BY ORDER OF THE COMMANDER

CHARLESTON AIR FORCE BASE
INSTRUCTION 21-102

22 APRIL 2006
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Maintenance

MANAGEMENT OF CONSOLIDATED TOOL KIT (CTK) AND LOST TOOL PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Instruction establishes procedures for security, control, accountability, and inventory of the CTK program. It also establishes procedures for actions and reporting of lost and/or misplaced tools in support of the Foreign Object Damage (FOD) prevention program. This Instruction applies to all military and civilian personnel who use or carry tools on the flight line or in aircraft maintenance hangars. Maintain and dispose of records according to the Air Force Records Disposition Schedule on-line at **https://afrims.amc.af.mil**.

1. General: This Instruction provides positive tool control and accountability procedures and is an integral part of the FOD prevention program. Adhering to this Instruction aids in reducing/deterring FOD to aircraft, engines, aircrew training devices, and support equipment; furthermore, it helps in maintaining safe and reliable tools for employee use.

2. Procedures for Security, Control, and Accountability:

2.1. Maintaining positive control of composite tool kits (CTKs), test equipment, technical orders, and HAZMATS (i.e. tools, TOs, job guides, shop rags and cleaning agents) require a means to identify where the CTK, tool, and hazmat is located when it is out of its normal storage area. The CTK custodian is responsible for storing and securing CTKs, mobile CTKs, and individually issued tools and equipment. All CTKs and individually issued tools not in use will be kept locked unless stored in a place which is manned 24 hours a day.

2.2. Flight commanders and/or flight chiefs will designate CTK custodians and personnel authorized to procure tools. All work centers, with computer capability, will use the approved AMC Tool Accountability System (TAS) for tool control and accountability.

2.3. All dispatched or deployable tools and technical data will be loaded in TAS. They will also have the corresponding inspection documented in TAS.

2.4. World Wide Identification Designators (WWID) and CTK numbers are developed by owning units and approved for use by 437 MXG/QA. Units will use only the approved designators in **Attachment 2**. Designators not approved by QA or not listed in **Attachment 2** are not authorized.

2.4.1. The 9 digit WWID is broken down as the first two digits "CL" representing that the item belongs to 437 Airlift Wing Charleston Air Force Base or "T5" for the 315 Airlift Wing Charleston Air Force Base. The next two digits represent the unit/shop the item belongs to. The next five digits represent location within the unit/shop the item belongs. The first two digits would be a cabinet, shelf, or kit. The next digit is a letter representing the shelf or drawer an item exists. The last two digits are for the cut out location or spot on the shelf the item exists. The total nine digit WWID should look like this for a 437 MXG/QA tool. CLQA01A01 for an item in cabinet #1 shelf A cutout location 01. This system will be integrated as kits are developed or replaced and as tools are re-etched for what ever reason. ***EXCEPTION:*** It is acceptable to deviate from the above paragraph if the CTK cannot comply, For instance if the cabinet or shelf contains more than the allowable contents i.e. more than 99 tools on a shelf.

2.5. Flight commanders and/or flight chiefs will designate who will issue and control personal equipment (ear defenders, headsets, reflective belts, etc.). As a minimum, personal issued equipment will be identified with last name, unit, employee number and the first two of the WWID (CL or T5). ***EXAMPLE:*** KUSAR MXG/QA 12345 CL or KUSAR MXG/QA CL12345 will work as well.

2.6. In work centers not large enough for a manned tool room that require personnel to sign out their own tools and equipment (such as Metals Technology, NDI, MASOP, and VIPER 21), the next shift or production supervisor must account for, and sign in all tools, and equipment before the off going shift departs.

2.7. All dispatched CTKs left unattended on the flight line or in vehicles will be locked. Shop CTKs left unattended must be locked unless stored in a place that is constantly manned or secured.

2.8. TAS or the AF Form 1297, **Temporary Issue Receipt** will be used to document and track all tool or equipment items signed out by individuals from outside work centers. All items signed out on AF Form 1297s will be controlled and verified at the beginning and end of each shift.

2.9. All depot teams, factory representatives, and contract field teams working on equipment or aircraft will provide a list of all tool and equipment identifiers to 437 MXG/QA for tracking purposes.

3. Inventory and Inspection Procedures:

3.1. Each kit will contain an accurate inventory list and a broken/removed (see attachment 5) list that shows total amount of tools and current status of tools.

3.2. Before signing out any equipment and/or CTKs, all personnel will conduct a visual inventory and notify the CTK custodian of any foreign objects or missing/damaged tools. All missing, removed and damaged tools will be documented on the Master Inventory List (MIL) in TAS and the broken/removed list if applicable.

3.3. At the end of each task, and before leaving an aircraft, all personnel will inventory and account for all tools, equipment, and hardware and annotate this action by entering a statement such as "TOOL & FOD CHECK C/W" in the corrective action block of the AFTO Form 781A., **Maintenance Discrepancy and Work Document.**

3.4. When CTKs and/or equipment are returned to the tool room/work center, the CTK custodians or work center personnel will conduct a visual inventory for foreign objects and missing or damaged items before transferring accountability back to the tool room/work center. All missing, removed and damaged tools will be documented on the MIL.

3.5. On-site transfer of CTKs and/or equipment at the job site will be authorized only when there is a significant increase in operations or when directed by the production superintendent or designated representative. A CTK inventory will be conducted by both the individual coming on duty AND the individual coming off duty. The individual who is assuming responsibility will sign for the equipment and/or CTK on an AF Form 1297. The AF Form 1297 will be taken to the tool room or work center for transfer of accountability.

3.6. Annually, or when there is a change in CTK custodian, the CTK custodian will conduct and document a comprehensive inventory to account for all tools and equipment.

3.7. At the beginning and end of each shift, the CTK custodians will account for all tools and equipment.

3.8. Each flight and/or tool room will conduct and document a comprehensive inspection of each CTK at least every 60 days. This enhances inventory requirements and further ensures that CTKs do not contain co-mingled tools, ensures location, serviceability, and that all foreign objects are removed. ***EXCEPTION:*** Mobility CTKs, stored in CONNEXs and not used, issued, or opened will be inspected on a 18-month interval while store outdoors, a 24 month inventory if stored in a climate controlled facility and prior to deployment. If a Mobility CTK is opened, or used for any reason, it must be thoroughly inspected and documented on an AF Form 244, **Industrial/Support Equipment Record** prior to it being returned to storage. Each flight or tool room will indicate in writing the interval in which its CTK inspections are conducted (i.e. 30, 45 or 60 day). Inspections will include as a minimum:

3.8.1. All tools must be properly shadowed, inlaid, silhouetted, or outlined.

3.8.2. All tools and equipment must be clearly marked or etched with a single appropriate WWID number. All other etchings will be completely removed.

3.8.3. CTK content must be free of corrosion.

3.8.4. CTK content must match the inventory list and/or the broken/removed list.

3.8.5. CTK must be free of foreign objects.

3.8.6. All tools must be serviceable, and if they are not, ensure proper documentation and replacement action is taken. Ensure all Test Measurement Diagnostic Equipment (TMDE) is not overdue calibration and limited calibration stickers are initialed as required.

3.8.7. AFTO Form 244 will be used to document inspections on TMDE requiring scheduled inspections other than calibration, powered and non powered AGE, training equipment, industrial plant equipment, harnesses, and special tools (i.e. engine slings, floor jacks, special cradles etc.) that require scheduled inspections.

3.8.8. Automated AFTO Form 244 may be used, however, a hard copy must accompany the equipment for a “prior to use inspection.” Items that would be too small for a hard copy AFTO 244 to be attached may be filed separately, but must accompany equipment at the time of sign out for a pre-use inspection to be accomplished.

3.9. 437/315 MXS will inspect and document all tools and equipment on the crash trailer monthly. The lifting bags will be inspected and documented annually. In the event of an aircraft crash, 437/315 MXS will designate a CTK custodian(s) responsible for the issue, control, and accountability of all tools and equipment assigned to the crash trailer.

3.10. Rags will be controlled as a CTK item. Rags will be controlled and issued in zip-lock bags, pouches, etc. The rag container will be labeled with the CTK number along with the quantity of rags contained. The bag is counted as one of the items. ***NOTE:*** The definition of a rag IAW AFI 21-101. Rag-A remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth (uniform size and color) used in general industrial, shop, and flight line operations. Local shop CTKs will develop a written policy to standardize their rag inventory to meet this requirement. i.e. size and color.

3.11. Containers used to store items too small to mark, such as drill bits, allen wrenches, and apex bits, will be marked with the WWID along with the quantity and content of tools contained. The container and lids will be counted as two of the items. For example: a 20 piece allen wrench set would be listed as "allen wrench set: 1/16"-3/8" 22 pieces with container and lid."

3.12. CTKs, test equipment, and storage containers subject to use on the flight line will have reflective paint or tape on all sides to outline the container.

3.13. Grease guns will be marked with the military specification of the grease in the gun, along with the nine digit WWID number.

4. Procedures for the Replacement of Expendable, Consumable, Common and Warranted Hand Tools, Hazmats, and Other Items Contained in CTKs:

4.1. Storing expendable, consumable, bench stock, and replacement tools can potentially weaken the FOD prevention aspect of the CTK program. CTK custodians must manage these items to ensure positive control. Replacement expendables, consumables, and bench stock will be kept secured in a separate cabinet labeled "expendables/consumables or bench stock." Inventory and Lost Tool procedures will apply to consumable/expendable items as they do for CTKs.

4.2. All expendable, consumable, common, warranted tools, and hazmat items that are identified for replacement due to loss, damage, or unserviceability, will be replaced promptly with a properly etched replacement item. If there is not a replacement item on hand, CTK personnel will annotate the item as removed on the MIL.

4.3. Hazmat containers will be labeled according to directives in AFOSH Standard 161-21, Hazard Communication, paragraphs d(1), d(3) and 8(a).

4.4. All tools under warranty will be replaced with another warranted tool. Tool rooms will follow the warranted tool replacement procedures IAW vendor requirements.

4.5. CTK custodians will establish controls to ensure damaged/unserviceable tools are de-etched, secured, and accounted for until processed for disposal or turn-in.

5. Procedures for Locally Manufactured/Developed Tools and Equipment :

5.1. 437/315 QA coordinate on all procedures for locally manufactured tools not authorized in specific technical data. Procedures are defined in MOI 21-22, Local Manufacture Request Procedures.

6. CTK Program Book:

6.1. As a minimum, work center CTK program books will contain:

6.1.1. Tab A--appointment letter for CTK Custodian and, if applicable, a letter of memorandum signed by the section and flight chief or equivalents approving the CTK MIL. ***NOTE:*** The letter of memorandum is not necessary if the representatives chose to sign the TAS MIL sheets.

6.1.2. Tab B--AFI 21-101, Chapter 13, and AMCSUP 1, Chapter 13

6.1.3. Tab C--this instruction

6.1.4. Tab D--a printed hard copy CTK master inventory list (may be kept in a separate binder)

6.1.5. Tab E--applicable CTK inspection log (for tools not tracked in the TAS system)

6.1.6. Tab F--blank lost tool report forms

6.1.7. Tab G--completed lost tool reports

6.1.8. Tab H--local written shop policies and procedures (if applicable)

6.1.9. Tab I--letters of all approved local manufactured tools contained in the CTK

7. Lost Item/ Tool Procedures:

7.1. A lost tool/item is any item, to include aircraft job guides and technical orders, discovered to be unaccounted for at the time of inventory, turn in, or personal inspection. If a tool/item or a portion of a broken tool is discovered missing, the following procedures apply:

7.1.1. If a tool/item is lost on, or believed to be lost on, an aircraft, notify the flight line expediter/ production supervisor, Maintenance Operations Control Center (MOC), and Ramrod immediately. MOC will notify QA and ensure positive verbal contact. MOC will issue a job control number for the lost tool/item and a Red X will be placed in the AFTO Form 781A, prohibiting operation or movement of all aircraft involved. After an initial search of the immediate work area, not to exceed 1 hour, a 437 AW Lost Tool Investigation Report will be initiated (see **Attachment 3** and **Attachment 4**) and a preliminary report forwarded to QA within 90 minutes from the time the tool/item was first noticed missing. A finalized report will be submitted to QA no later than 24 hours from the time the tool/item was first noticed missing. Maintenance supervision will determine when the search will be discontinued. If the item/tool cannot be located, only the Maintenance Supervisor or Superintendent may clear the Red X in the aircraft forms.

7.1.2. If an item/tool is believed lost on an aircraft that has taxied or is flying, the production supervisor will immediately notify the MOC with the nomenclature of the item, and where and how it could affect safety of flight. MOC will then contact Command Post to inform the aircrew. A 437 AW Lost Tool Investigation Report will be initiated and forwarded to the QA office within 24 hours.

7.1.3. If an item/tool is lost and no aircraft are involved, notify the expediter/production supervisor or equivalent immediately. After an initial search of the immediate work area, not to exceed 1 hour, a 437 AW Lost Tool Investigation Report will be initiated and forwarded to the QA office within 24 hours. No vehicle, CTK, or equipment involved will be released to the flight line until maintenance supervision, or applicable shop supervisor, terminates the search.

7.1.4. Aircrew and Life Support personnel will account for all tools and equipment dispatched to the flight line (i.e. flashlights and aircrew knives etc.) If an aircrew member discovers a tool missing and it cannot be located after an initial search, the aircrew member will place a Red X in the AFTO Form 781A with a description of the tool and a specific last known location. Additionally, an AMC 97, **AMC In-Flight Emergency and Unusual Occurrence Worksheet**, will be submitted to flight safety. If a Life Support member discovers a tool missing and it cannot be located after an initial search, the person who lost the tool will notify the expeditor/production supervisor and Life Support supervision immediately.

7.1.5. Squadron work centers and/or CTK custodians will maintain a copy of the Lost Tool Investigation Report for a minimum of 1 year.

8. Information Collections, Records and Forms:

8.1. Information Collections. No information collections are created by this publication.

8.2. Records. No records are created by this publication.

8.3. Forms Prescribed. No forms prescribed.

8.3.1. Forms Adopted. AF Form 244, **Industrial/Support Equipment Record,** AF Form 1297, **Temporary Issue Receipt**, AMC 97, **AMC In-Flight Emergency and Unusual Occurrence Worksheet,** and AFTO Form 781A, **Maintenance Discrepancy and Work Document.**

8.3.2. IMTs Prescribed. CHARLESTONAFB IMT 2 , **Broken/Remove Tool Log** and CHARLESTONAFB IMT 3, **Lost Tool Report.**

GLEN G. JOERGER, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 10-403, *USAF Mobility Planning*

AFI 21-101, *Maintenance Management of Aircraft*

AFI 21-101, AMCSUP1, *Aerospace Equipment Maintenance Management*

AFMAN 23-220, *Reports of Survey For Air Force Property*

AFI 24-307, *Procedures for Vehicle Maintenance Management*

AFMAN 91-201, *Explosive Safety Standard*

AFOSH Standard 161-21, *Hazard Communication*

TO 32-1-101, *Maintenance and Care of Hand Tools*

TO 34-1-3*, Inspection and Maintenance of Machinery and Shop Equipment*

TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies and Procedures*

TO 00-25-245*, Operating Instructions, Testing and Inspection Procedures for Personnel Safety and Rescue Equipment*

MOI 21-22*, Local Manufacturer Request Procedures*

Abbreviations and Acronyms

AFTO—Air Force Technical Order

AW—Air Wing

CTK—Consolidated Tool Kits

FOD—Foreign Object Damage

MIL—Master Inventory List

MOC—Maintenance Operations Center

MOI—Maintenance Operating Instruction

QA—Quality Assurance

TAS—Tool Accountability System

WWID—World Wide Identification Designators

Attachment 2

WORLD WIDE IDENTIFICATION DESIGNATORS

437 Maintenance Squadron (MXS)	
AGE	CLMG
HSC	CLMX
SMCO	CLMC
Metals Tech	CLMM
Avionics	CLAI
ECM	CLEC
NDI	CLMN
Survival	CLMS
Fuels	CLFC
Pneudraulics	CLHS
Electro-Enviro	CLEE
Munitions	CLMW
Wheel & Tire	CLWT
PMEL	CLMD
Fire Dept	CLFD
TMDE	CLTM
Transient Alert	CLTA

437 Aircraft Maintenance Squadron (AMXS)	
Sortie Support	CLAS
Viper 21	CLAV
Vehicle Maintenance	CLVM
MASOP	CLAM
Mobility	CLAD

437 Maintenance Operations Squadron (MOS)	
Training Flight	CLTF
Quality Assurance	CLQA

Boeing	
RAMS	17RM

437 Operational Support Squadron (OSS)	
Life Support	CLLS

373 Training Detachment	
373 FTD	CLFT

Attachment 3

CHARLESTONAFB IMT 3, LOST TOOL REPORT

437th MAINTENANCE GROUP LOST TOOL INVESTIGATION REPORT
Production Superintendent/Equivalent or Higher
Will Ensure Completion With 24 Hrs

Tracking Number:			Date:
1. Aircraft MDS/TAIL Number:	2. Aircraft Location:	3. Squadron:	
4. Individual Responsible for Mission Item (Name, Duty Section, Duty Phone) (Print):			
5. Item Description:	6. Box/Kit ID Number:	7. Date Issued:	8. Time Issued:
9. Missing Item Discovered by Name/Grade/Duty Section:			10. Time Item was Discovered Missing:
11. Last Known Location of Item:		12. Type of Maintenance Performed:	
Notification			
13. Name of Support Flight/CTK Representative/Equivalent:		Date:	Time:
14. Name of Prosuper Representative/Equivalent:		Date:	Time:
15. Name of Unit Control Center Representative:		Date:	Time:
16. Name of MOC Representative:		Date:	Time:
17. Name of Expeditor Representative/Equivalent:		Date:	Time:
18. Name of Shift/Element Representative:		Date:	Time:
19. Name of Flight Chief/OIC		Date:	Time:
Aircraft/Equip For Entry			
20. Block:	21. Page:	22. ACFT/RED X Cleared by Name/Grade:	
23. JCN:	24. Date:		
25. Remarks/Results of Search:			
26. Flight Supervision Remarks:			
27. Found Tool/Equipment: A) Aircraft Tail: B) Location/Bld/Shop: C) Date: Time: D) Tool Found by (Name, Section and Phone Number):		28. Close Out/Routing: A) Pro Super: B) Flt Supervision: C) MX Supervision: D) SQ Safety:	
E) Notified Squadron:	C) Date:	Time:	CTK (File):

CHARLESTONAFB IMT 3, 20060214, V1

Attachment 4

INSTRUCTIONS FOR COMPLETING LOST TOOL INVESTIGATION FORM

A4.1. Production superintendent/equivalent or higher will ensure completion of the lost tool investigation form.

A4.2. Tracking number will be entered by CTK personnel (CTK #, Julian Date, Sequence #)

EXAMPLE:

CLAS	06132	001
(CTK #)	(JULIAN DATE)	(SEQ #)

A4.3. Block 22 will be cleared by squadron maintenance supervision or representative designated by squadron supervision in writing.

A4.4. ROUTING/CLOSE-OUT INSTRUCTIONS:

A4.4.1. Production superintendent or equivalent will sign and date block 28. A.

A4.4.2. Flight supervision will sign and date block 28. B.

A4.4.3. Maintenance supervision will sign and date block 28. C.

A4.4.4. Squadron safety will sign and date block 28. D.

A4.4.5. Tool room manager or shop supervisor will sign block 28. E., and file in lost tool book for a minimum of 1 year

A4.4.6. Forward original to MXG/QA within 24 hours