

**BY ORDER OF THE COMMANDER  
434TH AIR REFUELING WING**

**434TH AIR REFUELING WING  
INSTRUCTION 21-112**



**4 JANUARY 2012**

**Maintenance**

**COMPOSITE TOOL KITS (CTK)**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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OPR: 434 MXG/QA

Certified by: 434 MXG/CC  
(Col Paul A. Weimer)

Pages: 9

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This instruction prescribes the frequency, special requirements, and responsibilities for Aircraft Forms Document Reviews, in accordance with AFD 21-1, *Managing Aerospace Equipment Maintenance*, for accomplishing document reviews on KC-135 aircraft assigned to Grissom Air Reserve Base. This instruction applies to all organizations and staff agencies under the direction of the Maintenance Group Commander (MXG/CC). This instruction implements AFD 21-1, *Managing Aerospace Equipment Maintenance*. . Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force (AF) Form 847, *Recommendation for Change of Publication*; route AF Form 847s from field through Major Command (MAJCOM) publication/forms managers. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Disposition Schedule (RDS) located at <https://www.my.af.mil/gcss-af61a/afrims/afrims>. The use of the name or rank of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

This is the initial publication of 434 Air Refueling Wing Instruction (ARWI 21-112).

**1. General Program Guidelines.**

1.1. This instruction must be used in-conjunction with AFI 21-101 and AFRC Sup 1, Chapter 10 and AFI 11-301, AFRC Sup 1, Chapter 3.

**1.2. Flight CC/Shop Chief Responsibilities:**

1.2.1. Designate CTK custodians for each section/shop or squadron.

1.2.2. Ensure CTKs are constructed, identified and required for their work centers.

1.2.3. Ensure all areas that require special purpose tools and equipment have the items that meet the airframe/work area requirements.

1.2.4. Flight Chiefs or their designated CTK Custodian must annually approve, sign and install a copy of the master inventory listing (MIL) in each of their CTK's.

1.2.5. Ensure a signed copy of the MIL is located in each CTK for inventory purposes.

1.2.6. Ensures a copy of the MIL for each CTK is annotated and TC-Max is updated when a tool is reported as lost, broken, and missing or removed.

### **1.3. CTK Custodian Responsibilities:**

1.3.1. Maintain accountability and control of tools, HAZMAT, and consumables.

1.3.2. Ensure special tools, TMDE and equipment requiring inspections or calibrations are current prior to dispatching.

1.3.3. Maintain lost/missing tool/object hard copy documentation for 1 year if the tool is not immediately found. Continue to store the lost/missing tool/object information in the TC-Max database.

### **1.4. Procedures for warranted tool management.**

1.4.1. Warranted and replacement tools shall be purchased by the individual work center supervisor or his designated representative and managed utilizing TC-Max.

## **2. Tool Accountability.**

### **2.1. Inventory Requirements:**

2.1.1. Tools will be controlled through the TC-Max program. The technician assumes responsibility for the CTK/tool(s) when their employee number and the CTK ID number are entered into the TC-Max computer and by performing an inventory of the contents of the CTK. The individual is relieved of responsibility for the CTK/tool(s) by a different person entering the CTK/tool(s) ID number into the TC-Max computer and performing the turn-in inventory. The inventory of all dispatchable CTK's shall be documented on an AFRC Form 177 at the beginning and end of each job at the job site.

2.1.1.1. The operator inspection for all equipment except AGE will be completed and considered documented when the item is signed out in TC-Max.

### **2.1.2. Procedures for 2nd party inventory/inspection of tool kits.**

2.1.2.1. The use of a "shop" or "ghost" account to sign-in/out items is strictly prohibited. On the occasions when a single person must sign in and sign out a tool kit, the item will be signed out in TC-Max and signed in on an AFRC Form 177 maintained solely for that purpose. A "second look" inspection will be completed and documented as soon as possible but not later than the start of the next duty shift. The "second look" inspection will be documented on the same AFRC Form 177 and the individual completing the "second look" will sign the item into TC-Max. For CTK's where keys are tracked in TC-Max (i.e. Truck CTK's) this process will be used if a

single person signs the first and last entry of the AF Form 177 of each TC-Max transaction.

2.1.3. Equipment or CTKs that are not expected to be returned prior to the end of the current work shift are documented as long-term issues (LTI) or TDY.

## **2.2. Procedures for transfer of tools/CTKs.**

2.2.1. In the event a CTK/equipment item is transferred to another technician on the job, the following actions are taken:

2.2.1.1. TC-Max CTK/equipment transfer and documentation procedures are performed at the tool room/workcenter prior to going to the job site.

2.2.1.2. Both arriving and departing technicians inventory the CTK/equipment at the job site and sign the AFRC 177.

## **2.3. Truck CTKs:**

2.3.1. CTKs installed in trucks are permitted.

2.3.1.1. The keys for truck CTKs will be controlled through the owning workcenter TC-Max and AFRC Form 175 and 177 will be maintained with the CTK.

2.3.1.2. Users of truck CTKs are responsible for performing and documenting inventory checks at the beginning and end of each job on an AFRC Form 177.

## **2.4. Special Tool Cabinets/CTK's.**

2.4.1. Due to the unique nature of their specialties the Powered Support (MG), Structural Repair (MS), and Metals Technology (MT) sections are authorized to utilize a Special Tool Cabinet /CTK.

2.4.2. Each item contained in the Special Tool Cabinet/CTK will be marked with a unique TC-Max ID and loaded in TC-Max as an equipment item and the cabinet will be loaded in TC-Max as a CTK with all items being listed on the MIL. The cabinet may be utilized as a non-dispatchable CTK for normal day to day operations. The cabinet must contain all documentation and follow all procedures for CTK's contained within this instruction and all others that apply.

2.4.3. On the occasion that a special tool is needed outside of the shop area, the tool will be issued from TC-Max as a piece of equipment. The Issue/Return is also documented on a separate AFRC Form 177.

2.4.4. Broken or removed tools will be documented as required for CTK's and will also be documented in TC-Max under the unique TC-Max ID number.

2.4.5. The cabinet may be closed as a CTK provided all removed tools are documented. If the cabinet is closed as a CTK when the removed item is returned the cabinet must be reopened as a CTK and an inventory must be accomplished IAW paragraph 2.1. of this instruction. Items not expected to be returned by the end of the current work shift will be documented as long term issue in TC-Max under the unique TC-Max ID and on the AFRC 177, under the CTK they will be documented as removed in TC-Max and on all copies of the MIL.

2.4.6. All tools contained within these cabinets must be reasonably considered to be “special”. Any tool that is common or is used for multiple tasks must be controlled by standard tool control procedures.

### **2.5. Personal Protective Equipment.**

2.5.1. Personal Protective Equipment (PPE) may be maintained in personal lockers and will be marked with TC-Max and the issue date will be tracked in TC-Max **Note:** The issue date may be updated annually to provide a means for accountability.

## **3. Marking and Tool Identification.**

3.1. Tools shall be marked with the CTK designation as per attachment 1 of this ARWI.

3.1.1. Applicable items will be marked with a standardized nine-digit world-wide identification code as the equipment identifier (EID).

## **4. Locally Manufactured, Developed or Modified tools and Equipment.**

4.1. Follow procedures in AFI 21-101 and 434 ARWI 23-101, to local manufacture, develop or modify tools and equipment.

### **4.2. Procedures for control of locally manufactured tools and equipment.**

4.2.1. Control of locally manufactured tools and equipment will be the same as all other tools and equipment.

## **5. Tool Room Operation and Security.**

### **5.1. Procedures for controlled access to tool rooms.**

5.1.1. Tool rooms will be located in an area where the access can be limited when 24 hour coverage is not available. When this is not possible CTK's and equipment need to be stored in a manner as to prevent unauthorized use or access.

### **5.2. Procedures for dual operation tool rooms.**

5.2.1. Remote workcenters include the PE Dock, truck mounted, Refurbishment and Wash Rack tool boxes. The security check performed by the remote workcenter representative will include all CTKs that are physically located there. The responsibility for maintaining, inspecting, and inventorying these CTKs will remain with the owning workcenter.

### **5.3. CTK Security:**

5.3.1. All CTKs will have a locking device to prevent unauthorized removal or use of tools.

5.3.2. All dispatchable tool boxes will be closed and locked when left unattended at worksites.

### **5.4. Procedures for TC-Max downtime:**

5.4.1. In the event of TC-Max downtime, use the AF IMT 3131 General Purpose or AFRC Form 177 Consolidated Tool Control Log and AFRC Form 175 Missing/Removed Tools to document and control dispatch of CTKs and equipment.

## **6. Procedure for control of CDDAR equipment trailers and tools.**

6.1. All CDDAR tools and equipment procedures will align with this instruction.

## **7. Procedures for control of aircrew and AFE dispatchable tools.**

7.1. Aircrew life support CTK's will be manually tracked IAW AFI 21-101, AFRC Sup 1, AFI 11-301v1, AFRC Sup1, and this instruction. Aircrew Life Support is exempt from using TC-Max.

## **8. Procedures for tools used by depot teams, factory representatives and CFTs.**

8.1. Contract Field Teams and Depot Teams who are dispatched to aircraft will utilize tool control procedures and follow this instruction to the maximum extent possible.

## **9. Lost Item/Tool Procedures.**

9.1. Lost Tools:

9.1.1. Technicians must immediately notify the work center supervisor/flight chief, CTK custodian, and the squadron maintenance officer/superintendent when a tool/object is lost, and the technician is unsuccessful in locating the lost item. The supervisor or his designated representative initiates an AFRC Form 174.

9.1.2. The Maintenance Operation Center (MOC) and Quality Assurance (QA) are informed. A red X is entered in the AFTO Form 781A, Maintenance Discrepancy and Work Document, for all affected aircraft. If the aircraft is impounded, follow the procedures in MOI 21-112.

9.1.3. If a missing item is suspected to be on an aircraft that has taxied, the discovering individual immediately contacts MOC by the fastest means available and requests the aircraft commander to return to the MPA for a thorough inspection of the aircraft for the missing item.

9.1.4. If the item is not found, a Quality Assurance Representative will conduct the final search. After the final search is completed and the item is not recovered the Quality Assurance Representative will annotate and sign line 5 of AFRC Form 174. The supervisor will annotate the MIL and provide copies for the CTK and tool room indicating the missing item. Only personnel authorized on the special certification roster can clear the red X for the lost/missing tool/object.

## **10. Replacing Tools:**

10.1. Procedures for assigned expendable, consumable hand tools and HAZMAT items.

10.1.1. Maintenance Superintendents will designate authorized spare tool locations and appoint spare tools monitors to control expendable, consumable hand tools and HAZMAT items.

10.1.2. Document expendable, consumable hand tools and HAZMAT items as required.

10.1.3. When missing tools are replaced, update the copy of the MIL in the CTK and update TC-Max.

10.2. Maintenance Superintendents will assign individuals authorized to procure tools.

## **11. Control Procedures for Shop Towels/Rags:**

11.1. For areas that track rags in more than one location, a representative of each workcenter shall sign a hand receipt to the rag monitor for an initial issue of rags. These rags will be entered in TC-Max as expendable (special) stock items for issue control.

11.2. Once per week workcenter representatives will return dirty rags to the rag monitor and pick up clean ones. The time and day for rag return will be determined by the rag monitor based on the pickup day for the rag supplier.

11.3. Rags and absorbent pads will be issued and controlled through TC-Max. Rag monitors or workcenter representatives will inventory/account for all of their rags at the end of each shift. Any lost or unaccounted rags will be treated as a missing item and follow the same procedures in 2.4.

11.3.1. Emergency spill kits that contain absorbent pads will be sealed with plastic or lead seals to prevent use of pads in non-emergency situations.

## **12. Electronic Devices.**

12.1. Personal electronic devices are not authorized on the flightline.

12.2. Government issued electronic devices will be controlled in TC-Max as tools.

WILLIAM T. CAHOON, Col, USAFR  
Commander

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

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

T.O. 32-1-101—*Maintenance and Care of Hand Tools and Measuring Tools*

434 ARWI 23-101—*Local Manufacturing Process*

MOI 21-114—*Movement of Crash-Damage Aircraft*

MOI 21-112—*Aircraft Impoundment*

T.O. 00-20-1—*Aerospace Equipment Maintenance Inspection Documentation Policies and Procedures*

AFI 11-301 and AFRC Sup 1—*Flying Operations Aircrew Life Support (ALS) program*

***Abbreviations and Acronyms***

**AFI**—Air Force Instruction

**AFPD**—Air Force Policy Directive

**AFMAN**—Air Force Manual

**ARB**—Air Reserve Base

**AFRC Form 175**—Air Force Reserve Command Form Missing/Removed Tools

**AFRC Form 177**—Air Force Reserve Command Form Consolidated Tool Control Log

**AMXS**—Aircraft Maintenance Squadron

**CDDAR**—Crashed, Damaged or Disabled Aircraft Recovery

**CFTs**—Contract Field Teams

**CTK**—Composite Tool Kits

**EID**—Equipment Identifier

**HAZMAT**—Hazardous Material

**IAW**—In Accordance With

**ID**—Identification

**LTI**—Long-term Issues

**MG**—Powered Support

**MIL**—Master Inventory Listing

**MOC**—Maintenance Operations Center

**MOI**—Maintenance Operating Instruction

**MS**—Structural Repair

**MT**—Metals Technology

**MXG**—Maintenance Group

**MXS**—Maintenance Squadron

**NDI**—Non-Destructive Inspection

**RDS**—Records Disposition Scheduled

**TDY**—Temporary Duty

**TMDE**—Test Measurement and Diagnostic Equipment

**QA**—Quality Assurance

## Attachment 2

## CTK NUMBERING

**A2.1.** The numbering system listed below was devised for 434th Maintenance Group personnel to prevent duplication of CTK numbers presently in use at Grissom (Air Reserve Base) ARB, Indiana. All sections/shops will use U2 as the first two characters of the 9-digit Equipment Identification. Each section/shop will use the following codes for the third and fourth characters.

**Table A2.1. CTK Numbering.**

1. MXS Propulsion Section:	MP
2. MXS Powered Support Section:	MG
3. MXS Accessory System Section:	
a. Fuel Systems:	MF
b. Hydraulic/IFR Shop:	MH
c. Electric/Environmental Shop:	ME
4. MXS Fabrication Section:	
a. Structural Repair:	MS
b. Metals Technology:	MT
c. Non-Destructive Insp:	MN
d. Survival Equipment:	MV
5. MXS Inspection Section:	MI
a. Aero Repair:	MA
b. Crash Recovery)	MC
c. Aircraft Refurbishment:	MR
6. AMXS/Sortie Generation:	
a. AMXS Flight Line	A1
b. Support FLT	A2
7. MXG/QA Office:	QA
8. AFE	LS