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DETAIL SPECIFICATION
MANUALS, TECHNICAL – TIME COMPLIANCE TECHNICAL ORDERS

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1 SCOPE

1.1 Scope. This detail specification prescribes the general style, format, and content requirements for creating Time Compliance Technical Orders (TCTOs) and TCTO supplements (see 6.1). TCTOs and supplements are developed according to this detail specification and those requirements specified by the acquiring activity. TCTOs are prepared to document permanent modifications, retrofit changes or non-periodic (one-time) inspections, inspection-replacements, and inspection-repairs of standard USAF systems end items, equipment, and commodities. This specification provides for digital delivery of data using the Document Type Definitions (DTDs) prescribed in Appendix A for formal TCTOs and Appendix B for formal TCTO supplements.

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 handbook. 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.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-129	Military Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-38784	Manuals, Technical: General Style and Format Requirements

DEPARTMENT OF DEFENSE HANDBOOKS

MIL-HDBK-1811	Mass Properties Control For Space Vehicles

(Copies of federal and military specifications, standards and handbooks are available at http://quicksearch.dla.mil/ or from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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 00-5-1	AF Technical Order System
TO 00-5-3	Air Force Technical Order Life Cycle Management
TO 00-5-15	Air Force Time Compliance Technical Order Process
TO 1-1B-50	Basic TO for USAF Acft Weight and Balance

(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.)

Federal Cataloging Handbook

H4/H8 Series	Commercial and Government Entity Handbook

(Copies of these documents are available online at http://www.gpoaccess.gov/index html or ordered by mail from U.S. Government Printing Office Mail Stop: IDCC 732 N. Capitol Street, NW Washington, DC 20401.)

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2.2.3 Non-government publications. The following documents 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.

SOCIETY OF ALLIED WEIGHT ENGINEERS
SAWE-RP7 Mass Properties Management and Control for Military Aircraft

(Copies of these documents are available online at http://www.sawe.org/technical or ordered by mail from Society of Allied Weight Engineers, Inc., P.O. Box 60024, Terminal Annex #0 Los Angeles, CA 90060.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated specifications or specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3 REQUIREMENTS

3.1 General requirements. General requirements for the preparation of TCTOs shall be in accordance with MIL-STD-38784, except as otherwise specified herein. Roles and responsibilities indicated throughout this specification for preparation of TCTOs are defined in 6.11. The following apply herein:

3.1.1 Priority assignment. TCTOs shall indicate a priority (see 3.2), as assigned on an approved AFTO Form 873, Time Compliance Technical Order Requirements (see 6.5 and 6.6). The contractor (if TCTO preparing activity) shall obtain the AFTO Form 873 from the Program Manager (PM) (see 6.11) during the approval cycle of the TCTO (see 6.2b).

3.1.2 Use of DTDs. Appendix A provides information for use of the DTD for digital delivery of formal TCTOs (for supplements, see 3.6).

3.1.3 Technical Manual (TM) electronic or print-unique functionality/formatting requirements. As specified by the acquiring activity (see 6.2c), the electronic presentation or print presentation unique functionality/formatting requirements shall apply for the development of all manuals specified herein (see 6.1.1).

3.1.4 Information to be excluded. Instructions on recurring maintenance procedures or requirements shall not be included in a TCTO if this will result in the TCTO becoming the sole source for the instructions. As an example, requirements for a one time inspection are documented in a TCTO; however, permanent instructions for a recurring inspection shall be included in the appropriate maintenance or inspection TM and used after the completion of the one-time inspection of the TCTO.

3.1.5 Authority to issue a TCTO. When TCTOs are prepared by contractors, contractors shall obtain approval from the acquiring activity (see 6.2d) on a case-by-case basis before proceeding with preparation of a TCTO. When specified by the acquiring activity (see 6.2e), the single TCTO method (see 6.5.5) shall be used.

3.2 TCTO priorities. The following apply for the preparation of formal TCTOs. See TO 00-5-15 for guidance concerning preparation of Interim TCTOs (ITCTO).

3.2.1 Immediate Action. Immediate Action TCTOs (see 6.5.1) shall be prepared according to the following:

3.2.1.1 Immediate Action marking. The first (title) page/screen of Immediate Action TCTOs shall display a border of red Xs broken at the top center by the words "IMMEDIATE ACTION" also in red font (see 3.3.2.1, Table I, and Figure 1).

3.2.1.2 Restrictions or discontinued use. Where both initial restriction or discontinued use information and instructions for subsequent retrofit accomplishment are necessary, the Immediate Action TCTO shall contain only the actual operations to be performed while the equipment is restricted or removed from use. Instructions covering subsequent retrofit change or rework shall be contained in a separate TCTO with a priority and type commensurate with the importance of the instructions. When the single TCTO method (see 3.3.2.10.5 and 6.5.5) is used, the TCTO shall contain the actual operations to be performed while the equipment is restricted or removed from use as well as instructions covering retrofit change or rework.

3.2.2 Urgent Action. Urgent Action TCTOs (see 6.5.6) shall be prepared according to the following:

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3.2.2.1 Urgent Action marking. The first (title) page/screen of Urgent Action TCTOs shall display a border of red diagonals alternated with red Xs broken at the top center by the words "URGENT ACTION" also in red font (see 3.3.2.1, Table I, and Figure 2).

3.2.3 Routine Action. Routine Action TCTOs (see 6.5.3) shall be developed according to the following:

3.2.3.1 Compliance time period. The preparing activity shall use the compliance period for Routine Action TCTOs contained in AFTO Form 873 (see 3.3.5.3), as provided by the PM (see 6.6).

3.2.3.2 Routine Action marking. A distinguishing border or priority heading shall not be used for Routine Action TCTOs (see Figure 3).

3.2.3.3 Routine Action Record TCTO. When a Routine Action Record TCTO (see 6.5.4) is specified by the acquiring activity, arrangement and format shall be the same as that for formal Routine Action TCTOs, except that paragraph 6, How Work is Accomplished (see 3.3.8 and Table I), of the TCTO shall not provide detailed step-by-step retrofit change instructions. The Record TCTO shall tabulate the equipment affected, index the necessary drawings and instructions, and list required parts which are provided by kits.

3.2.3.3.1 Drawings and instructions. Unless otherwise specified by the acquiring activity (see 6.2m), the contractor shall not furnish installation drawings or instructions with a Record TCTO or kit (see 3.3.7.1.1.4).

3.2.3.3.2 Record TCTO marking. A distinguishing border or action category indicator shall not be used for a Record TCTO. Identification of Record TCTOs shall have the following statement placed in paragraph 2, Purpose, as subparagraph 2.1 (see 3.3.4 and Table I): "This is a RECORD TCTO and is not complete within itself. The purpose of this TCTO is to identify the retrofit change, tabulate all affected systems or equipment, index all necessary drawings and instructions, and list all parts necessary for accomplishment."

3.2.4 Assigning maintenance level. The TCTO shall indicate the designated maintenance level for accomplishment (see 3.3.6) as assigned by the acquiring activity.

3.2.5 Formalizing ITCTOs. When ITCTOs or ITCTO supplements are formalized in accordance with this specification, they shall have the same publication date, data code, and TCTO number, and contain identical content, except for correction of grammatical or typographical errors.

3.3 TCTO preparation requirements. The preparing activity shall prepare TCTOs in accordance with the following requirements, the general content requirements specified in 3.4, and the Final Reproducible Copy (FRC) specified in 3.5. The preparing activity shall also include information contained in the applicable AFTO Form 873 (see 6.6), Time Compliance Technical Order Requirements, and AFTO Form 874 (see 6.6), Supply Data Requirements. After the acquiring activity approves the AFTO Form 874 (see 6.2g), the preparing activity shall extract all of the required information from these forms and incorporate into the TCTO.

3.3.1 Arrangement. TCTOs shall have the following arrangement in the order indicated (see Figure 3). If a paragraph is not applicable to the particular retrofit or inspection action covered by the TCTO, the words "Not applicable" shall be inserted after the paragraph title.

a. Heading (see 3.3.2).

b. Paragraph 1, titled "APPLICATION" (see 3.3.3).

c. Paragraph 2, titled "PURPOSE" (see 3.3.4).

d. Paragraph 3, titled "WHEN TO BE ACCOMPLISHED" (see 3.3.5).

e. Paragraph 4, titled "BY WHOM TO BE ACCOMPLISHED" (see 3.3.6).

f. Paragraph 5, titled "WHAT IS REQUIRED" (see 3.3.7).

g. Paragraph 6, titled "HOW WORK IS ACCOMPLISHED" (see 3.3.8).

h. Paragraph 7, titled "SUPPLEMENTAL INFORMATION" (see 3.3.9).

i. Paragraph 8, titled "RECORDS" (see 3.3.10).

j. Paragraph 9, titled “POINT OF CONTACT” (see 3.3.11).

k. "AUTHORITY" (see 3.3.12).

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Electronic presentation: Unless otherwise specified by the acquiring activity (see 6.2h), the complete document of the TCTO, from the heading to the end of the document, shall be contained within a single scrollable window. All font sizes shall be determined according to table II computations.

Print presentation: Font sizes shall be as specified in table I.

3.3.2 Heading. The heading of a TCTO shall consist of the following elements arranged as follows (see Figure 1 through Figure 6):

a. Designation of Urgency (Immediate Action, Urgent Action) (see 3.3.2.1).

b. Security Classification (see 3.3.2.2).

c. Issuing Activity (see 3.3.2.3).

d. Technical Manual Identification (TCTO) Number (see 3.3.2.4).

e. Data Code Number (see 3.3.2.5).

f. Date of Issuance (see 3.3.2.6).

g. Rescission Date (see 3.3.2.7).

h. Indicator of Safety Marking (see 3.3.2.8).

i. Supplement (when applicable) (see 3.6).

j. Title or Subject of Instructions (see 3.3.2.9).

k. Notes (see 3.3.2.10).

l. Scientific and Technical Information (STINFO) Disclosure Notice, Distribution Statement, Export Control Notice, and Destruction Notice (see 3.3.2.11).

3.3.2.1 Priority designations. The acquiring activity assigns the priority designation (see 3.1.1) for Immediate and Urgent Action TCTOs using the AFTO Form 873 (see 6.2b and 6.6). The preparing activity shall place this designation at the top center of the first (title) page/screen (see 3.2.1.1, 3.2.2.1, and Figures 1 and 2). Routine action TCTOs do not require a priority designation heading.

3.3.2.2 Security classification. The security classification markings of the TCTO shall be as indicated in 3.4.5.

3.3.2.3 Issuing activity. The preparing activity shall place the following statement in bold at the top center of the first (title) page/screen of the TCTO: "DEPARTMENT OF THE AIR FORCE TECHNICAL ORDER" (see Figure 1 through Figure 6). It shall be located beneath the IMMEDIATE ACTION or URGENT ACTION priority designation, when applicable.

3.3.2.4 Technical manual Identification Number. The preparing activity shall use the Identification Number, i.e., TCTO number, of each basic TCTO, and each supplement thereto (see 3.6) provided by the acquiring activity (see 6.2i) on an AFTO Form 873 (see 6.6.). The preparing activity shall print/display the TCTO number in the upper right corner of the first (title) page/screen of the TCTO (see Figure 1 through Figure 6).

Electronic presentation: The TCTO number shall be displayed in the persistent data area, i.e., second header line or second title bar, while scrolling through the document on the viewer display.

Print presentation: The preparing activity shall print the TCTO number in the upper outer corner of each succeeding page (see Figure 3 and Figure 6).

3.3.2.5 Data Code number. The preparing activity shall use the Data Code number for each basic TCTO, and each supplement thereto, provided by the acquiring activity (see 6.2j) on an AFTO Form 873 (see 6.6). The preparing activity shall print/display the Data Code on the first (title) page/screen only, immediately below and flush left with the TCTO number (see Figure 1 through Figure 6).

3.3.2.6 Date of Issuance. The preparing activity shall use the Issue Date, provided by the acquiring activity (see 6.2k) on an AFTO Form 873 (see 6.6). The preparing activity shall place the TCTO Issue Date in the upper right corner of the first (title) page/screen, immediately below and flush left with the Data Code number. The year, month, and day shall be in the YYYYMMDD format (see Figure 1 through Figure 6).

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3.3.2.7 Rescission Date. The preparing activity shall enter the TCTO Rescission Date in the upper right corner of the first page immediately below the TCTO Issue Date. The Rescission Date shall be specified on the AFTO Form 873 (see 6.6). The date shall be in the YYYYMMDD format.

3.3.2.8 Indicator of Safety marking. When specified by the acquiring activity (see 6.2l) on the AFTO Form 873 (see 6.6) as approved by the designated authority (Configuration Control Board [CCB], Item Manager [IM], System Program Manager [SPM], or Engine Manager [EM]), the preparing activity shall use the Indicator of Safety marking. This marking does not reflect the priority designation but is used by the Air Force for scheduling purposes. The Indicator of Safety marking "SAFETY TIME COMPLIANCE TECHNICAL ORDER" shall be displayed in red immediately above the technical order title (see Figure 5).

3.3.2.9 Title or subject of instructions. The preparing activity shall use the TCTO title provided by the acquiring activity (see 6.2o) using the AFTO Form 873 (see 6.6). The title shall identify the item being modified or inspected, part number, model number, affected component of the item being modified, and part number of the applicable system/equipment. When applicable, the facility or site and associated training equipment to which it pertains shall be included. The title shall be narrative style which clearly indicates the nature of the TCTO, e.g., inspection, modification, retrofit change, etc. (see Figure 1 through Figure 6). See TO 00-5-15 for additional guidance.

3.3.2.9.1 Contract End Item Number. The preparing activity shall use the Contract End Item Number from the AFTO Form 873 (see 6.6). When a Contract End Item Number has been assigned to a particular piece of equipment, the Contract End Item Number shall be included, in parentheses, immediately preceding the noun description of the equipment.

3.3.2.10 Notes. Notes shall be inserted immediately below the title of each TCTO, when necessary, to specify replacing, supplementing or personnel attention action. The following notes are typical but may be reworded to emphasize or clarify a particular situation (see Figure 1 through Figure 6).

3.3.2.10.1 Existing publications notes. One or more of the following notes and variations, as approved by the acquiring activity (see 6.2p), shall be used to replace, supplement, or formalize existing publications, including ITCTOs (for TCTO Supplement note see 3.6.6.):

a. Electronic presentation: "This technical order replaces TO ____, data code ____, dated ____. Information in the text changed or added in this issue is indicated by a [indicate change markings used for electronic presentation]; changes to illustrations and diagrams are indicated by shading or a pointing hand."

b. Print presentation: "This technical order replaces TO ____, data code ____, dated ____. Information in the text changed or added in this issue is indicated by a vertical line in the outer margins of affected pages; changes to illustrations and diagrams are indicated by shading or a pointing hand."

c. "This technical order formalizes interim IMMEDIATE action TO ____, data code ____, dated ____ . Remove from active files."

d. "This technical order is issued for the purpose of reinstating and establishing a new rescission date for rescinded TO ____, data code ____, dated ____."

3.3.2.10.2 Affected operational procedures. When the detailed instructions affect system or equipment operational procedure that would require the attention of personnel who would normally not have an interest in the particular series TCTO, a note shall be placed on the first (title) page/screen below the title. This note shall read "Commanders are responsible for bringing this technical order to the attention of all Air Force personnel cleared for operation of the affected system."

3.3.2.10.3 Additional notes. The preparing activity shall use additional notes, as provided by the acquiring activity, on a case-by-case basis. For example, when a TCTO modifies life support systems, personal, or survival equipment, a note similar to the following shall be included: "All [operating/flight] personnel, prior to next [use/flight], shall be made aware of the effect this TCTO has upon the operation of the equipment."

3.3.2.10.4 Security Assistance Program (SAP). When kits are procured by an AFMC/AFCA/AFSPC organization that includes SAP (Grant-Aid/Foreign Military Sales [FMS]) customers, special handling

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instructions shall be provided by the acquiring activity (see 6.2q). These shall be listed under "NOTES" (see 3.3.2.9).

3.3.2.10.5 Single TCTO method. When the single TCTO method is used (see 6.5.5), the preparing activity shall insert the following note: "This TCTO is issued under the single TCTO method. No companion aircraft or commodity TCTO(s) shall be issued."

3.3.2.10.6 Omitted note heading. When none of the preceding conditions exist (subparagraphs 3.3.2.10.1 through 3.3.2.10.5), the NOTE heading shall be omitted.

3.3.2.11 STINFO Disclosure Notice, Distribution Statement, Export Control Notice, and Destruction Notice. The acquiring activity shall provide the appropriate STINFO Disclosure Notices, Distribution Statements, Export Control Notices, and Destruction Notices (see MIL-STD-38784). These statements shall be placed at the bottom of the first (title) page/screen of all TCTOs and supplements thereto (see Figure 1 through Figure 6) in accordance with MIL-STD-38784.

3.3.3 Application (paragraph 1).

3.3.3.1 Identification. Subparagraph 1.1 shall completely identify the major item, component, assembly, part number, and serial numbers affected by the modification, retrofit change or inspection (see Figure 1 through Figure 6). It is not necessary to list serial numbers for each item/system affected when the TCTO applies to the complete inventory, except when the item is still in production. The statement "all series" will also suffice. Where it is more practical, only the serial numbers of those items/systems not affected may be listed and so identified. When required for clarity, identification may be made through use of a tabular listing (see Figure 1). TCTOs issued to authorize use of computer programs and changes shall identify the major item and the applicable serial numbers plus the Computer Program Identification Number (CPIN) assigned to the program. They shall also identify the quantity of computer programs to be furnished to each activity possessing the applicable equipment.

3.3.3.1.1 Production change. Where an equivalent retrofit change or inspection is incorporated in production, the production change point shall be specified in subparagraph 1.1 (see Figure 3).

3.3.3.1.2 Removal from service. When removal from service is necessary to permit accomplishment of a commodity TCTO, subparagraph 1.1 shall identify the system TCTO to effect the removal from service action. The corresponding system TCTO application paragraph shall also reflect the commodity TCTO by which the corrective change is effected. For TCTOs issued under the single TCTO method (see 6.5.5), removal from service information shall be contained in the single TCTO.

3.3.3.1.3 Training equipment. When the acquiring activity specifies that training equipment is involved, subparagraph 1.1 shall completely identify the training equipment affected. When retrofit changes affect both a system and a simulator, separate TCTOs shall be issued; one in the system series and one in the 43-series (simulator) with cross reference to the respective TCTO numbers assigned.

3.3.3.2 Kit applicability. When the acquiring activity specifies (see 6.2r) that kits are involved, subparagraph 1.2 of this TCTO section shall provide the kit applicability by serial number of the equipment or by other suitable identification if the items are not identified by serial number. If kits are not required, this paragraph shall read: "Kits are not required by this TCTO."

3.3.3.2.1 Multiple kits. If the acquiring activity so authorizes (see 6.2s), TCTOs may prescribe multiple kits, provided that only one kit per TCTO shall be applicable to a single serial numbered item of equipment. This is essential for configuration and kit management. Applicability shall be given by model/part number of the equipment, serial number of the equipment and applicable kit (see Figure 3). Two or more kits shall not be shown as applicable to a single serial numbered system or equipment. To ensure that there is only one kit per TCTO applicable to a single serial numbered item, the following instruction is provided: If, after issuing a TCTO, the acquiring activity determines additional components are required which would result in additional kits or re-engineering of the original kit, a new TCTO or supplement shall be issued with a new Data Code number. The new TCTO or supplement shall specify that it must be accomplished either concurrently with or subsequent to the original or basic TCTO.

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3.3.3.3 TCTO verification. Subparagraph 1.3 of the TCTO shall indicate if the updating change/modification verification was accomplished in compliance with TO 00-5-15. The date, location, and equipment (serial number when applicable) on which verification was accomplished shall be indicated (see Figure 3 and Figure 5). If TCTO verification has been waived, the office symbol, e-mail address and Defense Switched Network (DSN) phone number of the approving official shall be indicated (see Figure 1 and Figure 2).

3.3.4 Purpose (paragraph 2). This paragraph shall provide a concise explanation of the purpose of the TCTO, including reasons for any inspection, replacement or modification/retrofit change required (see Figure 2 through Figure 5). Sufficient background information shall be included in all TCTOs concerning conditions that caused the retrofit change and the affect noncompliance shall have on mission capability. The failure, incidents or conditions that make this retrofit change necessary shall be summarized. If applicable, this paragraph shall identify the Material Improvement Project (MIP), Modification (MOD), Engineering Change Proposal (ECP), production change point, and/or class modification number that the retrofit change will incorporate. For Record TCTOs, subparagraph 2.1 shall contain the statement shown in 3.2.3.3.2. Subparagraph 2.2 shall contain the information required above.

3.3.5 When to be Accomplished (paragraph 3). The time limit for accomplishment of the TCTO, as established by the AFTO Form 873 (see 6.6), shall be stated in this paragraph (see Figure 3 through Figure 5). Computer program related TCTOs shall always contain the statement "As directed by the using activity, but not later than X days after receipt of this TCTO and affected software (computer program)." Note: Use of the phrases "upon failure," "upon accumulation" or "when reaching" are not permitted for any TCTO.

3.3.5.1 Immediate Action statement. Time compliance for IMMEDIATE ACTION TCTOs shall, under all circumstances, be stated as: "Immediate [discontinued use or operating restriction] of affected system/equipment pending performance of the directed action."

3.3.5.2 Urgent Action statement. Without exception, time compliance for URGENT ACTION TCTOs shall be stated as: "Not later than X days after receipt of [this TCTO or this TCTO and kits/parts]. Failure to accomplish this TCTO by the preceding specified number of days shall result in discontinued use of the affected system/equipment." The acquiring activity (see 6.2m) shall determine the time limits for accomplishment.

3.3.5.3 Routine Action statements. The acquiring activity (see 6.2n) shall specify the time compliance for ROUTINE ACTION TCTOs (see 3.2.3.1) and shall include an applicable statement from below. The specified number of days indicated for accomplishment shall be as documented on AFTO Form 873 (see 6.6):

a. Routine Safety Inspection Organizational/Intermediate Level TCTOs. “Not later than ____ days after receipt of this TCTO. Affected system/equipment shall be removed from service if this TCTO is not accomplished within the specified number of days.”

b. Routine Action, Organizational/Intermediate Level, Safety TCTO. "Not later than ____ days after receipt of (this TCTO) (kits) (parts) (special tools). Failure to accomplish this TCTO by the preceding specified number of days shall automatically result in restriction of operations or shall be justification for withdrawing affected system/equipment from service until compliance is accomplished.”

c. Routine Action, Organizational/Intermediate Level TCTO. Organizational/Intermediate level TCTOs having a compliance period in terms of days shall read: "Not later than ____ days after receipt of (this TCTO) (kits) (parts) (special tools). Failure to accomplish the work by expiration of the compliance period shall be justification for withdrawing the affected system/equipment from service until compliance is accomplished.”

d. Routine Action, Organizational/Intermediate Level, Based Upon Maintenance Practice. When the time period for accomplishment cannot be specified as a certain number of days after receipt of the TCTO, kits, parts or special tools, the TCTO may specify compliance at the time a known maintenance event occurs, such as "At the time of removal from Emergency War Order (EWO) status (or during scheduled modernization action). If not complied with by (date), the system/equipment shall be removed from active service until compliance with the TCTO is accomplished.” The preceding phrase is an example of the type to be used and may be expanded

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or worded to fit the individual requirement as needed. The required statement shall be as documented on AFTO Form 873 (see 6.6).

e. Routine Action, Depot Level. These modifications require specified accomplishment at a time designated by the acquiring activity by means of AFTO Form 873 (see 6.6) at overhaul, contractor team, force modernization, AFMC schedule or other phrase that is most appropriate.

3.3.5.4 Additional statements. When applicable, the preparing activity shall use the appropriate statement(s) of the following, as an additional statement(s) after the "when to be accomplished" heading:

a. When work required by a TCTO affects another TO(s) or TCTO(s), an appropriate statement based on the following shall be used: "The work required by this technical order shall be accomplished [concurrently with][prior to][subsequent to] the work required by TO____, data code____ , dated____."

b. When the TCTO replaces another and requires additional work, the following statement shall be used: "Additional work is required by this issue." However, when no additional work is required on the system/equipment that shows compliance with the TCTO replaced, the following statement shall be used: "No additional work is required on the system/equipment which shows compliance with TO____, data code____ , dated____."

c. "EWO missiles are not affected by this TCTO."

d. "Launch facilities shall not be removed from alert status solely for compliance with the TCTO. Instead, compliance shall be accomplished during unscheduled maintenance periods."

The required statements shall be as provided on an AFTO Form 873 (see 6.6).

3.3.5.5 DELETED.

3.3.6 By Whom to be Accomplished (paragraph 4). The designated maintenance level to accomplish the TCTO shall be indicated in the By Whom to be Accomplished paragraph (see Figure 3) as either Organizational, Intermediate, or Depot level maintenance, obtained from AFTO Form 873 (see 6.2t). If the TCTO is applicable to more than one level, the lower echelon for accomplishment shall be specified. No requirements are to be issued using more than one TCTO number in order to authorize accomplishment at more than one level of maintenance. The preparing activity shall not issue a TCTO for requirements to be accomplished at split levels of maintenance, e.g., Depot level maintenance installs wiring and controls, makes structural changes, etc., and Organizational/Intermediate level maintenance installs a commodity(s) item. In cases where TCTOs designated as depot-level maintenance are instead performed at the field level, the By Whom to be Accomplished paragraph shall include the office symbol, e-mail address and Defense Switched Network (DSN) number of the using command office authorizing this level of accomplishment.

3.3.7 What is Required (paragraph 5). This paragraph shall contain the three subparagraphs listed below with supporting sub-subparagraphs, as applicable (see Table I). When computer programs are involved, the information for subparagraph "Special Tools, Fixtures, Test Equipment, and Software Required" (see 3.3.7.3) shall be included. Subparagraphs that do not apply shall be annotated "Not applicable" after the title.

a. Supply Information and Requirements.

b. Personnel Information and Requirements.

c. Special Tools, Fixtures, Test Equipment, and Software Required.

3.3.7.1 Supply information and requirements. The contractor shall insert the contractor-proposed supply data information into the AFTO Form 874 (see 6.6) that is submitted to the acquiring activity for approval. Where parts, items, or spares are not to be re-identified, condition tagged "TOC" (Technical Order Compliance), or condemned, this paragraph shall consist of the title followed by the statement "Not applicable." This paragraph shall have the following subparagraphs in the order indicated (see Figure 3). "Not applicable" shall follow the subparagraph titles, if appropriate.

a. Kits/Parts/Materials Required (see 3.3.7.1.1). This subparagraph shall contain the kits/parts/materials required to accomplish the retrofit change and those kits applicable to affected training equipment and War Reserve Material (WRM) assets, if different.

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b. Action Required on Items in Stock (see 3.3.7.1.2).

c. Kits/Parts/Materials Required to Modify Items in Stock (see 3.3.7.1.3).

d. Disposition of Removed and Replaced Parts/Materials (see 3.3.7.1.4).

e. Drawings and Instructions Required (Record TCTOs only) (see 3.3.7.1.5).

f. Size, Weight, and Cost of Kits/Parts/Materials (see 3.3.7.1.6).

g. Disposition of Kits/Parts/Materials (see 3.3.7.1.7).

3.3.7.1.1 Kits/parts/materials required. This paragraph shall specify the distribution of kits, contain a Bill of Materials (BOM), percentages of parts replacement required and other information as required by the following paragraphs. All TCTOs requiring kits/parts/materials shall contain the following note:

NOTE

"AF activities shall ensure that requisitioning of TCTO kits/parts is effected in an expeditious manner to ensure accomplishment of this TCTO within the designated time period."

3.3.7.1.1.1 Kit statements. One of the following statements, as applicable, shall be included: "The following parts will be furnished as a complete kit. The following kits shall be requisitioned in accordance with AFI 23-101" or "Not all components/parts/tools will be furnished in a kit, complete kit concept waived by (insert name/rank/office symbol/DSN phone number and e-mail address of the Lead Command POC authorizing a waiver of the complete kit concept). The following kits and/or individual items shall be requisitioned in accordance with AFI 23-101."

3.3.7.1.1.2 BOM. The BOM shall be a tabular listing of all the parts and materials required per unit of equipment. Quantity, stock number, part number, nomenclature, and supply source shall be given. PM approved Kit identification numbers shall be included (see TO 00-5-15). Stock and part numbers of components included in kits requiring shelf life control shall be identified with the designated control processing code (see TO 00-20K series). For kits with "K" National Stock Numbers (NSN) and parts with "ND" NSNs, which must be ordered through the supply system, the following information shall be included in the BOM: part number; noun; Expendability, Recoverability, Repairability Code (ERRC); source (Commercial and Government Entity [CAGE]) code from Commercial and Government Entity Handbook H4/H8 [see 2.2.2]); shelf life code; quantity/unit pack; budget code; demilitarization code; precious metal code; controlled item code; unit of issue; and cost. When more than one kit is required, the components shall be identified in a group tabular form, as in the following example and figure 3:

Kits-/Qty		Stock Number	Part Number	Nomenclature	Source
A	B				
1		5310K0168380ALH	-	Kits A and B,	AF Supply
	1	5310K0168380BLH	-	consisting of:	AF Supply
1	1		1X-XX-506	Technical Order	AF Supply
1		4935-00-210-6254	30415-1	Filter Housing	AF Supply
1	1		CP13-01	Filter Cartridge	CAGE Code 47132

3.3.7.1.1.3 Waiver to complete kit concept. If the acquiring activity has waived the kit concept, exempted parts or materials not furnished in the kit shall be listed in tabular form following the kit listing specified above. The exempted parts listing shall include the quantity per equipment, stock number, part number, nomenclature, source of each item or material, if not stock listed, and percentage of parts replacement required. Where it is impossible to indicate the exact quantity, the best estimate shall be given followed by the word "estimate" in parentheses. For such items as sheet stock, the quantity column shall specify dimensions

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(not area), as well as quantity; for example, "4½ by 2 inches (for two)." The term "as required" shall be avoided. The listing shall be preceded by the statement "The following parts/material required to comply with this technical order are not furnished in the kit and shall be obtained through the appropriate supply source."

3.3.7.1.1.4 Parts required - Record TCTOs. The parts required paragraph in Record TCTOs shall contain a list of all kits and parts required to accomplish the retrofit change. The parts shall be listed in tabular form and shall include quantity, part number, brief nomenclature, and applicable Federal Stock Class (FSC). The parts required for each station, area, or system shall be grouped and each group shall contain reference to applicable installation drawings and instructions, when appropriate (see 3.2.3.3.1). If a complete parts list is provided with the installation drawings, only the kits and parts requiring shelf life control shall be listed in this paragraph.

3.3.7.1.2 Action required on items in supply or stock. This paragraph shall specify whether action is or is not required on items in supply or stock and other applicable information, as follows:

a. All items in stock requiring accomplishment shall be listed in tabular form giving the NSN, part number, and nomenclature and, if required, the Numeric Parts Preference Code (NPPC). When a Federal Stock Number (FSN) has not been assigned, the part number shall be listed and identified with the manufacturer's CAGE code in parentheses following the nomenclature. (NPPC Code 4 indicates that items in supply require modification that will change form, fit, or function.)

b. Provide complete kit support for items in stock (see 3.3.7.1.3).

c. Identify that accomplishment is required prior to issue, shipment to or from depots, at time of overhaul, or other appropriate point. If spares are to be condemned, the time for condemnation (to prevent premature disposal) shall be specified. A statement shall also explain that the required action shall be accomplished on items in stock, as directed by the TCTO. These actions shall be accomplished within the time frame of, and prior to the rescission of, the TCTO.

d. The TCTO shall specify whether accomplishment of the action is either required or not required on WRM assets. Accomplishment may be deferred past the normal TCTO compliance period by the TCTO manager, in which case, the TCTO will not be rescinded. TCTOs involving WRM will be complied with when assets are removed from Readiness Spares Package (RSP) kits.

e. Provide accomplishment instructions necessary for any differences between installed items and spare items in stock.

3.3.7.1.3 Kits/parts/materials required to modify items in stock. Kits/parts/materials required to modify each spare shall be listed. Quick engine change, Special Purpose Recoverable Authorized Maintenance (SPRAM), engine build-up, readiness spares packages (WRM, base-level self-sufficiency spares, war reserve spares kits), and similar assets affected by the TCTO shall be identified. Parts and materials shall be listed in tabular form showing the quantity, stock number, part number, nomenclature, and source (see 3.3.7.1.1.2 and 3.3.7.1.1.3). If the parts and materials are available as a kit, the listing of the individual parts and materials shall be preceded by the same information for the kit as for the individual parts and materials. Each listing shall be preceded by one of the following statements:

a. "Parts and materials required to modify each (nomenclature) (part number) in stock will be furnished as a kit. The following kits shall be requisitioned in accordance with AFI 23-101."

b. "Parts and materials required to modify items in stock shall be obtained through the appropriate supply source."

3.3.7.1.3.1 Same parts and materials required. If parts and materials required to modify spares and WRM are exactly the same as those required to modify the system, components, part, or other unit of equipment, detailed listings shall not be included. In lieu thereof, the following statement shall be inserted: "Same as parts and materials (specific) (or other specific unit of equipment) listed in subparagraph 5.1.1."

3.3.7.1.4 Disposition of removed and replaced parts/materials. This paragraph shall list removed and replaced parts/materials in tabular form giving stock number, part number, and nomenclature, and shall be marked to indicate the disposition action as shown by the approved AFTO Form 874 (see 6.6). For removed or replaced parts which are to be mutilated, the item or items shall be listed in the same tabular format as

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above but preceded with a WARNING. Appropriate instructions to effect mutilation and disposition, as prescribed by AFI 23-101, Basic Air Force Supply Procedures (see 2.2.2), shall also be included.

3.3.7.1.4.1 Exchange of equipment or parts. When equipment or parts are to be returned to the contractor for necessary compliance on an exchange basis of components, the following note shall be included immediately after the disposition instructions of the item.

NOTE

"All (nomenclature of item) which have not been returned to the contractor for exchange by (date) will require separate negotiation with the contractor. Responsible activities will be required to justify noncompliance within the specified time."

3.3.7.1.4.2 Non-cataloged items. Non-cataloged items and small attaching hardware shall not be listed. The following note shall be used:

NOTE

"Parts removed, but not listed, shall be processed to the local Defense Re-utilization and Marketing Office if unserviceable or not cataloged. Serviceable stock listed items shall not be returned to stock unless the quantity removed exceeds $25.00 line item value."

3.3.7.1.4.3 Removed items. The following note shall apply to recoverable items removed/replaced during a modernization program:

NOTE

"Recoverable items removed/replaced during a modernization program shall be bench checked for serviceability, returned to Air Force inventory or repaired in accordance with directions provided by the Item Manager (IM). Retail supply systems shall report serviceable and unserviceable recoverable assets to the applicable IM for disposition action."

3.3.7.1.5 Drawings and instructions required (Record TCTOs only). If drawings and instructions not furnished in the kits are required (see 6.2f), the contractor shall provide the drawing and instruction number, manufacturer's CAGE code, and date as shown below. Instructions for obtaining the drawings and/or engineering instructions, provided by the acquiring activity, shall also be included. The contractor shall state if drawings and/or engineering instructions are not required (see 6.2f). "Not applicable" shall be entered after the paragraph heading if they are not required.

Drawings/ Instructions/ Number	CAGE Code	Date	Revision	Source
D7392161	85421	3 July 70		Obtain from _____
D7392162	85421	3 July 70	J	Obtain from _____

3.3.7.1.6 Size, weight, and cost of kits/parts/materials. Size, weight, and cost of each kit, and of each part/material not furnished in a kit, shall be listed. Where more than one kit is required, information shall be included for each kit. For inspection, remove and replace with like item TCTOs, or those for which parts, kits, or materials are not required for accomplishment, this paragraph heading shall state "Not applicable."

3.3.7.1.7 Disposition of kits/parts/materials. Unless otherwise specified by the acquiring activity (see 6.2u), this paragraph shall state: "(Kits/Parts/Materials) remaining in stock after rescission date or completion of modification requirements shall be reported as excess to kit manager in accordance with AFI 23-101." When specified by the acquiring activity (see 6.2u), this paragraph shall give disposition instructions for

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kits/parts/materials remaining in stock after the retrofit change is completed. TCTOs not requiring disposition of items shall show this paragraph heading and state "Not applicable."

3.3.7.2 Personnel information and requirements. Actual man-hours and Air Force Specialty Code (AFSC) determined from updating change or modification verification shall be furnished whenever possible; otherwise, best estimates based on experience shall be provided. Man-hour figures shall be determined as the result of verification of the TCTO and any previous estimates adjusted accordingly for this requirement. TCTOs specifying accomplishment at organizational, intermediate or depot level shall include, as applicable, the following work phases and shall include the AFSC and man-hours for each phase (see 6.7.1 and Figure 3). TCTOs not requiring all phases shall show all the headings and state "Not applicable," as appropriate.

a. Unpacking (new equipment) (kits/parts).

b. Disassembly (gaining access to work area, preparing equipment, making safe for maintenance, etc.).

c. Installation (accomplishing work/inspection).

d. Assembly (reinstalling parts removed to gain access).

e. Operational check.

3.3.7.2.1 Man-hour information. Man-hour information shall be expressed in hours and tenths of an hour. When less than one hour is needed and only one person is essential, a statement shall be made that a (skill level) maintenance person is required and will require (tenths) of an hour to accomplish the task. Total man-hours required shall also be provided.

3.3.7.2.2 Man-hour information–inspection TCTOs. For Inspection TCTOs, the AFSCs and man-hours shall be based on Maintenance Data Collection (MDC) records. The equivalent work phases shall be:

a. Equipment preparation.

b. Access work area.

c. Perform inspection.

d. Close work area.

e. Operational check and documentation.

3.3.7.3 Special tools, fixtures, test equipment, and software required. This paragraph shall list all special tools, fixtures, test equipment (including test adapters), and software (test tapes or computer programs) required to support initial accomplishment when such equipment is peculiar to accomplishment of the projected retrofit change and will be used on a one time basis. When no special kit installation tools are required, an appropriate statement to that effect shall be made.

3.3.7.3.1 Listing of tools. If special tools, fixtures, or test equipment are required, they shall be listed by assigned stock numbers (for tools, fixtures, and test equipment to be used on a continuing basis only), part numbers, and nomenclature and shall be indicated on the applicable AFTO Form 874 (see Figure 3). If a tool kit is provided, only the kit shall be listed. Software shall be listed by CPIN, title, and date. The exact method by which tools, test equipment, fixtures, and software will be obtained, furnished or locally manufactured shall be stated and instructions for appropriate disposition of the tools, fixtures, test equipment, and software, after compliance with the TO, shall be provided. One of the following statements shall be used, as applicable:

a. "This (tool [kit]) (fixture) (test equipment) (software) will be furnished to using activities, without requisition, by (contractor's name) through the contractor's Field Service Representative. After use of the (tool [kit]) (fixture) (test equipment) (software) is completed, it shall be (returned to the contractor's Field Service Representative) (returned to stock) (kept by the user) (disposed of as condemned property) (other)."

b. "This tool (kit) will be furnished to using activities upon requisition from (agency). After use of the tool (kit) is completed, it shall be (returned to stock) (kept by the user) (disposed of as condemned property) (other)."

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c. "This tool will be locally manufactured using instruction(s)/illustration(s) (appropriate paragraph/figure reference) which provide the necessary manufacturing details. After use of the tool is completed, it shall be (kept by the user) (disposed of as condemned property) (other)."

3.3.8 How Work is Accomplished (paragraph 6). This paragraph shall contain all the text and illustrations necessary to give step-by-step instructions to perform all inspections, replacements, modifications/retrofit changes, and re-identification required by the TCTO. This paragraph shall also include the work phases identified in 3.3.7.2. Step-by-step instructions shall not be provided for Record TCTOs (see 3.2.3.3).

3.3.8.1 Instructions. See Figure 3. The instructions shall be clear, comprehensive, and complete in detail so that subsequent correspondence and corrective TCTOs can be held to a minimum. Careful consideration shall be given to all equipment, materials, and processes involved in each phase of inspection, replacement, retrofit change, etc., specified. When the work required entails a scientific process or test (e.g., chemical, metallurgical, or similar), the requirement shall be stated in understandable language for the skill level actually accomplishing the task. TCTOs directing chemical use shall instruct the users who break down a chemical "Unit of Issue" into smaller containers to label the containers with shelf life and expiration dates. The TCTO shall specify a strength/integrity check on any chemical to be used prior to each use. When the TCTO affects equipment designated to establish reliability factors, instructions shall specify any special facilities and work standards required to ensure that the reliability factors stated in the applicable maintenance manuals will not be degraded. Where the exact configuration is not known, or several configurations exist, making it economically infeasible to show details of all configurations, a typical installation shall be illustrated. This illustration shall contain a note to the effect that variations in accordance with approved standard maintenance practices are permissible, provided the intent of the TCTO is accomplished.

3.3.8.1.1 WRM. If the inspection or retrofit change is to be accomplished on WRM, the instructions for accomplishing the work shall be included in this paragraph. If the instructions are the same, it shall be so stated. If instructions are different, separate subparagraphs shall be used to provide the instructions.

3.3.8.2 Completeness. Step-by-step instructions shall be written in simple, assembly/disassembly sequence, order. All unusual or critical steps shall be covered in detail. Any procedures used that involve safety of personnel or material shall clearly be identified by appropriate warnings, cautions, or notes, in accordance with MIL-STD-38784. Instructions shall direct that progressive checks be performed at intervals prior to completion of the work. Where more than one kit is required, the instructions for each kit shall be grouped individually. However, when this would result in unnecessary duplication, one or more subparagraphs shall be devoted to each operation. Step-by-step instructions may be illustrated, as appropriate, provided the text makes appropriate reference to such illustrations. Other illustrations shall be used, as appropriate, to support the text. These illustrations shall be in the form of perspective drawings, line drawings, etc., whichever give the clearest and simplest presentation.

3.3.8.3 Local manufacture. When local purchase, local manufacture, or other stock listed or non-stock listed items or materials are required to accomplish the TCTO, such items or materials shall be accumulated by the contractor or depot assembling the kits. These items and materials shall be packaged as prescribed in the TCTO and included as regular components of the TCTO kit. When emergency requirements make local manufacture by Organizational/Intermediate activities necessary, instructions shall be included which provide all manufacturing details essential for fabrication. The instructions and illustrations shall be sufficiently complete so that supplementary drawings are unnecessary.

3.3.8.4 Wiring diagrams. If required by the acquiring activity, suitable wiring diagram illustrations shall be included for installation or retrofit change. Graphic symbols, mechanical symbols, and reference designators shall be in accordance with the requirements of MIL-STD-38784.

3.3.8.5 References to parts or assemblies. Reference to major parts or assemblies shall include part number and nomenclature (federal item name). When retrofit changes affect parts, subassemblies or complete articles to the extent that the original and modified items are no longer completely interchangeable with respect to either installation, performance, function or fit; instructions shall be given for re-identification of the modified items. The part number of the item shall be changed when specified by the acquiring activity (see 6.2v). When retrofit changes result in change of part numbers which are stamped, stenciled, etched, etc., on the affected equipment, instructions shall be given to identify the location and method

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of marking of the new part numbers. When practical, a new data plate shall be included in the kit to reflect the new part number or identification markings in lieu of stamping, stenciling, or etching. Instructions shall comply with the requirements of MIL-STD-130. The number, specification, shade of color, etc., of each referenced part shall be given.

3.3.8.5.1 Nameplates. If the retrofit change requires a new nameplate for the equipment, the nameplate shall be provided in the kit and instructions shall be furnished for completing the required information on the nameplate; for example, transferring the serial number.

3.3.8.6 Marking for inspection. Where changes or inspections are directed which are not readily apparent through visual inspection, instructions shall be given to mark the article during retrofit change in such a manner that accomplishment can be affirmed in the installed condition through visual inspection to the maximum extent practical. The instructions shall give the specific type and location of such markings. These markings shall not form a prefix or suffix to part numbers or stock numbers. Approval of the acquiring activity shall be obtained prior to preparation of instructions. The type of marking shall be indicated in the Records paragraph (see 3.3.10).

3.3.8.7 Marking containers. When modified equipment is to be packed or crated, instructions shall be included for marking the exterior of the container to indicate specific TCTO compliance. These instructions shall conform to the requirements of MIL-STD-129.

3.3.8.8 Demilitarization. When a removed or replaced part/material requires demilitarization prior to disposal action, instructions shall be given for demilitarizing the part/material.

3.3.9 Supplemental Information (paragraph 7). This paragraph shall include information, as applicable, pertaining to defuel/purge requirements, operational checkout requirements, weight and balance information, and TMs affected (see Figure 3 and Table I).

3.3.9.1 Fuel system defuel/purge. This subparagraph shall contain a statement that (defueling/purging) of the fuel system (shall be accomplished/is not required) prior to accomplishing the TCTO.

3.3.9.1.1 Defuel/purge determination. Determination of whether (defueling/purging) shall be accomplished shall be based upon the following factors:

a. Preliminary Hazard Analysis.

b. Operating Hazard Analysis.

c. Area of equipment being modified.

d. Type of work being performed.

3.3.9.2 Operational checkout requirements. This subparagraph shall contain a statement that an operational checkout of the system or equipment after retrofit change (shall be accomplished/is not required) prior to normal operations.

3.3.9.2.1 Operational checkout instructions. The instructions shall direct that upon completion of the work required, an operational checkout (including functional check flight) be performed, as appropriate, to determine whether the affected equipment, parts or systems operate properly. Procedures for accomplishing the operational checkout, including necessary test tapes and computer programs, shall be provided if not already covered in an existing TM. Such instructions shall be limited to those required for one time use to check out the installation of the retrofit change. If procedures are provided in an existing TM, appropriate reference shall be made.

Electronic presentation: References in the text shall be linked to the documents being referenced.

3.3.9.2.2 Operational checkout instructions appendix. When extensive operational checkout instructions, test tapes or computer programs are required for modified systems or equipment, which would preclude publication in the basic content of paragraph 7 of the TCTO, these instructions may be prepared in the form of an appendix to the basic TCTO, in accordance with MIL-STD-38784. When used, such an appendix shall form an integral part of the basic TCTO. A statement shall be included that the instructions are for one time usage to check out the initial installation only and future operation and maintenance instructions shall be obtained from applicable TMs.

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3.3.9.3 Weight and balance information. This subparagraph is applicable only to airborne weapon systems (aircraft, missiles, drones, guns, engines, etc.). It shall contain sufficient data to document the weight and balance change resulting from TCTO accomplishment. TCTO weight and balance information shall be in the format specified in 3.3.9.3.4. See 6.7.2.

3.3.9.3.1 No change in weight and balance. When the weight and balance status of the weapon system is not changed as a result of TCTO accomplishment, the following statement shall be included: "There are no weight or balance changes resulting from the instructions contained herein."

3.3.9.3.2 Unknown change in weight and balance. When retrofit changes involve structural and/or subsystem changes which preclude the determination of the actual weight and balance change prior to TCTO accomplishment, a statement directing the weighing of the weapon system, in accordance with TO 1-1B-50 requirements, shall be made.

3.3.9.3.3 Missile/launch vehicle weight and balance. The preparation of weight and balance data for missile/launch vehicle TCTOs shall be based on standard weight and balance control system requirements for space vehicles, as specified by the acquiring activity (see 6.7.4). The mass and mass properties used shall be the ones established by the missile/launch vehicle contractor.

3.3.9.3.4 Aircraft/aircraft equipment weight and balance. The simplified moment system, as outlined in SAWE-RP7 and TO 1-1B-50 (see section 2), shall be followed in the preparation of weight and balance information. The moment constant shall be the one approved for use by the acquiring activity engineering personnel in the aircraft -5 series TMs. As a minimum, all Chart A entries must be separate Chart C line entries. Structural and subsystem changes greater than five pounds shall be listed as separate line items. Lesser weight may be summed together. TCTO weight and balance information shall be presented in the following format and shall comply with the preparation requirements and instructions of SAWE-RP7 and TO 1-1B-50 (see Figure 7). "Chart A Entry Information:

NOTE

When a Chart A entry is required and an aircraft inventory is not accomplished, the date of the entry must be placed (in pencil) in the item description column of Chart A. Marks in the "IN AIRCRAFT" and "CHART C ENTRY" columns of Chart A are made only at the time of a complete aircraft inventory."

Electronic presentation: The acquiring activity shall determine if electronic methods for entry of Chart A information is used in lieu of print related methods (see 6.2w). If electronic entry is used, the applicable interactive terms shall be used in place of "must be placed (in pencil)..." in the statement in the note.

Item No.	Item Description	Weight	Arm	Moment/Constant

Compartment(s)

Chart C Entry Information:

Added/Removed:

Item No.	Item Description	Weight	Arm	Moment/Constant

Compartment(s)

Overall Change in Basic Weight: ± ... pounds and

Overall Change in Basic Moment: ± ... inch-pounds/constant

3.3.9.4 Technical manuals affected. All TMs which require change as a result of the retrofit change shall be identified by TM identification number and date of the basic issue. If TMs are not affected by this retrofit change, the words "Not applicable" shall be entered after the subheading.

3.3.10 Records (paragraph 8). This paragraph shall be used to convey the necessary reporting and recording accomplishment of the TCTO (see Figure 3).

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3.3.10.1 Action required on maintenance records. Subparagraph 8.1 of the TCTO shall state "Upon completion of TCTO, update applicable MDC system(s) in accordance with TO 00-20-2 and the handbook for that system." The item requiring TCTO accomplishment shall be identified by part number, CAGE code, FSC, Standard Reporting Designator (SRD), and Work Unit Code (WUC):

Part Number	CAGE	FSC	SRD	WUC

3.3.10.1.1 No form entry required. In the event a form entry is not required, the words "None" shall be inserted following this heading.

3.3.10.1.2 No additional work required. When the TCTO replaces another TCTO, but requires no additional work, the following statement shall be included following the recording requirements: "No new form entry required. Change publication date and number, as necessary."

3.3.10.1.3 Additional work required. Supplements requiring additional work shall include appropriate requirements for form entry.

3.3.10.1.4 Inventory equipment. (Aircraft and missiles only) When the TCTO specifies installation, removal or relocation of inventory equipment, this subparagraph shall state that upon compliance with the TCTO, entry is required on AF Form 2691, Aircraft/Missile Equipment Property Record, in accordance with AFI 21-103, Equipment Inventory, Status, and Utilization Reporting. This subparagraph shall also contain a list of all items of inventory equipment affected (removed, added or relocated) by the TCTO and shall include quantity of items, nomenclature and location in aircraft/missile. See 6.7.3.

3.3.10.2 Action required on supply records. Subparagraph 8.2 of the TCTO shall be used to state the action that supply personnel must take to adjust their supply records to ensure that parts removed from use by the TCTO are not reissued to maintenance personnel for the same application. Parts shall be listed by stock number, part number, and nomenclature. A list of stock/part numbers shall be obtained from an approved AFTO Form 874 (see 6.6). The following sentence shall be used, as appropriate: "Supply records shall be appropriately annotated to reflect that the following part(s) shall not be issued for an unauthorized application. Supply organizations maintaining Manual Stock Record Accounts shall enter in the Remarks space of the appropriate AF Form 105F series, 'DO NOT USE ON (equipment) PER TCTO (number).' Supply accounts maintaining mechanized records shall take following actions:

a. Base Supply: Load applicable exception codes to the records to prevent automatic issue to customers in accordance with AFI 23-101.

b. Depot Support: Perform manager review code of the listed items to prevent automatic issue.

c. Inventory Manager: Manager review code "T" shall be assigned item(s) listed below to ensure that shipments are not made to Air Force activities until proper application is confirmed. Use of other manager review codes, if applicable, is permissible.

d. Property accounting personnel shall verify the intended application of the item requisitioned to ensure that demodification will not result. Positive supply action shall be taken based upon results of verification of proper application."

3.3.10.2.1 No action required on supply records. If supply records are not affected by the TCTO, the words "Not applicable" shall be entered after the subheading.

3.3.10.3 Retrofit change or inspection identification marking. Subparagraph 8.3 of the TCTO shall list the special retrofit change or inspection identification markings, if required; for example, "TCTO number stenciled next to nameplate." Instructions for placing the marking shall be contained in paragraph 6 of the TCTO (see 3.3.8.6). Specify the location, size, and military standard applicable to marking colors and materials required. If markings are not required, this subparagraph shall be annotated as "Not applicable" after the title.

3.3.11 Point of Contact (paragraph 9). This paragraph shall contain the Point of Contact (POC) information for the TCTO consisting of name, organization, office symbol, e-mail address, and DSN. The government assigned modification manager (see TO 00-5-15) shall be identified as the POC. Companion TCTOs shall include POC information of the main TCTOs.

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3.3.12 Authority. The authentication requirements shall be included at the close of the TCTO. The names of the current Air Force Chief of Staff and Commander, Air Force Materiel Command, shall be used (see Figure 3).

3.3.12.1 Responsible organization. Each TCTO and/or supplement shall include a statement indicating the name, organization and office symbol, DSN telephone number, and e-mail address of the POC responsible for its preparation (see Figure 3). TCTOs prepared by contractors shall include the following in parentheses immediately following the name of the contractor: the word "for" and the information, i.e., symbol of the organization, DSN telephone number and extension, for the POC authorizing the preparation of the publication. Names of individuals within the organization shall not be included. TCTOs prepared by contractors shall include, beneath their names, the applicable contract number(s).

3.3.13 Additional requirements.

3.3.13.1 Other Inspection TCTO statements. All TCTOs directing an inspection shall indicate whether or not previous inspections satisfy the one-time requirement and also indicate whether or not the requirement is being included in the system or equipment inspection manual. This shall especially apply to inspections involving chemical reaction or when serviceability is determined by a negative result.

3.3.13.2 Inclusion of TCTO/BOM copies with kits. When specified by the acquiring activity, the preparing activity, i.e., contractor, shall prepare a minimum of one (printed or electronic) copy of the TCTO for inclusion with each kit being furnished (see 6.2x). The quantities of copies, when specified, shall be indicated in the appropriate document at the time of coordination/processing of the TCTO. For kits that do not require a copy of the TCTO, as determined by the acquiring activity, a tabular listing (BOM) of all the items required to accomplish the TCTO shall be prepared instead. The format of minimum information shall be as follows:

BILL OF MATERIALS

TCTO (Number) Kit (Number)

Quantity	Stock number	Part Number	Nomenclature	Source

Electronic presentation: If electronic TCTOs are developed in lieu of printed copies, the acquiring activity (see 6.2x) shall specify the method for inclusion of the electronic TCTO and/or BOM with each kit being furnished, i.e., CD ROM.

3.4 Development of TCTO contents.

3.4.1 Reading grade level (RGL). The RGL provisions of MIL-STD-38784 shall apply.

3.4.2 Reference to other publications. TCTOs shall present all information, using text and illustrations as necessary to effect the change. However, if assembly/disassembly instructions are located in a TM that is applicable and effective, reference shall be made in accordance with MIL-STD-38784.

Electronic presentation: References shall be linked to the data that is being referenced, if data is electronic.

3.4.3 Nomenclature. Positive identification is mandatory and, if necessary, redundancy is permitted to ensure adequate parts identification is always maintained.

3.4.4 Use of "shall," "must," "will," "should", and "may". The provisions of MIL-STD-38784 shall apply.

3.4.5 Security classification. The security classification requirements of MIL-STD-38784 shall apply.

3.4.5.1 Title for classified TCTOs. When possible, an unclassified title shall be used for classified TCTOs that adequately identifies the TCTO and the title shall be marked as "unclassified." When an unclassified title will not adequately identify the TCTO, a title of the lowest classification shall be selected and marked accordingly. When the title must be of the same classification as assigned to the TCTO, the classification marking shall still be indicated.

3.4.5.2 Notices for classified TCTOs. The STINFO Disclosure Notice, Distribution Statement, Export Control Notice, and Destruction Notice for classified TCTOs shall be in accordance with 3.3.2.11.

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3.5 FRC. FRC artwork, paragraphs, figures, and tables shall be in accordance with MIL-STD-38784, except that it is recommended (but not a requirement) for subordinate side heads to have run-in text immediately following the title, unless otherwise specified elsewhere within this specification (see examples shown in Figure 1 through Figure 3, and Figure 5 through Figure 7).

Print presentation: Page-oriented requirements shall be in accordance with MIL-STD-38784.

3.5.1 Red borders-specific requirements. The preparing activity shall prepare a colored border for all Immediate and Urgent Action TCTOs.

3.5.1.1 Dimension and spacing of red markings. Print presentation: The dimensions and spacing of red markings for Immediate and Urgent action TCTOs shall be as described in figure 1, figure 2, and table I.

Electronic presentation: Format of border markings shall be similar to the print style. Location of markings within the client area shall be according to the MIL-STD-38784 requirements for emergency borders.

3.5.1.2 Indicator of Safety markings. When the Indicator of Safety marking (see 3.3.2.7) is required, minor variations in size and spacing are acceptable.

3.5.2 Foldout pages. Print presentation: Foldout pages shall be in accordance with MIL-STD-38784.

3.5.3 Change symbols. Portions of text, illustrations, and schematic diagrams, changed or added in second and subsequent issues of TCTOs and supplements, shall be indicated by change symbols as required by MIL-STD-38784.

3.5.4 Illustrations. Except as specified below, illustrations shall be prepared in accordance with MIL-STD-38784 to supplement the text.

3.5.4.1 Illustrations in Record TCTOs. The use of illustrations in Record TCTOs shall be held to a minimum. Illustrations shall be sufficient to determine that the specific retrofit changes have been accomplished. Illustrations in Record TCTOs merely aid in identifying retrofit changes and they shall not normally contain part numbers.

3.5.5 Numbering. Numbering of paragraphs, figures, tables, etc., shall be in accordance with MIL-STD-38784, except that chapter numbers shall not precede paragraph, figure, table, etc., numbers.

Print presentation: Numbering of pages shall be in accordance with MIL-STD-38784, except that chapter numbers shall not precede page numbers.

3.6 Supplements. Supplements shall bear the heading "SUPPLEMENT TO BASIC TECHNICAL ORDER." Appendix B provides information for obtaining the DTD for digital delivery of TCTO supplements.

3.6.1 Rescission. Supplements shall carry the same rescission date as the basic TCTO to which they apply unless additional work is required by the supplement, or it explicitly changes the TCTO rescission date. In addition, a determination shall be made and approved by the CCB that an extension of the rescission date is warranted to accomplish the additional work. In this instance, a new rescission date shall be established applying to both the supplement and basic TCTO.

3.6.2 Additional work. Supplements which require additional work shall contain a statement regarding additional man-hours and personnel required, and shall include appropriate requirements for form entry.

3.6.3 Additional work with limited application. When a requirement for additional work is developed and added kit support is also needed, but the applicability is peculiar only to one serial number, one block of serial numbers or has partial inventory application, approval shall be obtained from the acquiring activity prior to development of a new TCTO (see 6.2y).

3.6.4 Supplement indicator of safety marking. The indicator of safety marking (see 3.3.2.7) shall not appear on supplements. Supplements carry the same level of urgency as the basic TCTO.

3.6.5 Supplement title. The title of each TCTO supplement shall be the same title as the basic TCTO.

3.6.6 Supplement note. When it is necessary to supplement a TCTO, the following note shall be used:

Electronic presentation:

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NOTE

"This technical order supplements TO ___, data code ___, dated ___, to make corrections as indicated herein. [Add one of the following statements: 'No additional work is required by this supplement.' OR 'Additional work is required by this supplement and appropriate reference shall be entered on {specific maintenance form/record} for the equipment affected and an AFTO Form 349 submitted.'] A SUITABLE REFERENCE TO THIS SUPPLEMENT SHALL BE INDICATED ON THE TITLE SCREEN/DISPLAY AND, [tailor the remainder of the statement according to the format/function used for electronic presentation] ADJACENT TO EACH AFFECTED PARAGRAPH OR FIGURE IN THE BASIC PUBLICATION."

When possible, TO references shall be linked to the referenced data.

Print presentation:

NOTE

"This technical order supplements TO ___, data code ___, dated ___, to make corrections as indicated herein. [Add one of the following statements: 'No additional work is required by this supplement.' OR 'Additional work is required by this supplement and appropriate reference shall be entered on {specific maintenance form/record} for the equipment affected and an AFTO Form 349 submitted.'] A SUITABLE REFERENCE TO THIS SUPPLEMENT SHALL BE MADE ON PAGE 1 AND, IF APPROVED BY MAJCOM, OPPOSITE EACH AFFECTED PARAGRAPH OR FIGURE IN THE BASIC PUBLICATION."

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 performed as specified in the solicitation or contract. The Air Force Technical Order Policy and Procedures (AF TOPP) team, AFMC/A4UE, 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, 2.2.2).

4.2 Compliance. TMs shall meet all requirements of section 3 of this specification and the applicable DTD appendix, as specified by the acquiring activity (see 6.2z). 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 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 6.2x). 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.

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6 NOTES.

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

6.1 Intended use. TCTOs are used to accomplish and provide a record of any one-time inspection, removal and replacement or installation of components, retrofit change or alteration to the design or construction of any aeronautical, non-aeronautical, Communication-Electronic (CE), air launched or surface launched missile, space vehicle systems or ground vehicles, their related equipment, site, facility, support systems, and associated Support Equipment (SE) maintained by the Air Force. If specified by the acquiring activity, TCTOs may also be used to announce computer program changes affecting weapon systems, Automatic Test Equipment (ATE), simulator, and on board command and control systems utilizing digital/computer systems. The military unique requirements for TCTOs covered by this specification are as specified in TOs 00-5-1 and 00-5-15.

6.1.1 Managing requirements relative to electronic and print presentation-unique functionality/formatting. Throughout section 3 in this detail specification, the statements labeled as "Electronic presentation" and "Print presentation" (see 6.8) are intended as data output related requirement options that are supportive of the content and formatting requirements stated within the paragraphs. The acquiring activity must decide (see 6.2c) between either electronic or print presentation-unique funtionality/formatting requirements based on the type of publishing output being specified. For example, if the document is to be published in PDF, then the print presentation statements throughout are applicable (exceptions: electronic presentation statements would also apply for hot-linking of references within PDF documents and for color photographs). For documents designed to be displayed in web browsers in a non-print/non-document oriented format, e.g., Hypertext Markup Language (HTML), only the electronic presentation statements apply. Apart from electronic or print presentation statements, the core requirements of given paragraphs must be followed, as tailored by the acquiring activity.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.

b. TCTO priority assigned in accordance with AFTO Form 873 (see 3.1 and 3.3.2.1).

c. Which of either the electronic or print presentation output requirements herein apply throughout; identify any exceptions by specific paragraph number (see 3.1.3).

d. Authority to issue TCTO (see 3.1.5).

e. If the single TCTO method is to be used (see 3.1.5).

f. If furnishing of installation drawings or instructions with a Record TCTO or kit is other than as specified herein (see 3.2.3.3.1).

g. Use of approved AFTO Forms 873 and 874 information (see 3.3).

h. If, in electronic presentation, the TCTO data will be displayed other than as specified herein (see 3.3.1).

i. Use of assigned TCTO number (see 3.3.2.4).

j. Use of assigned Data Code (see 3.3.2.5).

k. Use of assigned Issue Date (see 3.3.2.6).

l. If Indicator of Safety Marking "SAFETY TIME COMPLIANCE TECHNICAL ORDER" is required (see 3.3.2.8).

m. Urgent Action time limits for accomplishment (see 3.3.5.2).

n. Routine Action compliance period (see 3.3.5.3).

o. Use of assigned title or subject of instructions (see 3.3.2.9).

p. Use of approved existing publications notes (see 3.3.2.10.1).

q. If SAP special handling instructions are required (see 3.3.2.10.4).

r. If kits are involved, the type of kit applicability information to be provided (see 3.3.3.2).

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s. If multiple kits will be used (see 3.3.3.2.1).

t. Identify designated maintenance level according to AFTO Form 873 (see 3.3.6).

u. If instructions for disposition of kits/parts/materials are going to be provided and if provided other than as specified herein (see 3.3.7.1.7).

v. If part number changes are required to be made (see 3.3.8.5).

w. If electronic methods of entry will be used for Chart A data (not applicable to printed manuals) (see 3.3.9.3.4).

x. If a printed or electronic copy(ies) of the TCTO and/or BOM will be included for each kit being furnished. When applicable, the method for inclusion of the electronic TCTO and/or BOM with each kit being furnished (see 3.3.13.2).

y. When new additional work with limited applicability TCTO supplements are approved (see 3.6.3).

z. If a DTD is required (see 4.2).

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 (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 Subject term (key word) listing.

Comprehensive Engine Management System
Computer Program Identification Number
Data Code
Engineering Change Proposal
Immediate Action TCTO
Kits/Parts/Materials
Material Improvement Project
Modification
Record TCTO
Routine Action TCTO
Supplement
Urgent Action TCTO
Verification

6.5 Definitions.

6.5.1 Immediate Action TCTO. The type of TCTO used to correct safety conditions which could result in fatal or serious injury to personnel, or extensive damage or destruction of property.

6.5.2 Interim TCTO (ITCTO). A TCTO issued by the Air Force by electrical means (i.e., message) that is not a formal TCTO, because circumstances preclude publication in a timely manner.

6.5.3 Routine Action TCTO. The type of TCTO issued for any conditions not covered through Immediate or Urgent Action TCTOs, used to give instructions to correct equipment or procedural deficiencies of a material, mechanical, operational, or tactical nature, the uncorrected existence of which could:

a. Constitute a hazard through prolonged continued usage.

b. Have a deteriorative effect on operational efficiency.

c. Reduce tactical or support utility.

d. Reduce operational life or general service utilization of systems or commodities.

6.5.4 Routine Action Record TCTO. A Routine Action Record TCTO is used when a retrofit change is of such magnitude or complexity that it must be accomplished by contractors, mobile depot maintenance, or specific Air Force activities higher than organizational or intermediate level and for which detailed instructions would not be required.

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6.5.5 Single TCTO method. The single TCTO method is used only on items which are tracked through the Comprehensive Engine Management System (CEMS). The single TCTO consists of all information required to accomplish the one time inspection, replacement or installation of components, retrofit change or alteration to the design or construction of the equipment. For example, the single TCTO would provide instructions for removal of the part from the aircraft, modification of the part, installation of the part in the aircraft and returning the aircraft to service.

6.5.6 Urgent Action TCTO. The type of TCTO used to correct potentially hazardous safety conditions that could result in injury to personnel, damage to property, or when conditions cause unacceptable reductions in combat efficiency.

6.6 AFTO Forms 873 and 874. Instructions for use and completion of AFTO Forms 873, Time Technical Order Requirements Compliance, and AFTO Form 874, Time Compliance Technical Order Supply Data Requirements, are contained in TO 00-5-15, Air Force Time Compliance Technical Order Process. The AFTO Form 873 will be provided to the preparing activity by the PM during the approval cycle of the TCTO. When the contractor preparing activity completes AFTO Form 874, government approval is required.

6.7 Additional supporting references. Though the following reference documents were current as of the publication of this detail specification, they should be checked for currency each time they are used.

6.7.1 AFSC listings. AFI 36-2101, Classifying Military Personnel, contains AFSC listings.

6.7.2 Management of weight and balance status requirements. Management of weapon system weight and balance status requirements are given in AFI 11-215, AFI 21-101, AFI 21-202V1 and provided in the instructions contained in TO 1-1B-50.

6.7.3 Selection of inventory items. AFI 21-103 contains the criteria for selection of inventory items.

6.7.4 Mass properties control requirements. MIL-HDBK-1811 provides guidance for determining mass properties control requirements.

6.8 Electronic versus print presentation unique functionality/formatting requirements. Requirements herein labeled as electronic and print presentation (see 6.1.1) address data funtionality/formatting that is determined by two primary modes of rendering and outputting of the TM data that are within the scope of this specification. They are defined as follows:

a. Electronic presentation: Specifies requirements used to develop TM data to be rendered for display on an electronic/digital system, such as various kinds of work station computers, glass cockpit displays, or Portable Electronic Devices (PED)/Commercial Mobile Devices (CMD). These requirements apply to technical data developed as linear-structured compositions to be rendered digitally, i.e., HTML or equivalent web source data, for display in a browser or viewer. Electronic presentation requirements herein do NOT apply to development of PDF files, unless explicitly stated otherwise. Where data functionality requirements are specified through a separate document, such as a functionality matrix or a technical requirements document, that is approved by the acquiring activity, they should reflect or reference the functionality requirements specified herein. NOTE: Requirements for higher level digital non-linear interactive data, herein called Interactive Electronic TMs (IETMs) or Interactive Electronic Technical Publications (IETPs), are contained in a separate specification (see 6.9).

b. Print presentation: Specifies formatting requirements herein used to develop TM data to be rendered only as page-oriented or printed publications. Print presentation requirements herein also apply overall to development of PDF files, with limited exceptions.

6.9 IETMS/IETPs. Requirements for digital functionality, formatting, and output of IETMs or IETPs are beyond the scope of this detail specification; refer to MIL-STD-3048.

6.10 Purpose of TCTOs. A TCTO is prepared to authorize use of changed computer programs, impose or direct temporary usage restrictions, for accomplishment of modifications/retrofit changes, for special "one time" inspection/replacement of components of systems/equipment, or in combination, where applicable.

6.11 Roles and responsibilities.

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6.11.1 Program Management Office (PMO) responsibilities. In keeping with the roles specified in TO 00-5-15 for management of TCTOs, all references to acquiring activity herein will be understood as referring to the affected government system/equipment PM (or delegated agent) that is assigned authority and responsibility for planning, development, and issuance of a TCTO and supplements.

6.11.2 TCTO preparing activity responsibilities. Where direct reference is made herein to the activity responsible for conducting the preparation of a TCTO, i.e., authoring, it is referred to as the preparing activity, whether it is a contractor or a government (organic) activity. When requirements are unique to one or the other, “contractor” or “organic” is specified, as applicable.

6.12 Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. 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 and relationship to the last previous issue.

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TABLE I. Outline of TCTOs, elements, and equivalent type sizes.

PAR No	PARAGRAPH TITLE	FONT SIZE	PARAGRAPH REFERENCE
	HEADING		3.3.2
	Designation of Urgency	24	3.3.2.1
	Security Classification	24	3.3.2.2
	Issuing Activity	14	3.3.2.3
	TCTO Number	12	3.3.2.4
	Data Code Number	12	3.3.2.5
	Date of Issuance	12	3.3.2.6
	Rescission Date	12	3.3.2.7
	Indicator of Safety Marking	18	3.3.2.8
	Supplements	14	3.6
	Title or Subject of Instructions	18	3.3.2.9
	Notes	10	3.3.2.10
	STINFO Disclosure Notice, Distribution Statement, Export Control Notice and Destruction Notice	8	3.3.2.11
1	APPLICATION	10	3.3.3
1.1	Identification	10	3.3.3.1
1.2	Kit Applicability	10	3.3.3.2
1.3	TCTO Verification	10	3.3.3.3
2	PURPOSE (for Record TCTOs, explanation and purpose information shall be placed under 2.2)	10	3.3.4
2.1	Identification of TCTO (for Record TCTOs only)	10	3.3.4
2.2	Purpose (for Record TCTOs only)	10	3.3.4
3	WHEN TO BE ACCOMPLISHED	10	3.3.5
	(3.1 DELETED)		3.3.5.5
4	BY WHOM TO BE ACCOMPLISHED	10	3.3.6
5	WHAT IS REQUIRED	10	3.3.7
5.1	Supply Information and Requirements	10	3.3.7.1
5.1.1	Kits/Parts/Materials Required	10	3.3.7.1.1
5.1.2	Action Required on Items in Stock	10	3.3.7.1.2
5.1.3	Kits/Parts/Materials Required to Modify Items in Stock	10	3.3.7.1.3
5.1.4	Disposition of Removed and Replaced Parts/Materials	10	3.3.7.1.4
5.1.5	Drawings and Instructions Required (Record TCTOs only)	10	3.3.7.1.5
5.1.6	Size, weight, and Cost of Kits/Parts/Materials	10	3.3.7.1.6
5.1.7	Disposition of Kits/Parts/Materials	10	3.3.7.1.7

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TABLE I. Outline of TCTOs, elements, and equivalent type sizes. - Continued

5.2	Personnel Information and Requirements	10	3.3.7.2
5.3	Special Tools, Fixtures, Test Equipment, and Software Required	10	3.3.7.3
6	HOW WORK IS ACCOMPLISHED	10	3.3.8
7	SUPPLEMENTAL INFORMATION	10	3.3.9
7.1	Fuel System Defuel/Purge	10	3.3.9.1
7.2	Operational Checkout Requirements	10	3.3.9.2
7.3	Weight and Balance Information	10	3.3.9.3
7.4	Technical Manuals Affected	10	3.3.9.4
8	RECORDS	10	3.3.10
8.1	Action Required on Maintenance Records	10	3.3.10.1
8.2	Action Required on Supply Records	10	3.3.10.2
8.3	Retrofit Change or Inspection Identification Marking	10	3.3.10.3
9	Pont of Contact	10	3.3.11
AUTHORITY		10	3.3.12
	Text of subparagraphs	10	3.3.12
BORDER MARKINGS			
	Immediate Action TCTO		
	"X" Cross pieces	(approx) 3/32-inch (approx) 9/32-inch width	
	Urgent Action TCTO		
	"X"	(approx) 3/32-inch (approx) 9/32-inch width Spacing (approx) 9/16-inch (measured from center Xs)	
	"/"	(approx) 1/16-inch 45 degree angle - between Xs	

TABLE II. Minimum and Optimal Character Heights (electronic presentation)

Minimum and Optimal Character Heights for 16 and 20 Minutes of Arc at various viewing distances		
Viewing Distance (Inches)	Minimum Character Height 16 Minutes of Arc (Inches)	Optimal Character Height 20 Minutes of Arc (Inches)

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TABLE II. Minimum and Optimal Character Heights (electronic presentation) - Continued

18	0.08	0.11
24	0.11	0.14
30	0.14	0.17
36	0.17	0.21
42	0.20	0.24
48	0.22	0.28
54	0.25	0.31
60	0.28	0.35
66	0.31	0.38
72	0.34	0.42

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IMMEDIATE ACTION

DEPARTMENT OF THE AIR FORCE
TECHNICAL ORDER

TO 1F-16-1140
DATA CODE: 0162903
ISSUE DATE: 19830201
[illegible]TE: 19831025

Text and Border Printed in RED

INSPECTION OF CONSTANT SPEED DRIVE (CSD)
ACCUMULATOR MOUNTING BRACKETS,
PART NO. 16P1531-23, F-16A/B AIRCRAFT

NOTE

This technical order formalizes IMMEDIATE action TO 1F-16-1140, data code 0162903, dated 4 February 1983. Remove from active files.

1 APPLICATION.

1.1 Identification. This technical order is applicable to the following aircraft:

Model	Serial Numbers
F-16A	AF78-0001, 78-0003, 78-0005, 78-0008, 78-0026, 78-0056 through 78-0059, 78-0061, 78-0064, 78-0128, 78-0146, 78-0152 through 78-0154, 78-0215, 78-0224, 78-0224, 78-0225, 78-0278, 79-0334 through 79-0336, 79-0339, 79-0363, 79-0364, 79-0379, 79-0380, 79-0402, 80-0479, 80-0481, 80-0482, 80-0488, 80-0508 81-0689, 81-0732 through 81-0768, 81-0770, 81-0772
F-16B	AF78-0077, 78-0081, 78-0084, 78-0088, 78-0095 through 78-0097, 78-0100, 78-0104, 78-0166, 78-0302, 79-0419, 79-0423, 79-0425, 79-0430, 80-00638, 81-0812, 81-0814, 81-0815

1.2 Kit Applicabiity. Kits are not required by this TCTO.

1.3 Verification. Kit verification has been waived by OO-ALC/XYZT, in accordance with TO 00-5-15.

Disclosure Notice - This information is furnished upon the condition that it will be not be released to another nation without the specific authority of the Department of the Air Force of the United States, that it will be used for military purposes only, that individual or corporate rights originating in the information, whether patented or not, will be respected, that the recipient will report promptly to the United States, any known or suspected compromise, and that the information will be provided substantially the same degree of security afforded it by the Department of Defense of the United States. Also, regardless of any other markings on the document, it will not be downgraded or declassified without the written approval of the originating United States Agency.

Distribution Statement B. Distribution authorized to US Government agencies only; administrative and operational user; 1 May 1990. Other requests for this document shall be referred to SA-ALC/XYZABC, Gone AFB, TX 78241-0000.

WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, st seq.) or the Export Administration Act of 1979, as amended (Title 50, U.S.C., App. 2401 et seq.). Violations of these export laws are subject to severe penalties. Dissemination in accordance with provisions of DoD Directive 5230.25.

Destruction Notice - For unclassified, limited documents, destroy by any method that will prevent disclosure of the contents or reconstruction of the document.

1

(EXAMPLE NOT TO SCALE)

FIGURE 1. Example of title page for Immediate Action TCTO.

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URGENT ACTION

DEPARTMENT OF THE AIR FORCE
TECHNICAL ORDER

TO 1F-16-1140
DATA CODE: 0162903
ISSUE DATE: 19830201
EXPIRATION DATE: 19831025

Text and Border Printed in RED

INSPECTION OF CONSTANT SPEED DRIVE (CSD)
ACCUMULATOR MOUNTING BRACKETS,
PART NO. 16P1531-23, F-16A/B AIRCRAFT

NOTE

This technical order formalizes URGENT action TO 1F-16-1140, data code 0162903, dated 4 February 1983. Remove from active files.

1 APPLICATION.

1.1 Identification. This technical order is applicable to the following aircraft:

Model	Serial Numbers
F-16A	AF78-0001, 78-0003, 78-0005, 78-0008, 78-0026, 78-0056 through 78-0059, 78-0061, 78-0064, 78-0128, 78-0146, 78-0152 through 78-0154, 78-0215, 78-0224, 78-0224, 78-0225
F-16B	AF78-0077, 78-0084, 78-0088, 78-0095 through 78-0097, 78-0100, 78-0104, 78-0166, 78-0302, 79-0419, 78-0423, 79-0425, 79-0430, 80-0638, 81-0812, 81-0814 81-0815

1.2 Kit Applicability. Kits are not required by this TCTO.

1.3 Verification. Kit verification has been waived by OO-ALC/XYZT, in accordance with TO 00-5-15.

2 PURPOSE.
The purpose of this Time Compliance Technical Order (TCTO) is to direct an inspection of the Constant Speed Drive Accumulator Mounting Brackets. Failure of the bracket leading to loss of electrical power in-flight established the requirements for this TCTO. Failure to accomplish this inspection could result in failure of the accumulator mounting bracket and subsequent loss of electrical power.

Disclosure Notice - This information is furnished upon the condition that it will be not be released to another nation without the specific authority of the Department of the Air Force of the United States, that it will be used for military purposes only, that individual or corporate rights originating in the information, whether patented or not, will be respected, that the recipient will report promptly to the United States, any known or suspected compromise, and that the information will be provided substantially the same degree of security afforded it by the Department of Defense of the United States. Also, regardless of any other markings on the document, it will not be downgraded or declassified without the written approval of the originating United States Agency.

Distribution Statement B. Distribution authorized to US Government agencies only; administrative and operational user; 1 May 1990. Other requests for this document shall be referred to SA-ALC/XYZABC, Gone AFB, TX 78241-0000.

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1

(EXAMPLE NOT TO SCALE)

FIGURE 2. Example of title page for Urgent Action TCTO.

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DEPARTMENT OF THE AIR FORCE
TECHNICAL ORDER

TO 1C-5-556
DATA CODE: 0170354
ISSUE DATE: 19900701
RESCISSION DATE: 19910215

INSPECTION OF MAIN LANDING GEAR LOWER BEARING KEY SLOTS, PART NO. 4G94448-105A/B, AND LOCK KEYS, PART NO. 4G14648-101 - C-5A/B AIRCRAFT

NOTE

Commanders are responsible for bringing this technical order to the attention of all Air Force personnel cleared for operation of affected system.

1 APPLICATION.

1.1 Identification. This technical order is applicable to all series C-5A aircraft, and C-5B aircraft, serial numbers AF83-11285 through AF85-0005. The intent of this modification will be accomplished on C-5B aircraft, serial numbers AF85-006 and subsequent by the Contractor during production prior to delivery.

1.2 Kit Applicability by Model and Serial Number.

Model	Serial Number	Kit Required
C-5A	All	A
C-5B	AF83-1285, 84-0059 through 84-0062	A
C-5B	AF85-0001 through 85-0005	B

1.3 Verification. Kit verification was accomplished in accordance with TO 00-5-15 at WR-ALC. Robbins AFB. Georgia. on C-5B aircraft serial number 84-0060, 1 May 1990.

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1

(EXAMPLE NOT TO SCALE)

FIGURE 3. Example of Routine Action TCTO

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TO 1C-5-566

2 PURPOSE.

The purpose of this Time Compliance Technical Order (TCTO) is to extend the life of existing Main Landing Gear (MLG) lower bearings and lock keys until new design bearings and keys are available in supply. Excessive failure of lower bearings and keys established requirements for this TCTO. Failure to accomplish this inspection will result in decreased life of the MLG lower bearings. This TCTO incorporates SA-ALC MIP NO. SANDA88-1919.

3 WHEN TO BE ACCOMPLISHED.

Not later than 180 days after receipt of this TCTO and kits A and B. Failure to accomplish the work by the expiration of the compliance period shall be justification for withdrawing the affected system equipment from service until compliance is accomplished, in accordance with TO 00-5-15.

4 BY WHOM TO BE ACCOMPLISHED.

Organizational/intermediate level maintenance. If the compliance period cannot be met before the TCTO rescission date, the performing organization will request an extended compliance period according to TO 00-5-15.

5 WHAT IS REQUIRED.

5.1 Supply Information and Requirements.

5.1.1 Kits/Parts/Materials Required. The following parts will be furnished as a complete kit. The following kits shall be requisitioned in accordance with AFMAN 23-110.

NOTE

AF activities shall ensure that requisitioning of TCTO kits/parts is effected in an expeditious manner to ensure accomplishment of this modification within the designated time period.

Kits/Qty			Stock Number		Part Number		Nomenclature		Source
A	B								
1	-		5310K0168380ALH				Kits A and B		AF Supply
-	1		5310K0168380BLH				consisting of:		AF Supply
1	1				1C-5-566		Technical Order		
1	-		5310-00-807-1467		AN960-616		Nut		AF Supply
-	1		5340-00-854-6556		MS21919-ND32		Bolt		AF Supply
3	2				NAS463XDD616		Spacer		CAGE Code
									12345
9 ft	9 ft		1280-00-978-3487		MS2875900ABG18		Wire		AF Supply
3	2				NAS-679C06M		Nut		CAGE Code
									12345

5.1.2 Action Required on Items in Stock. The following items in stock shall be modified in accordance with this TCTO prior to issue.

Stock Number	Part Number	Nomenclature	NPPC Code
4321-00-321-1772	4G127695-101	Forward MLG Strut Assembly	-
4321-00-321-1778	4G127696-105	Aft MLG Strut Assembly	4

5.1.3 Kits/Parts/Materials Required to Modify Items in Stock. Same as parts and materials listed in subparagraph 5.1.1.

(EXAMPLE NOT TO SCALE)

FIGURE 3. Example of Routine Action TCTO - Continued.

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5.1.4 Disposition of Removed and Replaced Parts/Materials.

NOTE

Parts removed, but not listed, shall be processed to the local Defense Reutilization and Marketing office if unserviceable or not cataloged. Serviceable stock listed items shall not be returned to stock unless the quantity removed exceeds $25.00 line item value.

Stock Number	Part Number	Nomenclature
3120-01-059-1160	MS2140-04C008	Bearing[1]
5306-00-137-3297	NAS654V14D	Bolt[1]
4321-00-321-2846	4G94448-105A/B	Key Slot[1]
4321-00-321-2858	4G14648-101A	Lock Key[1]

[1]Take immediate disposal action through local Defense Reutilization and Marketing Office. Do not record these items as condemnations in records for Stock Balance and Consumption Report or Stock leveling purposes.

5.1.5 Drawings and Instructions Required. Not Applicable.

5.1.6 Size, Weight, and Cost of Kits/Parts/Materials.

Kit	Size	Weight	Cost
A	12 by 12 by 12 inches	10 pounds	$600.00
B	12 by 12 by 12 inches	11 pounds	$623.00

5.1.7 Disposition of Kits/Parts/Materials. Kits remaining in stock after date of compliance of modification requirements shall be reported as excess to kit manager in accordance with AFM 67-1.

5.2 Personnel Information and Requirements.

Work Phases	AFSC Skills	Man-Hours
Unpacking	431X2	0.5
Disassembly	423X4/431X2	2.5
Installation	423X4	2.0
Assembly	423X4/431X2	2.0
Operational check	423X4	1.5
	Total Man-hours	8.0

5.3 Special Tools, Fixtures, Test Equipment, and Software Required. These tools will be furnished to using activities upon requisition from SA-ALC/XXXX. After use of these tools is completed, they shall be disposed of as condemned property.

Stock Number	Part Number	Nomenclature
3560-00-173-2937	2560101	Spanner Wrench
3560-01-509-1610	2560103	Spanner Wrench

(EXAMPLE NOT TO SCALE)

FIGURE 3. Example of Routine Action TCTO - Continued.

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TO 1C-5-566

6 HOW WORK IS ACCOMPLISHED.

NOTE

- Variations in accordance with standard maintenance are permissible, provided the intent of the technical order is accomplished.
- This technical order will only be accomplished on struts mounted in the aircraft or in serviceable stock. Struts being returned for overhaul need not comply with requirements of this technical order.

a. Remove existing lock keys by removing safety wire and lock key bolts.

b. Inspect lock keys for any damage or warping. Replace defective lock keys as required.

c. Inspect bearing key slots for damage. Look for upset metal and worn areas on threaded portion of bearing adjacent to key slots.

WARNING

Failure to support aircraft when releasing upper chamber pressure will cause main landing gear to collapse. Collapse of main landing gear may result in injury to or death of personnel, and damage to equipment.

d. Support aircraft as follows:

(1) Forward MLG struts. Before releasing forward MLG strut upper chamber pressure, service both aft MLG struts to support aircraft.

(2) Aft MLG struts. Before releasing aft MLG strut upper chamber pressure, service both forward MLG struts and install stabilizer Jacks at station 1964 in accordance with TO 1C-5A-2-1 to support aircraft.

e. Release MLG upper chamber pressure in accordance with TO 1C-5A-2-1.

f. Some gland assemblies used as a shim, part no. 4G13438-103A, between gland (packing) nut and lower end of outer cylinder. If shim is not visible, Proceed per paragraph 6.g. below. If shim is visible, proceed as follows:

(1) Using spanner wrench, part no. 256101 to engage packing nut, loosen packing nut seven to nine turns.

(2) Using diagonal cutters, cut shim and remove.

NOTE

Design of lower bering is such that it can rotate in outer cylinder when packing nut is tightened.

g. Use spanner wrench, part no. 2560103 to hold lower bearing.

h. Using spanner wrench, part no. 2560101 to engage packing nut, screw packing nut onto lower bearing until it bottoms.

i. Loosen packing nut until its lock key positions align with the first set of undamaged or lest damaged lower bearing key slots (180 degrees apart).

j. Install lock keys and lock key bolts ensuring that lock keys are pushed as far as possible into bearing key slots while tightening bolts. Torque bolts to 45 ± 5 inch-pounds and safety wire each set of bolts together.

4

(EXAMPLE NOT TO SCALE)

FIGURE 3. Example of Routine Action TCTO - Continued.

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k. Reservice MLG struts in accordance with TO 1C-5A-2-1.

l. Remove stabilizer jacks in accordance with TO 1C-5A-2-1.

m. Stamp "TO 1C-5-566" on outer cylinder next to name plate.

7 SUPPLEMENTAL INFORMATION.

7.1 Fuel System Defuel/Purge. Defueling/purging of the fuel system is not required prior to accomplishing this TCTO.

7.2 Operational Checkout Requirements. The landing gear shall require an operational checkout in accordance with TO 1C-5A-2-10, Landing Gear Checkout Procedure. Functional check flight is not required.

7.3 Weight and Balance Information. Not applicable.

7.4 Technical Manuals Affected.

TO Number	Date of Basic Issue
1C-5A-2-1	10 December 1986
1C-5A-2-10	5 August 1985
1C-5A-2-10CL-1	18 October 1985

8 RECORDS.

8.1 Action Required on Maintenance Records.

a. Update AFTO Form 95 to show TCTO compliance.

b. Report TCTO compliance in accordance with TO 00-20-2, chapter 9.

8.2 Action Required on Supply Records. Not applicable.

8.3 Retrofit Change or Inspection Identification Marking. TCTO number stamped on outer cylinder next to nameplate.

9 POINT OF CONTACT.

Point of Contact (POC) for questions and comments regarding this TCTO is Col. John Smith, 100th PMO WR-ALC/XYX, email: xxyyzz@wralc.af.mil, DSN 999-1000.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

RONALD R. FOGLEMAN, General, USAF
Chief of Staff

HENRY VICCELIO, Jr, General, USAF
Commander, AFMC

Prepared by ABCXYZ Co., Dayton OH. (For SA-ALC/XXXX, DSN 787-8564)

(EXAMPLE NOT TO SCALE)

FIGURE 3. Example of Routine Action TCTO - Continued.

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NOTE

Figure 4, Outline of TCTOs, elements, and equivalent type sizes, has been deleted and the information moved to Table I.

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DEPARTMENT OF THE AIR FORCE
TECHNICAL ORDER

TO 1F-16-1140
DATA CODE:0169354
ISSUE DATE: 19861025
RESCISSION DATE: 19870715

RED ⇨ SAFETY TIME COMPLIANCE TECHNICAL ORDER ⇦ RED

INSTALLATION OF AIR FORCE SEAWATER ACTIVATED RELEASE SYSTEM (SEWARS) ON ALL F-16 ACES II PARACHUTES, PART NO. JII4509-523

NOTE

Commanders are responsible for brining this technical order to the attention of all Air Force personnel cleared for operation of affected system.

1 APPLICATION.

1.1 Identification. This technical order is applicable to all series F-16 aircraft with ACES II personnel parachutes.

1.2 Kit Applicability. Kits are not required by this TCTO.

1.3 Kit Verification. Kit verification in accordance with TO 00-5-15, was accomplished at Eglin AFB, Florida, on F-16C aircraft serial number 84-1285, 10 September 1986.

2 PURPOSE.

The purpose of this technical order is to effect removal of the ACES II Recovery Parachute Assembly and installation of the Air Force Seawater Activated Release System (SEWARS) in accordance with TO 14D3-10-509, data code 1400700, dated 3 August 1987.

3 WHEN TO BE ACCOMPLISHED.

a. Not later than 90 days after receipt of this TCTO. Failure to accomplish this TCTO by the preceding specified number of days shall Automatically restrict operations or shall be justification for withdrawing affected system/equipment from service until compliance is accomplished. If the compliance period cannot be met before the TCTO rescission date, the performing organization will request an extended compliance period according to TO 00-5-15.

b. The work required by this technical order shall be accomplished concurrently with the work required by TO 14D3-10-509, data code 1400700, dated 3 August 1987.

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1

(SAMPLE NOT TO SCALE)

FIGURE 5. Example of title page for Routine Action TCTO with indicator of safety marking.

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DEPARTMENT OF THE AIR FORCE
TECHNICAL ORDER

TO 1C-5-566C
DATA CODE: 0170365
ISSUE DATE: 19900701
RESCISSION DATE: 199102 20

SUPPLEMENT TO BASIC TECHNICAL ORDER
INSPECTION OF MAIN LANDING GEAR LOWER BEARING KEY SLOTS, PART NO. 4G9448-105A/B, AND LOCK KEYS, PART NO. 4G14648-101A - C-5A/B AIRCRAFT

NOTE

This technical order supplements TO 1C-5-566, data code 0170354, dated 1 July 1990, to make corrections as indicated herein. No additional work is required by this supplement. A SUITABLE REFERENCE TO THIS SUPPLEMENT SHALL BE MADE ON PAGE 1 AND OPPOSITE EACH AFFECTED PARAGRAPH OR FIGURE IN THE BASIC PUBLICATION.

1. Page 1, Paragraph 3 of the basic technical order is amended to read: The TCTO rescission date is extended to 20 February 1991.

2. Page 4, paragraph 6a of basic technical order is amended to read:

   a. Install lock keys and lock key bolts ensuring that lock keys are pushed as far as possible into bearing key slots while tightening bolts. Torque bolts to 85 ± 10 inch-pounds and safety wire each set of bolts together.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

RONALD R. FOGLEMAN, General, USAF
Chief of Staff

HENRY VICCELLIO, Jr, General, USAF
Commander, AFMC

Prepared by ABCXYZ Co, Dayton, OH. (For SA-ALC/XXXX, DSN 787-8564)

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(EXAMPLE NOT TO SCALE)

FIGURE 6. Example TCTO supplement page.

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TO 1C-135-1131

7.3 Weight and Balance Information. Documentation of the weight and balance changes resulting from accomplishment of this TCTO is required per TO 1-1B-50. The following is the weight and balance summary data of installed and removed items due to this TCTO.

7.3.1 Chart A Entry Information:

NOTE

When a Chart A entry is required and an aircraft inventory is not accomplished, the date of the entry must be placed (in pencil) in the item description column of Chart A. Marks in the "IN AIRCRAFT" and "CHART C ENTRY" columns of Chart A are made only at the time of a complete aircraft inventory.

Item No.	Item Description		Weight	Arm	Moment/1000
Center Instrument Panel					
B-	Unit, Remote Display	372-029-001	3.0	197	0.59
B-	Panel, Integrated Fuel Management	372-028-001	27.5	203	5.58
B-	Unit, Integrated Control Display	622-5647-001	10.0	203	2.03
Lower Fuselage Compartment					
BB-	Computer, Fuel Management	367-046-001	48.0	220	10.56
BB-	FMC Tray Installation	82-01925-001	12.5	360	4.50
Electronic Equipment Cabinet					
B-	Unit, Bus/Subsystem Interface	622-5648-001	10.0	360	3.60
B-	Computer, Fuel Savings Advisory	7893005-031	26.2	360	9.43
B-	`FSA Pallet Installation	82-01101-001	12.5	360	4.50

7.3.2 Chart C Entry Information:

Added

Item No.	Item Description		Weight	Arm	Moment/1000
Center Instrument Panel					
B-	Unit, Remote Display	372-029-001	3.0	197	0.59
B-	Panel, Integrated Fuel Management	372-028-001	27.5	203	5.58
B-	Unit, Integrated Control Display	622-5647-001	10.0	203	2.03
B-	Pedestal Installation	82-01060-001	25.0	203	5.08
B-	Wiring and Cabling Installation	82-01209-001	75.0	220	16.50
Lower Fuselage Compartment					
BB-	Computer, Fuel Management	367-046-001	48.0	220	10.56
BB-	FMC Tray Installation	82-01925-001	8.0	220	1.76

100

(EXAMPLE NOT TO SCALE)

FIGURE 7. Example weight and balance data.

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Added - Continued:

Item No.	Item Description		Weight	Arm	Moment/1000
Electronic Equipment Cabinet					
B-	Unit, Bus/Subsystem Interface	622-5648-001	10.0	360	3.60
B-	Computer, Fuel Savings Advisory	7893005-031	26.2	360	9.43
B-	FSA Pallet Installation	82-01101-001	12.5	360	4.50
Removed					
Center Console					
B-	Panel, Fuel Control	-	20.0	203	4.06
B-	Pedestal Assembly	-	15.0	203	3.05
B-	Unit, Control Display	7891250-011	3.8	206	0.80
B-	Panel, CDU Select	7027-21400-1	0.5	206	0.10
B-	Wiring and Cables	-	10.0	220	2.20
Lower Fuselage					
BB-	Unit, Summation	-	10.0	222	2.20

7.3.3 Overall Change in Basic Weight. + 194.4 pounds

7.3.4 Overall Change in Basic Moment. + 49.1 inch-pounds/1000

(EXAMPLE NOT TO SCALE)

FIGURE 7. Example weight and balance data. - Continued.

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APPENDIX A
TIME COMPLIANCE TECHNICAL ORDER (TCTO) MARKUP LANGUAGE TOOLS

A.1 SCOPE.

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

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

A.2 DSS.

The DSS is comprised of the following tools for authoring and rendering the TM. See A.3 for information about obtaining DSS component files in digital format through the TMSS activity web site. For information about the current status and availability of DSS tools, see A.3.4.

A.2.1 DTD. The DTD provides the structure and content template in accordance with the content specific requirements of this specification (see 3.3). To be delivered digitally, the TM shall be tagged using the applicable DTD provided through the TMSS activity. Information concerning the markup language type and use of DTDs currently provided, i.e., Standardized General Markup Language (SGML), may be obtained through the contacts listed under A.3.

A.2.2 Formatted Output Specification Instance (FOSI). The FOSI provides formatting for each element of an SGML tagged instance for rendering as a page-oriented document. It contains formatting information that conforms to the content specific requirements of this specification.

A.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, attribute descriptions unique to the element, and entities.

A.2.4 OmniMark™. DSSs contain OmniMark™ scripts designed to be used as a text processing language that enables authors to auto-generate redundant material that may be difficult to tag manually.

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

A.3 OBTAINING DSS TOOLS.

A.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.

A.3.1.1 AF TMSS web site. DTDs, TDTs, and other files in the DSS can be accessed at the TMSS web site at https://techdata.wpafb.af.mil/tmss/index.html. 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 PDF 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.

A.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 (see http://iase.disa.mil/pki-pke/index html for information on PKI and CAC access requirements).

A.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://cs3.eis.af mil/sites/OO-LG-MC-38/default.aspx.

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APPENDIX A

A.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 AF Program Management Office (PMO) or see A.3.4 to obtain information.

A.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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APPENDIX B

TCTO SUPPLEMENT MARKUP LANGUAGE TOOLS

B.1 SCOPE.

See A.1.

B.2 DSS.

See A.2.

B.2.1 DTD. The DTD provides the structure and content template in accordance with the content specific requirements of this specification (see 3.6).

B.3 OBTAINING FILES.

See A.3.

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CONCLUDING MATERIAL

Custodians:
Air Force - 16

Preparing activity:
Air Force - 16
(Project TMSS-2014-006)

Review activities:
Air Force - 01, 10, 99

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.