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Maintenance



COMPOSITE TOOL KIT PROCEDURES

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This instruction implements Air Force Policy Directive (AFPD) 21-1, *Air and Space Maintenance*, and Air Force Instruction (AFI) 21-101, *Aerospace Equipment Maintenance Management*. This instruction establishes specific procedures that provide security, control, positive accountability, and custodial care responsibilities of Composite Tool Kits (CTK). Group commanders, squadron commanders and maintenance officers are responsible for ensuring compliance with the contents of this instruction. It is applicable to all personnel in the 911 Airlift Wing.

SUMMARY OF CHANGES

Paragraph **1.3.**, **1.5.**, **3.6.**, and **4.1.** have been rewritten. Paragraph **1.3.1.** and **7.1.** has been deleted and all have been renumbered. **Attachment 1** TMDE, W1MT have been deleted. A bar (|) indicates changes since the last edition.

1. General Information.

1.1. All work centers that dispatch tools and equipment to the flight line/aircraft maintenance areas, or work on equipment that are destined for use on the flight line or aircraft will follow CTK procedures.

1.2. When a depot team, factory representative, or contract field team performs maintenance on equipment within this Wing, they will follow this instruction for tool accountability. If the contractor or team has not made provisions for tool control and accountability, the team leader/supervisor will coordinate with the Quality Assurance Representative (QAR) to develop a program. The guidelines developed will be put in letterform and signed by the team leader/supervisor and the QAR. The team Leader/supervisor and QAR will maintain a copy of the letter for the duration of the team's stay.

1.3. Tool Pouches. Canvas or other non-metal tool pouches are authorized, if used tool pouches will be part of the CTK and marked accordingly. Personnel may remove tools from a properly inventoried

location and place them in a tool pouch. A complete CTK inventory will be accomplished in accordance with (Section 2) of this instruction. Return the tools to their shadowed positions. Tool rooms will not issue tools individually from dispatch able CTKs.

1.3.1. The use of tools not identified with a CTK designation will not be authorized for on or off equipment maintenance or operating tasks.

1.4. Foreign Objects (FO) Pouches. FO pouches will be maintained with every dispatchable CTK and tool pouch. FO pouches will be shadowed, inlaid or attached to the CTK; they will be included in the inventory list.

1.5. Keys for CTKs and equipment will have the CTK number etched on the key and will be attached to a spring ring or common key rings. CTKs without a built-in lock will use a keyed padlock.

1.6. CTKs used in an off-equipment environment and not dispatched may be left open for all personnel to use during a shift. Ensure contents of non-dispatch able CTKs (cabinets) are opened and inventoried at the beginning and end of each shift.

2. Responsibilities.

2.1. Maintenance and Operations Group Supervision is responsible for executing an effective tool room program outlined in AFI 21-101, AFRC SUP 1, *Aerospace Equipment Maintenance Management*.

2.2. CTK Custodians will be identified by appointment letter and will be responsible for the following actions:

2.2.1. CTK custodians are responsible for tool control within their respective areas.

2.2.2. File a master copy of the CTK content list. A copy of the CTKs content list remains in each CTK at all times for inventory purposes. Content lists are broken down by drawer/section indicating the total number of items in each drawer/section of the CTK. All changes to the CTK content list will be annotated in ink, initialed, and dated by the CTK custodian.

2.2.3. File a master copy of all keys, locks, and their appropriate markings or combinations used in the section.

2.2.4. Develop a continuity folder/book for all tool rooms. The folder/book will contain at a minimum letters of appointment, inventory, inspection forms, and the CTK/shadow board master list.

2.2.5. Keep all documented inspections and inventories on file for at least 1 year after completion.

2.2.6. The individual performing the inventory ensures all CTKs and personal protective equipment are on hand or accounted for. Document beginning and end-of-shift inventories on an AFRC IMT 177, **Consolidated Tool Kit Inventory and Control Log**. When the AFRC IMT 177 is full, initiate a new form and discard the completed form after at least one beginning and one end-of-shift inventory is recorded on the new form.

2.2.7. Inventory all replacement tools at least quarterly. The quarterly inventory of all on-hand replacement tools will be documented and kept on file in accordance with paragraph [2.2.5](#).

2.3. All Maintenance Group and Operations Group Personnel will:

2.3.1. Be responsible for the care, cleanliness, proper use, and accountability of tools and tool-boxes assigned to them.

- 2.3.2. Be responsible to secure all CTKs outside of the tool storage area.
- 2.3.3. Be responsible to inventory tools and equipment before leaving the tool room area and prior to turn-in. Do not store trash or Foreign Objects (FO) in a tool box. A FO bag will be a part of each flight line dispatchable tool box. Inspect and clean FO bag each time the toolbox is checked in or out.
- 2.3.4. Account for all tools, equipment, personal items, and hardware immediately upon completion of each task.
- 2.3.5. Follow lost tool/object procedures for all lost items. NOTE: See Maintenance Operating Instruction (OI) 91-204, *Aircraft Improvident Procedures*, for lost tools.

3. Identification.

- 3.1. To identify items tracked in Tool Accountability System units will use a standard nine-digit Worldwide (WW) Identification (ID) Code as the Equipment Identification Designator (EID). The first two letters of the WW ID will be the first two letters of the wing's Personnel Assignment System Code. Pittsburgh ARS is designated as W1. The third and fourth characters are designated as the unit or the first two digits of the office symbol. Each unit establishes the remaining five characters for tool and equipment identification. (See [Attachment 2](#))
- 3.2. Special purpose kits; i.e., tire change kits, (Liquid Oxygen) LOX service kits, etc. will be identified, and controlled as a CTK in accordance with this instruction.
- 3.3. Each CTK is individually numbered. Units with multiple cabinets may elect to identify all cabinets as one CTK. Tools contained in a CTK are marked with the assigned CTK number.
- 3.4. Tools will have only one CTK number. Dual etchings are not authorized.
- 3.5. Dispatchable CTKs will be marked with the CTK designator.
- 3.6. Items that are maintained in special repair kits must meet the "shadow concept" outlined in para.4.
- 3.7. Mark mobility toolboxes according to AFI 10-403, *Deployment Planning and Execution*.
- 3.8. Mark and control tools or equipment that a work center assigns to an individual in accordance with this instruction. At a minimum mark last name, unit, and employee number. Personnel not issued man numbers will use the last six digits of SSN.
- 3.9. Aircrew and life support section tool rooms that dispatch equipment, tools, and CTKs to the flight line will follow guidelines listed in this instruction. Aircrew members inventory all equipment and personal items prior to flight and account for them after flight. Document any lost item in the aircraft AFTO IMT 781A, **Maintenance Discrepancy and Work Document** on a RED X.
- 3.10. Crash recovery equipment, tools, and CTKs that are permanently stored or located in trailers or vehicles will follow guide lines listed in this instruction.
- 3.11. Mark hand grease guns, dispensing cans, spray bottles, pump oilers and similar containers with the type of grease, fluid, or other liquids and military specification (MILSPEC) of the contents.

NOTE: If containers are used to hold or apply substances classified as hazardous materials, ensure labeling requirements of AFOSHSTD 161-21, *Hazard Communication*, and local directives are accomplished.

4. Shadow Concepts.

4.1. Design CTKs to provide a quick inventory and accountability of tools. Develop a simple inventory method, a “show” (e.g. a shadow of the tool) and “know” (knowledge of tool of kit location) concept.

4.2. Shadow boards. Shadow boards can be used to store tools and equipment in a controlled area. Shadow boards will be assigned their own CTK identifying number and have an authorized tool listing.

5. Inventory and Inspection.

5.1. Unit CTK custodians will establish a program to manage and inventory tool/equipment and deployment kits.

5.2. At least annually, when the CTK custodian changes, or when the CTK Custodian deploys for 90 days or longer conduct a comprehensive inventory of all tools, equipment, and CTKs. The purpose of this inventory is to perform an extensive inspection of all tools and equipment, to include condition, identification markings, and accuracy of the Master Inventory List (MIL). Inspect all tools for serviceability according to TO 32-1-101, *Maintenance & Care of Hand Tools*. CTK custodians document these inventories and maintain the most current inventory documentation on file. “See paragraph [2.2.5.](#)”

6. Broken Tool Replacement and Management.

6.1. Limited quantities (quantities will be determined by work center supervisors) of replacement tools may be maintained in tool rooms, support flights, sections, or work centers. These tools are used to replace broken, worn, or missing tools to prevent unnecessary work delays. Strict control is mandatory because spare and consumable tools are highly pilferable and pose an increased fraud, waste, and abuse potential. A MIL is required for all replacement tools. Inventories of replacement tools will be accomplished in accordance paragraph [2.2.7.](#)

6.2. Replacement tools will not be issued until all the pieces of a broken/damaged or documentation indicating the tool is lost (see paragraph [8.](#)) are presented to the CTK custodian. Replacement tools are marked with the CTK number prior to issue.

6.3. Damaged or broken tools will be stored in a separate secure location. All permanently removed tools (i.e. broken) will be de-etched. Account for all damaged or broken tools until processed for disposal. Documentation should include, at a minimum, tool name, CTK # removed from, date/time turned in for storage, name of person turning in the item, and date/time turned in for disposal with the CTK custodian’s initials.

6.4. If one item of a set is unserviceable, the item will be removed and handled as a broken tool and annotated on AFRC IMT 175, **Missing/Removed Tools and Equipment.**

6.5. The AFRC IMT 175 is used to annotate all removed/missing tools and equipment and action taken on these items. A separate AFRC IMT 175 is maintained for each CTK. When replacement tools are placed on order, the document number or invoice number if tool is local purchased will be entered in the reason block of the form. Items removed for calibration are entered on this form. When the AFRC IMT 175 is full, initiate a new form and transfer all open entries to the new form.

6.6. The AFRC IMT 175 will never be used as the primary source to inventory the CTK during turn-in. This form will not be used to document discrepancies with serviceable tools.

7. Tool Accountability and Control.

7.1. Items will be tracked in TAS or the AFRC IMT 177, will be used for accountability and control of CTKs and tools. The form remains in the tool room support section, or work center. A separate, AFRC IMT 177 is maintained for each CTK this form is used to record CTK/tool transactions (check in/check out). Completion of each line of the AFRC IMT 177 denotes a complete inventory of contents. The "out time/signature" block is annotated by the person signing out/assuming responsibility for the CTK/equipment. The "in" block is annotated by the tool CTK custodian/alternates or designated representative when the CTK/equipment is returned by the user. The person annotating the "out" block is not the same person annotating the "in" block. Single man shops will get an individual from another shop or a supervisor to annotate the "in" block.

7.2. Ensure a secure area is designated to store CTKs when not in use. The area is capable of being locked and provides protective measures, such as monitoring or controlled key access, to preclude access by unauthorized personnel.

7.3. Dispatched CTK's are locked and secured to an immobile object when left unattended. CTK's locked and located within the restricted access area do not need to be secured to an object.

7.4. Equipment and accessories that do not present a FOD potential and are not dispatched from a work center, support section, or tool room, need not be included in a CTK; however, this equipment must have designated storage locations for accountability and listed on the MIL.

7.4.1. If industrial shop machinery and non-dispatchable CTK's are used during the shift; inventory prior to task and at completion.

7.5. CTKs stored outside of tool room are subject to this instruction.

8. Lost Tool/Object Procedures.

8.1. AFRC IMT 174, **Lost Tool/Object Report** is completed for each lost tool/object unless the item is immediately recovered. The CTK custodian will maintain a copy of AFRC IMT 174 on suspense and will provide QA with the original for control log purposes. Destroy suspense report when it has been on file for 1 year. Segregate copies "recovered" and "not recovered".

8.2. The person issued the CTK/equipment must search the immediate work area for the item. After a thorough search, immediately initiate an AFRC IMT 174. The wing FOD NCO or MXG/MXQ will issue a control number for the lost tool/object report. The squadron maintenance officer/superintendent or production supervisor ensures a thorough search is conducted to include utilizing x-ray, bore-scope, and other state of the art equipment to locate tools/objects in inaccessible areas if required.

8.3. If an item is missing after on aircraft/equipment maintenance, the Maintenance Operations Center (MOC) and QA will be informed. The MOC will notify 911MXG/CC or his/her representative of the missing tool immediately if it is mission impacting (any delay in launch sequence i.e.: preflight, end of runway, take-off time, etc.). If non-mission impacting the 911MXG/CC or their representative will be notified immediately unless loss occurs after 2300 hours local; then notify within the first hour of the next duty day.

8.4. The Quality Assurance Section ensures that an AFRC IMT 174 tracking log is maintained to control and track all lost tool reports for the unit.

8.5. If the item is not recovered, an entry is placed in the aircraft active forms (red X) stating what was lost and the suspected area. A copy of the completed report is given to QA/Wing FOD NCO. There will be an entry into the forms upon notification of the missing tool. Ref: AFI21-101, paragraph **13.8.1.2.**

8.6. QA will segregate completed AFRC IMT 174, "recovered" and "not recovered." These forms will be maintained on file for 1 year.

8.6.1. Limit authorization to clear red X's for lost tools to no lower than Maintenance Supervision.

8.7. Lost Tool/Object Procedures for Taxied Aircraft:

8.7.1. If a tool or object is discovered missing and the affected aircraft has taxied, the following procedures to hold or recall the aircraft are followed:

8.7.1.1. The person making the discovery will immediately notify the MOC through the most expedient means possible. Additional notifications are made to the expediter or work center supervisor, and the maintenance officer/supervisor on duty.

8.7.1.2. The MOC notifies the Command Post. The Command Post/squadron operations center instructs the aircrew to return to the parking spot. If the aircraft is airborne at the time of notification, the aircraft is directed to return to base with minimal maneuvering.

8.7.1.3. Once aircraft has landed initiate Lost Tool/Object investigation Report and follow the procedures in Para **8.**

9. Rag Control Procedures.

9.1. Rag control applies to organizations and personnel performing on-equipment aircraft maintenance/off-equipment aircraft maintenance and jet engine maintenance. While marking or identifying each rag with a CTK number is not necessary, issue and receipt procedures will be established to ensure positive control. Rags of uniform size and colors, such as those available through commercial contract suppliers must be used to facilitate control procedures. Some recommended methods of rag control include:

9.2. Issuing rags on a one-for-one swap.

9.2.1. Issuing rags in pre-packaged containers with the number of rags marked on each container.

9.3. Rags will be treated like tools and will be controlled by TAS, AFRC IMT 177. Lost tool/object procedures will be followed for missing or lost rags.

9.4. The CTK custodian will establish procedures to ensure how many rags are on hand (segregate; clean and dirty/oily rags).

10. Locally Manufactured or Developed Tools and Equipment.

10.1. Locally manufactured tools and test equipment must be approved for manufacturer by QA. QA will maintain record of all locally manufactured tools. See 911 MOI 21-110 for local manufactured tool guidance.

11. Warranted Tools.

11.1. CTK custodian will track warranted tools by TAS or AFRC IMT 177. Damaged or broken warranted tools will be stored in a separate secure location.

11.2. All removed tools will be de-etched. Account and track all damaged or broken tools until replaced by contractor. Documentation should include, at a minimum tool name, CTK # removed from, date/time turned in for warranty, date/time replaced by contractor, name of person turning in the item, and contractor.

11.3. All other broken tools aspects are outlined in Para 6. of this instruction.

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Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 10-403, *Deployment Planning*

AFI 21-101, AFRC Sup 1, *Aerospace Equipment Maintenance Management*

AFOSHSTD 91-100, *Aircraft Flight Line-Ground Operations and Activities*

AFOSHSTD 161-21, *Hazard Communication, Foreign Object Damage Prevention Program*

T.O. 32-1-101, *Maintenance & Care of Hand Tools*

Abbreviations and Acronyms

A/R—Aerospace Repair

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFOSH—Air Force Occupational Safety and Health

CTK—Composite Tool Kits

FO—Foreign Object

HAZMAT—Hazardous Material

IAW—In Accordance With

ID—Identification

LOX—Liquid Oxygen

MIL—Master Inventory Listing

MOC—Maintenance Operations Center

MOO—Maintenance Operations Officer

MXG—Maintenance Group

MXQ—Quality Assurance

NCO—Non Commissioned Officer

QA—Quality Assurance

QAR—Quality Assurance Representative

TAS—Tool Accountability System

TDY—Temporary Duty

TO—Technical Order

Attachment 2

WORLDWIDE IDENTIFICATION CODES

Accessories

W1ME ElectroEnv

W1MF Fuel Systems

W1MH Hydraulics

Inspection Section

W1MZ ISO Dock & Repair/Rec

Propulsion

W1MP Propulsion

AGE

W1MG Aero Space Ground Equipment

Avionics

W1MA ACGS

W1MB Munitions

W1MD ECM

W1MC COM/NAV

Fabrication

W1MU Structural

W1MM Metals Tech

W1MN NDI

W1MS Survival Equipment

Flight Line

W1FL Flight Line

W1FS Support Section

Quality Assurance Section

W1MQ Quality Assurance

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Load Masters Section

W1LM

Flight Engineers

W1FE

Life Support

W1LS