SAMPLE-NOT TO SCALE)		
		I-001

FIGURE 2. Example of a typical table of contents.

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TO XX-XX-06		
TABLE OF CONTENTS		
CODE		PAGE
	HOW MALFUNCTIONED CODES NO DEFECT (NUMERICAL SEQUENCE)	XIV-001
	SUPPORT GENERAL CODES (EXCEPT 03 AND 04 SERIES)	XV-001
	SUPPORT GENERAL CODES	01-001
03	LOOK PHASE OF SCHEDULED INSPECTIONS	02-001
04	SPECIAL INSPECTIONS	03-001
	IDENTIFICATION CODES	
11	AIRFRAME	11-001
12	COCKPIT AND FUSELAGE COMPARTMENT	12-001
13	LANDING GEAR	13-001
14	FLIGHT CONTROL	14-001
23	TURBO FAN POWER PLANT	23-001
24	AUXILIARY POWER PLANT	24-001
41	AIR CONDITIONING PRESSURIZATION AND SURFACE ICE CONTROL	41-001
42	ELECTRICAL POWER SUPPLY	42-001
44	LIGHTING SYSTEM	44-001
45	HYDRAULIC AND PNEUMATIC POWER SUPPLY	45-001
46	FUEL SYSTEM	46-001
47	OXYGEN SYSTEM	47-001
49	MISCELLANEOUS UTILITIES	49-001
51	INSTRUMENTS	51-001
52	AUTOPILOT	52-001
55	MALFUNCTION ANALYSIS AND RECORDING EQUIPMENT	55-001
61	HF COMMUNICATIONS	61-001
62	VHF COMMUNICATIONS	62-001
(SAMPLE-NOT TO SCALE)		
I-002		

FIGURE 2. Example of a typical table of contents. - Continued.

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TO XX-XX-06

INTRODUCTION**1. GENERAL.**

The complete details on use of codes printed in this manual are prescribed in AFI 21-101 And TO 00-20-2 series Technical Orders (TOs).

2. USE OF CODES.

It is necessary to use codes for recording maintenance actions in order to convert this information into language for translation by accounting machines and computers. The maintenance forms are sent to data automation, and information recorded on them is used periodically to produce reports for use in the management of the maintenance functions such as determining deficient material, facilities, or procedures.

2.1 WORK UNIT CODE. This code, abbreviated WUC, consists of five alpha numeric characters and is used to identify the system, subsystem, and component which were worked on. For items Not Otherwise Coded, the abbreviation NOC is used. The number 99 is used in the fourth and fifth characters of the WUC followed by the abbreviation NOC and should only be used when an item does not have a specific WUC assigned. NOTE: Communication-Electronic (CE) use code "00NOC". An AFTO form 22 may be submitted when a 99NOC code is used due to lack of a WUC for a repairable item. Time change, time significant, configured article, serially controlled, and warranty tracked items require special documentation per the TO 00-20-2-series TO. These items are denoted by use of capital "T", "C", "S", and "W" respectively, in parentheses, inserted between the WUC and it's definition. For example: 99ABC (T) Ignitor (time change); 99DEF (C) Stator (confirmed article); 99TUV (S) Housing (serially controlled); 99XYZ (W) Amplifier (warranty tracked).

2.2 DELETED.

2.3 Type Maintenance Code. This code consists of one alphabetic or numeric character, and identifies the type of maintenance being performed, (i.e., scheduled or unscheduled maintenance).

2.4 Action Taken Code. This code consists of one alphabetic or numeric character, and identifies what work was done, (i.e., removed, replaced).

NOTE

Collectively, the work unit code and the action taken code identify a "unit of work" as identified in AFI 21-101.

2.5 When Discovered Code. This code consists of one alphabetic or numeric character, and is used to describe what time a discrepancy was discovered.

2.6 How Malfunctioned Code. This code consists of three numeric characters, and is used To describe the equipment malfunction.

(SAMPLE-NOT TO SCALE)

II-001

FIGURE 3. Example of a typical introduction.

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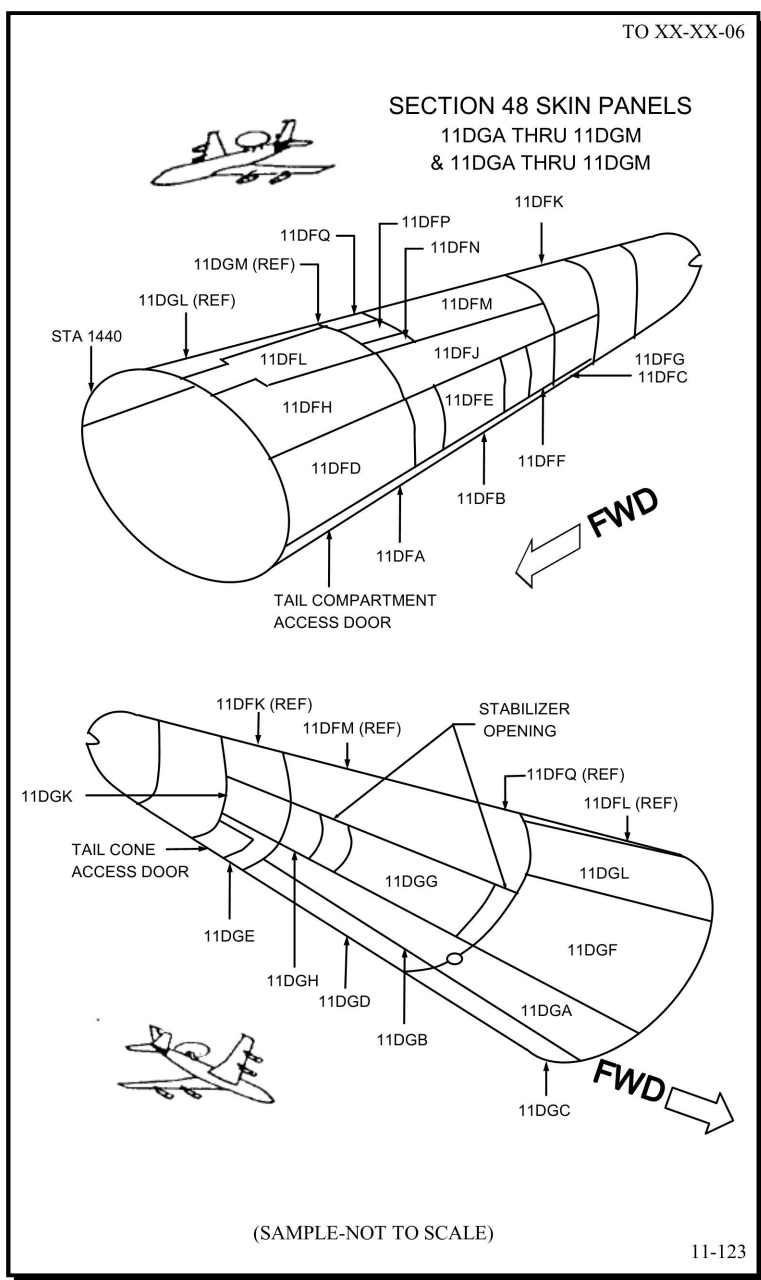
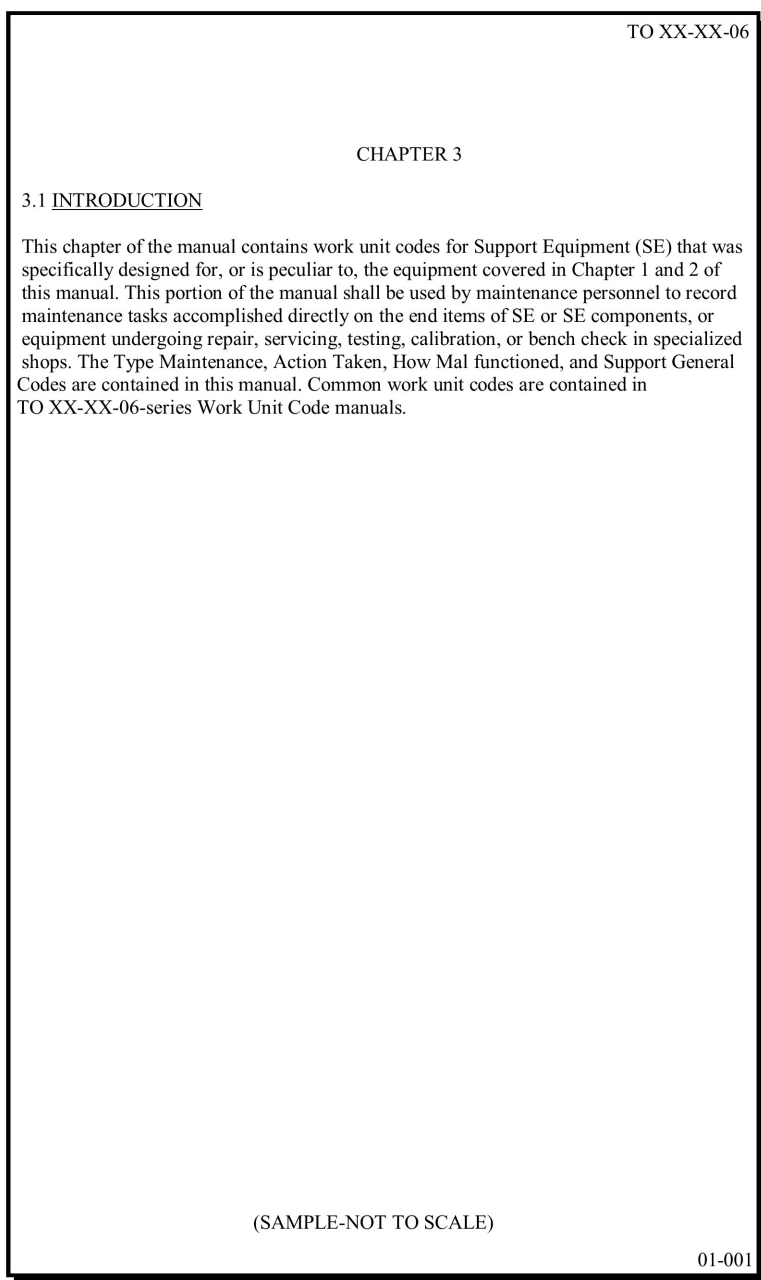


FIGURE 4. Example of a typical skin diagram.

MIL-DTL-38769G(USAF)**FIGURE 5. Example of a typical chapter 3 introduction.**

MIL-DTL-38769G(USAF)**APPENDIX A****WORK UNIT CODE CONSTRUCTION/APPLICATION****A.1 SCOPE.**

A.1.1 Scope. The Work Unit Code (WUC) consists of five characters, and is used to identify the system, subsystem, and component on which maintenance is required, or on which maintenance was accomplished. This appendix provides instructions for construction and application of WUCs. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

A.2 WORK UNIT CODE APPLICATION AND CONSTRUCTION

A.2.1 Application of work unit codes. The primary purpose of WUCs is to identify the hardware on which work has been accomplished, and the relationship of hardware within a major assembly, subassembly, etc. Work unit codes will not be assigned to locations, general terms, or homogeneous group (see 6.4) titles. For instance, station numbers, geographic locations, and terms such as mechanical components or miscellaneous equipment may be used as a title to aid in locating WUCs within the code manual, but these titles will not have WUCs assigned. Work unit codes will not be assigned to common hardware or soft goods, such as nuts, bolts, washers, clamps, seals, packing, and O-rings. Work on these type items is normally reported against the coded assembly on which the item is attached.

A.2.2 Work unit code - equipment identification. This is a five position code which identifies the end item, major assembly, subassembly, or component that requires maintenance. The first two positions of the WUC will be assigned in accordance with Tables I through VII, and controlled by the acquiring activity, to identify the end item of equipment. The third and fourth characters include major assemblies and subassemblies, and identify first and second levels of assembly. The fifth position of the WUC includes reparable/recoverable components, and identifies the lowest level of assembly below the end items.

A.2.2.1 Support general codes.

NOTE: Use of the assigned codes (03-/04- series only) without change is mandatory.

Support general codes are for recording production credit of repetitive tasks of a general nature, and are not used for recording malfunctions, repair, Not Repairable This Station (NRTS), or condemnation actions. The multitude of tasks, which must be accomplished, precludes listing them all in the support general tables in TO 00-20-2, Appendix I. This is not intended to restrict documentation of tasks. All support general work must be identified to the most appropriate code. Support general code tasks, not applicable to the equipment being coded, will not be included in the manual. Changes and/or additions must be approved by AFMC/A4FI prior to including them in TO 00-20-2, Appendix I.

A.2.2.2 Scheduled and special inspections.

NOTE: Use of the assigned codes without change is mandatory.

Support general codes, for scheduled and special inspections, will be selected from TO 00-20-02, Appendix I as applicable. Scheduled and special inspection codes, not applicable to the equipment being coded, will not be included in the manual. Changes and/or additions must be approved by AFMC/A4FI prior to including them in TO 00-20-2, Appendix I.

A.2.3 Functional system concept. The functional system concept will be used for equipment breakout. A functional system will consist of those units which make up a system without regard to whether the units are hydraulic, electrical, pneumatic, electronic, or mechanical in nature. The components which comprise a functional system will be those components which contribute to the actual function or activation of the system. For example, the components which supply the hydraulic or pneumatic source of power will be included under System 14, "Flight Controls" which is a functional system. As another example, flight reference instruments, free air temperature, and similar instruments will be included in System 51, "Instruments"; whereas position indicators, temperature or pressure sensing, and autopilot instruments will be included under the system that they function with, such as System 52, "Autopilot." There are two exception to this rule. The first is System 97, which will include all explosive devices regardless of the system with which they are associated. The second is System 35, which is available as an option for aircraft Electrical Wiring Interconnect System (EWIS).

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A.2.3.1 Munitions work unit code breakout. Munition items of a complex nature, and Support Equipment (SE) peculiar to nuclear munitions, will be coded as individual end items utilizing major assembly, subassembly/mod number, and component breakout. All other munitions, components, etc., will be homogeneously grouped (see 6.4) and coded as major assemblies of a specific group.

A.2.3.2 Mission Design Series (MDS). Work unit code manuals will be prepared to cover each basic MDS aircraft, missile, or spacecraft. System code manuals will be prepared by individual series, if specified by the acquiring activity (see 6.2m). This will require that the AFMC Air Logistics Complexes Single Manager ensure that a standard reporting designator is assigned for that specific mission, design, and series in accordance with TO 00-20-2.

A.2.3.3 Trainer application. Class trainers, mobile training sets, and resident training equipment will not be coded in the training equipment WUC manuals. Class III training equipment does not require detailed WUCs; one code is presently assigned for recording production credit on Class III trainers. The criteria for establishing WUCs for Class I training equipment is as follows: There must be five or more trainers in the inventory, or five or more trainers programmed for the inventory within the next fiscal year, from time of determination. They will be of sufficient cost or complexity to warrant detailed data analysis. This determination will not be predicated on cost alone.

A.2.4 Level of detail for each functional system. The WUCs for each functional system/homogeneous group (see 6.4) will cover each reparable item in the functional system/homogeneous group, as specified by the applicable source document (see A.2.5). Work unit codes will also be assigned to non-reparable components, if they are known or suspected to be vital to successful system operation, or to be significant maintenance hour consumers. These items will have a WUC assigned in order to report those critical "on-equipment" actions for reliability and maintainability evaluation purposes. In some cases it may be necessary to arbitrarily assign "interface" type items of equipment (i.e., interface connectors, tubing, couplings, wire, etc.) to a functional system. These decisions will be made after primary consideration is given to the maintenance responsibilities and training of the technicians who are required to maintain the interface items of equipment. For example, if a piece of tubing, with a regulator attached, makes the interface between the pneumatic and engine systems, and the engine technician is responsible for adjustments and maintenance of the regulator, then the tubing and associated regulator will be assigned to the engine functional subsystem.

A.2.5 Source data. Systems engineering data (i.e., engineering analysis data, equipment maintenance analysis data, and contract end item detail specifications) will be used as source data for WUC assignment. Maximum correlation between the component content of a contract end item and the assignment and grouping of WUCs is desirable. When available concurrently with the WUC manual preparation, IPB TMs will be used as source data in determining level of assembly.

A.2.6 Reserving codes for future use. The capability to ensure that new codes can be assigned for future modifications or additions of equipment will be designed into each code manual in the third, fourth, and fifth positions of the WUC. If expansion capability is designed into the original codes, new equipment can be added without disturbing the original codes. Minimum code changes are essential to prevent loss of identity for previously compiled maintenance data.

A.2.7 Reuse of codes. When existing WUCs are deleted from a manual, they will not be reassigned for a minimum of ninety days following their deletion, nor without prior approval of the acquiring activity. If there is no other code, or code sequence, that can be used, WUCs may be reassigned by the acquiring activity without waiting ninety days.

A.2.8 Work unit code construction.

A.2.8.1 Alphabetic and numeric codes. Upper-case letters A through Z (excluding I and O) and numbers 0 through 9 will be utilized for WUC assignments as specified in subsequent paragraphs. The letters I and O will not be used in any WUC to prevent confusion with the numbers one and zero.

A.2.8.2 End item code construction. The first two characters of the WUC are alphabetic or numeric, and identify the end item of equipment. These characters are assigned by Tables I thru VII, and controlled by the acquiring activity. No deviations are authorized without prior approval by the acquiring activity.

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A.2.8.3 First level of assembly code construction. Alphabetic and numeric characters will be used as the third character of the WUC to designate first level of assembly below major system. Thirty three (33) separate levels may be identified in this manner.

EXAMPLE:

33000	System
33A00 through 33Z00	First Level of Assembly
then	
33100 through 33900	First Level of Assembly

A.2.8.4 Second level assembly code construction. Alphabetic and numeric characters will be used as the fourth character of the WUC to designate second level of assembly below major system. Thirty-three separate levels may be identified in this manner.

EXAMPLE:

33000	System
33A00	First Level of Assembly
33AA0 through 33AZ0	Second Level of Assembly
then	
33A10 through 33A90	Second Level of Assembly

A.2.8.5 Third level assembly code construction. Alphabetic and numeric characters will be used as the fifth character of the WUC to designate third or lowest level of assembly below the major system. Thirty-two levels may be identified in this manner. The number "99" is used in the fourth and fifth positions to indicate Not Otherwise Coded (NOC).

EXAMPLE:

33000	System
33A00	First Level of Assembly
33AA0	Second Level of Assembly
33AAA through 33AAZ	Third or Lowest Level of Assembly
then	
33AA1 through 33AA8	Third or Lowest Level of Assembly
33A99	NOC (First Level of Assembly)

A.2.8.5.1 Use of "99 - NOC". The number "99" is used in the fourth and fifth characters of the WUC, followed by "NOC." This code is used to provide a WUC for components that do not have specific codes assigned. NOC codes will relate to the first level of assembly, when the first level of assembly is the third character of the WUC. When the third character is the end item (homogeneous group see 6.4), the NOC code will relate to the end item rather than the first level of assembly. The "99 NOC" code will appear as the last entry under the last component in the first level of assembly (or end item for homogeneous groups) breakout. There will be a spaced separation between the last component of the first level of assembly/end item and the NOC code to provide easy recognition of the NOC code. The number "99" will not be used in the fourth and fifth positions of the WUC to identify any specific type of equipment.

A.2.8.6 Coding capability. The construction of WUCs provides a capability to designate thirty-three first level assemblies (for other than homogeneously grouped items see 6.4), and thirty-two, third or lowest level

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assemblies. If equipment breakout exceeds these capabilities, it will be necessary to continue the listing with the next available code (note the change in the fourth character of the WUC).

EXAMPLE:

33AA0	Dual Pumping Unit
33AA8	Controller
33ABA	Controller Modulator
33A99	NOC

A.2.8.7 Homogeneously grouped code construction. Exception to the above WUC construction will be taken when utilizing homogeneous grouping (see 6.4) for peculiar SE. The first two characters will identify the homogeneous group, the third character will identify the end item, the fourth character will identify the first level of assembly, and the fifth character will identify the lowest level of assembly.

EXAMPLE:

CA000	Homogeneous Group
CAA00	End Item
CAAA0	First Level of Assembly
CAAAA through CAAA8	Lowest Level of Assembly
CAA99	NOC (End Item)

A.2.8.8 Multiple items serving a single system/homogeneously grouped end item. Identical components, within a system/end item performing peculiar functions, will have individual WUC assignments for each peculiar function/application. For example, a Pressurization Control Unit (PCU) in a system may contain four identical controllers, but each controller has a different usage (pressure setting) in the PCU. In this case, each controller will have a unique WUC assigned. Unless otherwise specified by the acquiring activity (see 6.2n), items installed in multiples, within a functional system/homogeneously grouped end item (see 6.4), that perform within the same function/application parameters except for location, will have a single code assigned. For instance, only one code will be assigned for items having left and right application, even though they have different part numbers. The acquiring activity may grant exceptions to this requirement, for items that have high failure rates, or warrant detailed reporting for analysis purposes. If exceptions are granted, the nomenclatures of the items will reflect part number references to distinguish between the like items. This will be done on an exception basis, and will not be a common practice.

A.2.8.9 Item serving multiple systems/homogeneous grouped end items. When a single component functionally services two or more major systems/end items or lower levels of assembly, only one WUC will appear in only one of the system/homogeneous grouped end item (see 6.4) listings. However, the item will be listed (by identical nomenclature only) in the remaining applicable system(s)/homogeneously grouped end item(s) with a reference to the previously assigned work unit code, e.g., "Manifold Sequence Valve (Reference 33FAA)." The WUC column for such items will be left blank.

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10	Ground Control Station
11	Airframe
12	Cockpit and Fuselage
13	Landing Gear
14	Flight Control
15	Helicopter Rotor System
16	Escape Capsule
17	Aerial Recover System
18	Vertical Or Short Takeoff and Landing Power and Control Transmission System
19	Engine Starting
21	Reciprocating Power Plant
22	Turboprop/Turboshaft Propulsion System
23	Turbojet/Turbofan Propulsion System
(Those basic engine components as defined in TO 2J-1-24, Equipment Comprising a Complete Basic Gas Turbine Engine)	
NOTE: Constant speed drives will be coded to system 42, Electrical Power Supply	
24	Auxiliary Power Plant
25	Rocket Power Plant
26	Helicopter Rotary Wing Drive System
27	Turbojet/Turbofan Propulsion System Accessory Gear Box (B-1 only)
31	Electric Propeller
32	Hydraulic Propeller
33	Electro Hydraulic Propeller
34	Mechanical and Fixed Pitch Propellers
35	Electrical Wiring Interconnect System (EWIS)
39	Ice and Rain Protection
41	Air Conditioning, Pressurization, and Surface Ice Control
42	Electrical Power Supply
43	Electrical Multiplex
44	Lighting System
45	Hydraulic and Pneumatic Power Supply
46	Fuel System
47	Oxygen System
48	Indicating/Recording
49	Miscellaneous Utilities

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE I. Systems codes (aircraft) - Continued**

51	Instruments
52	Autopilot
53	Drone Airborne Launch and Guidance Systems
54	Telemetry
55	Malfunctioned Analysis and Recording Equipment
56	Automatic All Weather Landing System
57	Integrated Guidance and Flight Control (Includes auto pilot when part of integrated system)
58	Milstar Communications System
59	Crew Communications (Use if ground communications is desired, i.e., Very High Frequency, Ultra High Frequency, etc.)
60	Very Low Frequency/Low Frequency Communications
61	High Frequency Communications
62	Very High Frequency Communications
63	Ultra High Frequency Communications
64	Interphone
65	Identification, Friend or Foe
66	Emergency Communications
67	Super High Frequency/Extra High Frequency
68	Air Force Satellite Communications
69	Miscellaneous Communications Equipment
70	Nuclear Detection
71	Radio Navigation
72	Radar Navigation
73	Bombing Navigation
74	Fire Control
75	Weapon Delivery
76	Electronic Countermeasure
77	Photographic/Reconnaissance
80	Special Mission Equipment
81	Airborne Warning and Control System (AWACS)
82	Computer and Data Display (Graphic)
89	Airborne Battlefield Command Control Center (Capsule)
91	Emergency Equipment
92	Tow Target Equipment
93	Drag Chute Equipment
94	Meteorological Equipment

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE I. Systems codes (aircraft) - Continued**

95	Smoke Generator, Scoring and Target Area Augmentation Systems, and Airborne Co-Operational Equipment
96	Personnel and Miscellaneous Equipment
97	Explosive Devices and Components
98	Atmospheric Research Equipment
99	R & D

TABLE II. System codes (missile), air launch

MISSILE BASIC	
11	Airframe
13	Wing and Fin-Fold
19	Pylon
PROPULSION	
23	Gas Turbine Engine
24	Liquid Rocket
25	Solid Rocket
MISSILE SUPPORT SYSTEMS	
31	Air Conditioning (including atmospheric and environmental control)
32	Pressurization (when separate from air conditioning)
33	Hydraulic Pneumatic Power Supply and Distribution
34	Electric Power Supply and Distribution
35	Electrical Distribution (Wiring Harness)
36	Component Cooling
37	Gas Driven Turbine (Mark 4 Power Plant)
39	Miscellaneous
ARMAMENT AND EXPLOSIVE DEVICES	
41	Warhead
43	Destruct
44	Arming and Fusing
45	Separation
47	Flares
FLIGHT CONTROLS	
52	Flight Controls
55	Auto Pilot
56	Flight Reference
GUIDANCE	
61	Command

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE II. System codes (missile), air launch - Continued**

62	Inertial
63	Integrated Guidance and Flight Controls
64	T.V. Guidance
65	Target Seeking, Infrared Radiation
67	Tracking (Radar)
PROPELLANT	
73	Air Breathing Engine Fuel
75	Chemical
COMMUNICATIONS AND DATA HANDLING	
91	Telemetry
92	Bomb Damage Assessment
93	Instrumentation
95	Airborne Co-Operational Equipment
96	Data Recording and Retrieval
97	Simulation
98	Reconnaissance

TABLE III. System codes - Support Equipment (SE)

AA THRU AZ	Aircraft Support Equipment (AGE), not covered under other prefixes
BA THRU BZ	Launcher
CA THRU CZ	Servicing Equipment
DA THRU DZ	Combined Servicing and Handling Equipment
EA THRU EZ	*
FA THRU FZ	Handling Equipment
HA THRU HZ	Environmental Control
JA THRU JZ	Electrical Generation and Distribution
KA THRU KZ	Propellant Loading and Storage
LA THRU LZ	*
MA THRU MZ	Guidance and Instrumentation
NA THRU NZ	Launch Control
PA THRU PZ	*
QA THRU QZ	Communications
RA THRU RZ	Missile Test Equipment
SA THRU SZ	Systems Test Equipment
TA THRU TZ	Training and Equipment
UA THRU UZ	Checkout Equipment

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE III. System codes - Support Equipment (SE) - Continued**

VA THRU VZ	*
WA THRU WM	Weapon System Evaluator Missile
WN THRU WZ	Mission Simulator
XA THRU XZ	*
YA THRU YZ	*
ZA THRU ZZ	Miscellaneous
* These codes are unassigned. Their utilization will require prior approval of the acquiring activity.	

TABLE IV. System codes (missile or spacecraft), ground launched

11	Airframe/Booster Structure
12	All-Up-Round
13	Wing and Finfold
14	*
15	*
16	Orbital Craft Structure
17	Space Ferry and/or Manned Re-Entry Vehicle Structure
18	*
19	*
PROPULSION	
21	*
22	*
23	Turbo Jet
24	Liquid Rocket
25	Solid Rocket
26	Orbital Maneuvering Engine
27	*
28	Retro Rocket (excludes primary propulsion when used in retro fire mode)
29	*
MISSILE OR SPACECRAFT ENVIRONMENTAL CONTROL AND LIFE SUPPORT SYSTEMS	
31	Air Conditioning (Including Atmospheric and Environmental Control)
32	Pressurization (When Separate From Air Conditioning)
33	Hydraulic/Pneumatic Power Supply and Distribution
34	Electrical Power Supply and Distribution
35	Electrical Distribution
36	*
37	Subsistence/Waste

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE IV. System codes (missile or spacecraft), ground launched - Continued**

38	Space Suit, Life Support and Personal Maneuvering Equipment
39	Miscellaneous
40	*
41	Armament and Explosive Devices
42	Initiators
43	Destruct Range Safe and Arming
45	Stage Separation
FLIGHT CONTROL	
51	Orbital Attitude Maneuvering
52	Flight Control
53	*
54	*
55	Auto Pilot
56	Flight Reference
57	Combined Controls
58	Deceleration and Surface Recovery (Excludes Retro Rocket)
59	*
GUIDANCE	
61	Command
62	Inertial
63	Integrated Guidance and Flight Controls
64	Navigator/Celestial
65	Target Seeking
66	Tracking
67	Rendezvous Radar
68	*
69	*
71	Liquid Rocket Fuel
72	Liquid Rocket Oxidizer and Hypergolic
73	Air Breathing Engine Fuel
74	Fuel and Oxidizer Pressurization Systems
75	Chemical
76	Nuclear Materials
77	*
78	*
79	*

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE IV. System codes (missile or spacecraft), ground launched - Continued**

MISSILE RE-ENTRY SYSTEM	
81	Re-Entry Vehicle (Including Warhead, Arming and Fuzing)
82	Re-Entry System (Including Penetration Aids)
83	*
84	*
85	*
86	*
87	*
88	*
89	*
COMMUNICATION AND DATA HANDLING	
91	Telemetry
92	Tracking and Range Instrumentation
93	Intercom
94	Communications
95	*
96	Data Recording and Retrieval
97	*
98	Reconnaissance
99	*
* These codes are unassigned. Their utilization will require prior approval of the acquiring activity.	

TABLE V. System codes, Support Equipment/Real Property Installed Equipment (SE/RPIE)

AA THRU AZ	*
BA THRU BZ	Launcher and Launch Facility
CA THRU CZ	Servicing Equipment
DA THRU DZ	Combined Servicing and Handling Equipment
EA THRU EZ	Combined Servicing and Decontamination Equipment
FA THRU FZ	Handling Equipment
GA THRU GZ	Gas Generating Equipment
HA THRU HZ	Environmental Control
JA THRU JZ	Electrical Generation and Distribution
KA THRU KZ	Propellant Loading and Storage
MA THRU MZ	Guidance, Tracking Network and Instrumentation
NA THRU NZ	Launch Control and Launch Control Facilities
PA	Shelter Communications and Shelter Element

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE V. System codes, Support Equipment/Real Property Installed Equipment (SE/RPIE) - Continued**

PB THRU PZ	*
QA THRU QZ	Communications
RA THRU RQ	Missile/Spacecraft Test Equipment
SA THRU SZ	Systems Test Equipment
TA THRU TZ	Training Equipment
UA THRU UZ	Checkout Equipment
VA THRU VZ	*
WA THRU WM	Weapon System Evaluator Missile
WN THRU WZ	Mission Simulator
XA THRU XZ	Real Property Installed Equipment
YA THRU YZ	Real Property Installed Equipment
ZA THRU ZL	Miscellaneous
ZM THRU ZZ	*
* These codes are unassigned. Their utilization will require prior approval of the procuring activity.	

TABLE VI. Systems codes, munitions

SAMPLE HOMOGENEOUS (see 6.4) GROUPING IDENTIFICATION CODES	
AA	Ammunition
AAA	Shot Gun
AAAA0	12 Gauge
AAAB0	410 Gauge
AAB	Carbine, Rifle and Machine Gun
AABA0	CAL .22
AABB0	5.56 MM
AABC0	CAL .30 Carbine
AABD0	CAL .30 Rifle and Machine Gun
AABE0	7.62 MM Rifle and Machine Gun
AAC	Pistol and Revolver
AACA0	CAL .38
AACB0	CAL .45
AAD	Machine Gun
AADAO	CAL .50
AAE	Cannon
AAEA0	20 MM
AAEB0	40 MM

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE VI. Systems codes, munitions - Continued**

AAEC0	90 MM
AAF	Mortar
AAFA0	60 MM
AAFB0	81 MM
BA	Bombs
BAA	General Purpose
BAAA0	250 Pound, MK 81, Mod 1

TABLE VII. System codes, Communication Electronic (CE)

STANDARD RADAR SYSTEM CODES (Not Applicable to Navigational Radar)	
AA	Antenna System
AE	Control System
AF	Test Control System
AG	Indicator System
AK	Transmitter System
AP	Receiver System
AQ	Data Handling System
AT	Electronic Counter-Counter Measures System
AU	Timing System
AV	Radio Frequency System
AX	Tower System
BA	Communications and Inter-Communications
BC	Identification, Friend or Foe System
BE	Optics System
BF	Mapping System
BH	Support Equipment
BK	Performance Monitor
BM	Television System
BW	Miscellaneous System
BY	Multiplexer System
STANDARD COMPUTER SYSTEM CODES	
CA	Central Processing System
CF	Input/Output Control System
CL	Input/Output System
CQ	Auxiliary Storage System
CT	Power Control and Distribution System

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE VII. System codes, Communication Electronic (CE) - Continued**

CW	Display/Projection System
DA	Test/Monitor and Alarm System
DE	Auxiliary Devices System
DJ	Interface Systems
DM	Support Equipment
EA THRU EZ	Sites and Shelters
FA THRU FE	Imagery Intelligence Systems
FF THRU FK	Signals Intelligence Systems
FL THRU FQ	Multiple Intelligence Systems
FR THRU FV	Communications Segment
FW THRU FZ	Non-Baseline Systems
GA THRU GZ	Workstations
HA THRU HZ	Equipment Racks
JA THRU JM	Tri-Band Field Terminal
JN THRU JZ	Tri-Band Medium Earth Terminal
KA THRU KM	Modular Interoperable Surface Terminal
LA THRU LK	Servers
LL THRU LQ	Raids
LR THRU LZ	Desktop Computers
MA THRU ME	Laptop Computers
MF THRU MK	Printers
ML THRU MQK	External Computer Devices (Drives, Mice, KVM, Card Readers, Keyboard)
MR THRU MV	Router/Switch/Hub
MW THRU MZ	Monitors
NA THRU NB	Patch Panels
NC THRU NE	Fiber Optic Devices/Media Converters
FN THRU NG	Multiplexers
NH THRU NK	Video Teleconference Systems/Wall Screens
NL THRU NN	Video Systems
NP THRU NQ	Audio Systems
NR THRU NS	Timing Systems
NT THRU NU	Sensor/Tap
NV THRU NW	Power Systems (Universal Power Supply, Power Distribution Unit, Generator)
NX	Telephone
NY THRU NZ	Cable
PA THRU PC	Environmental Control Unit

MIL-DTL-38769G(USAF)**APPENDIX A****TABLE VII. System codes, Communication Electronic (CE) - Continued**

PD THRU PF	Antenna Systems
PG THRU PJ	Transmitters
PK THRU PM	Receivers (Assigned by CPSG CRYPTO)
QA THRU QZ	Software

NOTE: TABLE VIII through TABLE XVIII deleted because this document now refers to TO 00-20-2 Appendix I for all support general codes.

MIL-DTL-38769G(USAF)**APPENDIX B****WORK UNIT CODE TECHNICAL MANUAL
MARKUP LANGUAGE TOOLS****B.1 SCOPE.**

B.1.1 Scope. This appendix describes the standard Air Force (AF) tagged language digital tools created for developing and delivering AF Technical Manuals (TMs). These tools are available as subsets in the Digital Support Suites (DSS) provided by the AF TMSS activity (see [B.2](#)). This appendix is a mandatory part of this detail specification. The information herein is intended for compliance.

B.1.2 Template Tool. The Document Type Definition (DTD) is the primary tool used as a template for authoring AF TMs and is based on rules outlined in MIL-PRF-28001 and ISO 8879. See [B.2.1](#) for information about the DTD specified for this appendix subset.

B.2 DSS.

The DSS is comprised of the following tools for authoring and rendering the TM. See [B.3](#) for information about obtaining DSS component files in digital format through the TMSS activity website. For information about the current status and availability of DSS tools, see [B.3.4](#).

B.2.1 DTD. The DTD provides the structure and content template in accordance with the content specific requirements of this specification (see [3.1](#)). To be delivered digitally, the TM shall be tagged using the applicable DTD provided through the TMSS activity. Information concerning the tagged language type and use of DTDs currently provided, i.e., Standardized General Markup Language (SGML), may be obtained through the contacts listed under [B.3](#).

B.2.2 Formatted Output Specification Instance (FOSI). NOTE: FOSIs and OmniMark™ scripts are no longer supported and may not be available for some DSSs.

B.2.3 Tag Description Table (TDT). The TDT provides detailed descriptions of the elements contained in the DTD. The TDT contains the element tagging structure, parent elements, full element name, source paragraph for this specification, attribute descriptions unique to the element, and entities.

B.2.4 OmniMark™. NOTE: FOSIs and OmniMark™ scripts are no longer supported and may not be available for some DSSs.

B.3 OBTAINING DSS TOOLS.

B.3.1 Obtaining files by users with .mil web site access. The following applies to those interested in obtaining DSS component files who are on a mil internet domain, having mil web address access.

B.3.1.1 AF TMSS web site. DTDs, TDTs, and other files in the DSS can be accessed on the TMSS web site at <https://techdata.wpafb.af.mil/TMSS/>. On the web page, the “Baseline” menu option in the left pane contains three bulleted options called “Specifications”, “Standards”, and “Handbooks”. Hover the cursor over “Specifications” and a listing of the TMSS specifications will appear. Hover over the desired specification number and another drop down list will appear that contains an entry indicating the Portable Document Format version of the specification and other entries for the associated appendices. To obtain the preferred subset DTD, select the desired appendix from the list. The following items will appear on the downloading page: The name of the specification, the appendix number and name, the current version of the DSS, buttons to download specific DSS files provided and a “Download” button to download the entire DSS zip file.

B.3.2 Obtaining files by users with a Public Key Infrastructure (PKI) certificate or a Common Access Card (CAC). The following applies to those interested in obtaining DSS component files who have a PKI certificate or a CAC:

B.3.2.1 AF TMSS SharePoint web site. DTDs, TDTs, and other files in the DSS can be accessed at the AF TMSS SharePoint web site: <https://cs2.eis.af.mil/sites/12316/default.aspx>.

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B.3.3 Obtaining files by users without .mil access, PKI certificate, or CAC. Those seeking to obtain DSS files who do not have mil web access, a PKI certificate, or a CAC should contact their government Program Management Office or see [B.3.4](#) to obtain information.

B.3.4 TMSS Helpdesk assistance. Address any requests or questions relating to the DSS by E-mail to SGMLSUPPORT@us.af.mil (organizational address: Wright-Patterson AFLCMC/HIAM_AF TMSS HLPDSK) or by postal mail to Air Force Technical Manual Specifications and Standards, AFMC AFLCMC/HIAM, 4170 Hebble Creek Road, Building 280, Door 15, Wright-Patterson AFB OH 45433-5653.

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CONCLUDING MATERIAL

Custodians:

Air Force - 16

Preparing activity:

Air Force - 16

(Project TMSS-2018-006)

Review activities:

Air Force - 01, 02, 10, 11, 13, 19, 70, 71, 184

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.