BY ORDER OF THE COMMANDER
18TH WING (PACAF)

18TH WING INSTRUCTION 21-132

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Maintenance

COMPOSITE TOOL KIT (CTK) PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFPD 21-1, *Managing Aerospace Equipment Maintenance*. It establishes responsibilities and procedures for control and management of the CTK program. It further clarifies, adds to, and defines the requirements of PACAFI 21-101, *Objective Wing Aircraft Maintenance*. It applies to 18th Wing and associate units at Kadena AB. This publication does not apply to the Air National Guard or US Air Force Reserve.

1. References: AFI 21-101, *Maintenance Management of Aircraft*, PACAFIs 21-101, *Objective Wing Aircraft Maintenance*, 11-301, *Aircrew Life Support (ALS) Program*, TOs 00-20-7, *Inspection System, Documentation, and Status, Reporting For Support and Training Equipment,* and 35F5-1-2, *Explosion Proof Lanterns and Extension Light Assemblies* and 18 WGIs 21-102, *Foreign Object Damage* and 21-121, *Lost Tool/Item Procedures.*

2. Responsibilities:

2.1. Newly assigned maintenance personnel will be briefed by workcenter supervisors or a designated representative on Foreign Object Damage (FOD)/CTK procedures. Personnel assigned as tool room custodians and CTK monitors will be familiar with PACAFI 21-101 and 18 WGI 21-121. This will be documented on their AF Form 797, **Job Qualification Standard**.

2.2. Workcenter/tool room supervisors or designated personnel will be the primary CTK custodians.

2.3. Workcenter supervisors and CTK custodians will ensure:

2.3.1. All tools and equipment are completely inventoried at least semiannually or when CTK custodian changes. Mobility equipment will be completely inventoried annually. The purpose of this inventory is to perform an comprehensive inspection of all tools and equipment in CTKs, and is more extensive than the daily beginning and end of shift inventory. The CTK custodian/alternate performs the inventory. When CTK custodians change, the outgoing and incoming CTK cus-

todian perform the inventory together. CTK custodians will maintain a master tool kit listing for each type of kit assigned to the workcenter. Master tool kit listings will be updated semiannually or when the CTK custodian changes to ensure accuracy. The listings will be signed by the applicable flight OIC, NCOIC, flight chief, or section chief.

2.3.2. Ensure a secure area is designated to store CTKs, test equipment, and special equipment to include technical orders. This area will be capable of being locked to preclude access by unauthorized personnel when not being used.

2.4. Tools and equipment are properly etched/marked IAW PACAFI 21-101 and this WGI prior to issue.

2.4.1. All CTK items will be inlaid so that when tool(s) are removed from the toolbox, their absence can be quickly identified.

2.4.2. Tools which are no longer part of the CTK or shadow board will have the respective cutout removed. This will be accomplished by permanently filing in the tool cutout.

2.4.3. Checklist will not have metal rings or clips.

2.4.4. Weapons load crew crimpers and coded lead seal dies will be assigned to each weapons load crew by crew number.

2.4.5. CTK containers having items too small or impractical to etch will be placed in a container or pouch, and the container marked or etched with the type of tool, number of items inside, and the CTK letter/number. If container has a lid, it will be etched. Inventory must reflect “container/lid.”

2.4.6. Rags will be controlled as a CTK item. Rags will be kept and issued in zip-lock bags or self enclosing pouches with a quantity of five per bag. The bag will be identified on the outside by CTK number and quantity. Rags should be no larger than 18-inch square and the size must be consistent throughout the unit.

2.4.7. Fiberglass hammer handles will **NEVER** be etched. The etching will be on hammerhead.

2.4.8. CTKs used for maintenance on aircraft and/or flight line will contain a locally manufactured FOD bag marked for that CTK and will either be attached to or shadowed in the CTK. FOD bags will be made of canvas or herculite material (plastic bags will not be used). FOD bags must be at a minimum (6" W x 4" H) in size and securely seal the foreign object contents when closed.

2.4.9. CTK test equipment and storage containers subject to use on the flight line will have reflective paint or tape on all four sides to outline the container dimension including on the open position.

2.5. When the CTK custodian changes or during semiannual inspections, a complete item by item inventory of all tools, including all long term issue items, will be conducted by the workcenter supervisor or designated individual. Inventories are documented by letter through the section chief to flight commander/chief, identifying discrepancies and corrective actions taken. This will also be documented on the PACAF Form 140, **CTK Inventory and Inspection Log**, for each kit, on AF Form 2411, **Inspection Document**, or other forms.

2.6. Personal tools will not be carried/used on the flight line or back shops to perform any maintenance. The only exceptions to this rule are health and safety related equipment (i.e. reflective belts, hearing protection, etc.). These items may be issued to individuals; however, they will be marked

prior to issue with the individual's employee number, last name, and unit. When issued, whistles will be attached to a string that can be secured to the uniform. Personal cell phones and pagers are not authorized on the flight line except for issue/use in official military duties.

2.7. Intake and exhaust coveralls that are maintained by the tool support section will be marked identifying the owning squadron. For example: INTAKES AND EXHAUST USE ONLY 67 FS #12. Coveralls issued to individuals must be marked prior to issue with the individual's employee number, last name, and unit.

2.8. A master CTK continuity folder will be maintained for each area of responsibility. It will be maintained in a binder. If a tab is not required, insert a letter signed by the flight chief identifying the section is not required or sub-located. The binder will contain:

2.8.1. Tab A: Letter(s) of appointment, for CTK custodian and chit assignment listing, if applicable.

2.8.2. Tab B: PACAFI 21-101.

2.8.3. Tab C: 18 WGI 21-132 and approved procedures if a Bar Code system or computer system if used.

2.8.4. Tab D: List of all CTK identification numbers assigned.

2.8.5. Tab E: Master inventory sheets for CTKs. Only one inventory needed for standardized CTKs. (CA/CRL items that are located in CTK will be annotated on inventory)

2.8.6. Tab F: Lost tool and item reports, PACAF Form 140A, **Lost tool-Chit Investigation Worksheet**.

2.8.7. Tab G: Semiannual/annual Tool Inspection Log, AF Form 2411, or equivalent.

2.8.8. Tab H: Letters of authorization for modified tools/equipment and consumable materials listing.

2.8.9. Tab I: Spare Tool Inventory List.

2.8.10. Tab J: List of explosion proof lights by CTK number, type of light, and inspection due dates.

2.8.11. Tab K: List of warranty tools.

2.8.12. Tab L: CTK Shortage Control Logs (red and yellow) and Red Strip Control Logs, if applicable.

2.8.13. Tab M: Copies of all current AF Form 1297, **Temporary Issue Receipt,** for equipment issued or white chit control log if applicable.

2.9. Explosion-proof flashlights will be maintained IAW TO 35F5-1-2, if applicable.

2.9.1. All flashlights incorporated into CTKs having metal clips installed will have the clips removed. Spare bulbs and spare bulb clips will also be removed.

2.9.2. Mag light brand flashlights are authorized for use on the flight line, but only as CTK items. Mag lights **are not allowed** in areas where explosive vapors, gases, or combustible dust may be present.

3. Security:

3.1. Locks on CTKs will be the type that requires the bolt to be locked before the key can be removed (NSN 5340-00-291-4214 or equivalent). Locks that are not an integral part of CTK shall be attached using chain or cable and swedge. Locks and keys will be marked for the corresponding container. **EXCEPTION:** 909 ARS Mobile Crew Chief Tool Kit Program and the 33 RQS Phase Dock.

3.2. Dispatched CTKs are locked and secured to an immobile object when left unattended. The only exception to this requirement is CTKs locked and located within the restricted access area on the aircraft parking ramp. Tools will be maintained in an orderly manner in the work area. Tools will be placed back in the appropriate inlays when unattended or when the job is complete. All unsecured tools and equipment found will be turned in immediately to 18 OG or 18 LG Quality Assurance for identification.

3.3. All keys for flight line CTKs shall have a 6-inch minimum length "high visibility" streamer attached by a cable and swedge. The CTK number will be etched on the key and when practical identified on the streamer.

3.4. Rollaway type kits will have a metal bar (etched and on inventory) or metal hasp placed across the doors to prevent doors opening during transport. In-shop CTKs not subject to use on the flight line or deployment that have a built in lock do not need an added lock.

3.5. When a workcenter is not large enough to facilitate a manned tool room, the shop shift supervisor is responsible for:

3.5.1. An itemized inventory of all tools and equipment at the beginning and end of each shift. Annotate the inventory on a PACAF Form 140.

3.5.2. Ensure positive control of tools and equipment by the use of tool checklist, AF Form 1297, or chits. In-shop CTKs and shadow boards must remain locked when not in use unless they are stored in a place that is constantly manned or secured.

4. Parent CTK Identification Numbers:

4.1. The 18th Operations Group:

4.1.1. Weapons Standardization Section and 18 OG QA: S

4.1.2. The 44th Fighter Squadron: B

4.1.3. The 67th Fighter Squadron: C

4.1.4. The 961st Airborne Air Control Squadron: G

4.1.5. The 909th Air Refueling Squadron: H

4.1.6. The 623d Air Control Flight: K

4.1.7. The 33d Rescue Squadron: L

4.1.8. Detachment 1, 33d Rescue Squadron (Osan): R

4.2. The 18th Logistics Group:

4.2.1. The 18th Maintenance Squadron: E

4.2.2. The 18th Munitions Squadron: M

4.2.3. The 18th Logistics Support Squadron, LGLT (MAT): F

4.3. The assigned letters will be the first (prefix) marking for tool and CTK identification within the squadron or detachment. The letter will be followed by branch, section, or detachment identification letters and/or numbers.

4.4. All hand grease guns will be marked with the military specification of the grease in the gun, along with the CTK number or workcenter.

5. General Issue Procedures:

5.1. CTKs/Test Equipment: In addition to the AF Form 1297, Chit System, or Bar Code System, a PACAF Form 140 will be documented to indicate who signed the item in/out. A Bar Code System printout may be used in lieu of a PACAF Form 140 as long as physical signatures are documented. In-shop CTKs not subject to use on the flight line or deployment need only to document the PACAF Form 140.

5.1.1. A copy of the master inventory will be kept with the CTK when deployed or used on the flight line.

5.1.2. If a piece of equipment has a part(s) that is/are not required for use, this part(s) will be removed. The removed part(s) will be etched to identify the piece of equipment that it was removed from and stored until needed or required for turn-in.

5.1.3. Broken or removed tools will be documented on the backside of PACAF Form 140 (two copies). One copy will remain in the support tool section and the other will be put inside a mailing pouch (packing list holder) which is kept inside the CTK or an appropriate place on the CTK/test equipment. A control log will be used for unserviceable or removed tools. When replaced, the item will be dated and initialed on both copies.

5.2. The AF 1297: (If used)

5.2.1. Personnel will document all items signed out on an AF Form 1297, which support personnel will file by last name and shift. The AF Form 1297 will be used as the main source document to track all items an individual has signed out. The AF Form 1297s will be given adequate security to preserve the integrity of the tracking system.

5.2.2. All AF Form 1297s will be verified at the start and end of each shift in order to complete the tool room inventory.

5.2.3. The items which cannot be turned in at the end of the shift will be documented on AF Form 1297 and filed under the heading of LONG TERM.

5.2.4. The items signed out by other squadrons will be documented on an AF Form 1297 and will be filed under the heading OTHER UNITS.

5.2.5. Unserviceable Equipment/Item: An AFTO Form 350, **Repairable Item Processing Tag**, will be attached to the equipment/item reflecting the discrepancy. If removed from support for repair, an AF Form 1297 will be annotated and filed under the heading of LONG TERM.

5.2.6. Deployed CTKs/Equipment: Items signed out for deployment will be documented on an AF Form 1297 by the deploying individual or tool room supervisor and filed under the heading of DEPLOYED.

5.2.7. Technical Orders/Job Guides: They will be controlled by either an AF Form 1297, AF Form 614/614A, **Charge Out Record,** or PACAF Form 140. AF Form 614/614A are used to control technical orders/job guides/checklists that are signed out individually. PACAF Form 140s are used to control job guides/checklists that are compiled in a container for bulk issue. Establish an inventory to reflect contents.

5.3. The AFTO Form 244, **Industrial/Support Equipment Record**, or automated management products are required for all test stations, mock-ups, and locally manufactured test equipment that do not have a scheduled calibration interval, but have an inspection/maintenance requirement established by technical data or locally approved checklist(s).

5.4. Ensure that the AFTO Form 244 is accomplished IAW TO 00-20-7 and PACAFSUP 1. In addition, a 90-day supervisory inspection will be accomplished and annotated on the AFTO Form 244, block IV.

5.5. Chit System: (If used)

5.5.1. There will be 15 chits in each set. Shower curtain key ring holders or display shadow boards may be used as chit retainers. Each chit will be marked with workcenter and chit set numbers. To reduce FOD potential, chits will not be removed from the issue location.

5.5.2. At flight option, each tool and piece of support equipment may be issued using the chit system. When an individual checks out a tool, tool kit, or piece of support equipment, the chit will be placed next to the individual's name or placed in the location of the item checked out. The TMDE and out-of-service equipment will be on a color-coded board representing TMDE or out-of-commission.

5.5.3. Chits will be given adequate security to preserve the integrity of the chit system. Therefore, chit control boards will be designed and constructed with locking devices or will be located in a secured controlled location such as tool rooms, workcenter offices, etc.

5.5.4. A set of chits will be allocated to each assigned individual, crew, or to each individual by shift, specified in writing, and kept in the CTK continuity folder in Tab A. The chits that are in use by on-duty personnel will be separated from those of off-duty for the sake of accessibility, control, and ease of inventory. All chits will be inventoried at the beginning and end of each shift. When tools are discovered missing or lost, the shift supervisor will initiate PACAF Form 140 as directed in 18 WGI 21-121.

5.5.5. Workcenter supervisors will maintain two sets of chits to control CTK shortages. These chits will have the workcenter identity marked on each chit. One set will be painted red, the other set will be painted yellow. Red and yellow chits will be inventoried daily.

5.5.5.1. A red chit and control log will be used for missing or unserviceable tools.

5.5.5.2. Red embossing or reflective tape can be used in lieu of red chits for CTKs dispatched out of the tool room area. The red strip will have a control number and the noun of the lost or damaged tool. A red strip log will be maintained.

5.5.5.3. A yellow chit and control log will be used for equipment requiring TMDE calibration.

5.5.5.4. Yellow embossing or reflective tape will be used in lieu of yellow chits for CTKs dispatched out of the tool room area. The yellow strip will have a control number and the noun of the calibrated item. A yellow strip log will be maintained.

5.6. A white chit and control log will be used in conjunction with AF Form 1297 for all issued/deployed CTKs, and equipment. The deployed inventory will be signed by the ranking individual deployed from the shop or section.

5.7. The technical orders/job guides will be controlled by the chit system and an AF Form 614/614A.

5.8. Bar Code System (If used)

5.9. Bar Code and computer system may be used. Procedures will be submitted in writing to 18 OG/QA or 18 MXS/LGM for approval. A copy of approved procedures will be filed in Tab C of CTK Continuity Book with 18 WGI 21-132.

6. Consumable Materials:

6.1. Consumable materials must not be of a quantity greater than necessary to perform the job and must be controllable. Consumables (safety wire rolls, etc.) will be etched, inlaid or shadowed, and included on the CTK inventory. Procedures stated in paragraph **2.4.5.** also apply.

6.2. Special repair kit, bench stock, and consumable materials maintained in the CTK will be approved by letter through their ALS workcenter or support section NCOIC and kept in the continuity folder, Tab H.

7. Spare Tools:

7.1. Custodians may maintain a limited quantity of spare tools. ALS workcenter or support sections are responsible for the security of these tools. Each ALS workcenter or support section will establish a spare tool inventory list based on consumption rates and update this listing at least semiannually or when CTK custodians change. The spare tool inventory listing will be an attachment to the master CTK tool listing and signed/approved by the 18 MXS Flight Chief, Squadron ALS NCOIC or the Sortie Support Flight OIC/NCOIC. Each workcenter's quantity of spare tools will not exceed 10 percent of the total number on hand for the specific item. For example, ten 8-inch adjustable wrenches in the CTKs; one spare 8-inch adjustable wrench authorized or fifty 1/4-inch drive ratchets in the CTKs; five spare 1/4-inch drive ratchets authorized. Spare tool lockers/storage will be organized for easy inventory. Compartments will be labeled with item quantity in use and number authorized on hand.

7.2. Spare tools must be kept under lock and key with limited access. Only items pre-etched from the factory may be stored with etchings in spare tool lockers. All other items will not be etched or they will have etchings totally removed.

7.3. The 18 MXS Metals Technology and Structural Repair shops, AGE, and Avionics shop are authorized to keep consumable tools on hand (drill bits, hacksaw blades, etc.) These tools will be listed by stock number and unit of issue. They will be controlled in the same manner as spare tool, with the exception of not needing an inventory list for the consumable tool storage cabinets.

8. Inventory, Inspection, and Issue Procedures:

8.1. The CTK custodian will maintain a master tool kit inventory listing for each type of kit assigned to include test equipment and special tools.

8.2. Inventory listings will start at the upper drawers/shelves and work down. Items within a CTK will be listed by their location. Inventories will include, but not be limited to, the following information: name, quantity, and serial number (if serialized or a TMDE inspection is required). When

included in CTKs, serialize/ID numbered equipment, special tools, meters, and items listed on a CA/CRL may be etched with a CTK ID number or CA/CRL detail number. If not etched, the serial number, item ID number or CA/CRL detail number is annotated on the CTK contents list. **NOTE:** Equipment items requiring calibration need additional attention to ensure CTK lists are maintained current.

8.3. Individuals are responsible for:

8.3.1. Ensuring tools and CTKs are clean, serviceable, and all foreign objects are removed from the CTK and FOD bag at check-out/check-in. Any discrepancies will be immediately brought to the attention of the support section.

8.3.2. Conducting a complete toolbox inventory before use and after each job task is completed.

8.3.3. Document PACAF Form 140 after all tools have been inventoried during check out.

8.4. CTK Section will: as part of the check-in procedure, ensure that tools and CTK are clean, serviceable, all items accounted for, and all foreign objects are removed from the CTK and FOD bag. The CTK Section will then sign the box in on the PACAF Form 140.

8.5. Tool turnover on the job site will be authorized only under the following conditions:

8.5.1. During exercises.

8.5.2. When the unit is conducting a sortie surge.

8.5.3. On limited case-by-case basis when authorized by the squadron production superintendent or NCOIC SGF.

8.6. The following procedures will be used for conducting on the site turnover:

8.6.1. The user's flight chief, expediter, row chief/ramp rat, or shop supervisor will inventory the CTK and/or equipment and sign the new AF Form 1297 (issued by block) for the person coming on duty who will take charge of the equipment. For the chit system, the AF Form 1297 will have the chit number of both the person going off duty and the person coming on duty who is assuming responsibility for the equipment.

8.6.2. Support section personnel will verify both AF Form 1297s for accuracy or clear the chits for the individual going off duty and file the AF Form 1297 or chit the equipment for the individual coming on duty.

8.6.3. CTKs and equipment will only be turned over on the flight line once in a 24-hour period, except during exercises.

9. Non-CTK Items.

9.1. The CA/CRL items controlled through support sections will be identified IAW this wing instruction. Each CTK Custodian will ensure:

9.2. Items listed on the CA/CRL are controlled using item location designators. A master listing of location designators will be available.

9.3. All equipment will have an inventory list that reflects all attachments or pieces.

9.4. All CA/CRL kits, equipment, and special tools are marked in a manner that will identify the item to its owning workcenter and kit number.

9.5. The CA/CRL equipment containers dispatched to the flight line will have reflective tape applied in the same manner as CTKs (see paragraph **2.4.8.**).

9.6. All equipment electrical connectors and fuel/oil/oxygen connections will have dust caps installed, except for shops that are in a climate-controlled environment. All connector caps will be marked and identified on the item inventory. The caps will be annotated as plastic or metal.

9.7. For approval of locally manufactured special tools, submit a written request per PACAFI 21-101, paragraph 21.13.

9.7.1. The 18 OG units will submit requests to 18 OG/QA.

9.7.2. The 18 LG units will submit requests to their applicable flight chief and 18 LG/QA.

9.7.3. The ALS Functions will submit request to the 18 OG Life Support Functional Manager (18 OSS/OSOL).

9.8. Tools and equipment having attaching parts and a designated storage location will have a list of contents. Other items will be placed in a separate container.

10. Lost Tool/Item Procedures: Refer to 18 WGI 21-121.

JAMES B. SMITH, Brigadier General, USAF
Commander, 18th Wing

Attachment 1

909 ARS MOBILE CREW CHIEF TOOL KIT PROGRAM

A1.1. General Responsibilities:

A1.1.1. The general condition of the tools and toolboxes will be the responsibility of the dedicated crew chiefs.

A1.1.2. Each aircraft's dedicated crew chief(s) are responsible for ensuring all tools are accounted for upon completion of all maintenance actions. Individuals from other shops will use the CTK when in deployed status in the presence of the dedicated crew chief(s).

A1.2. Corrosion Prevention:

A1.2.1. Sortie Support CTK section will conduct follow-up corrosion prevention inspections and maintain a listing of corrosion inspection due dates.

A1.2.2. CTK Section will maintain a listing of corrosion due dates. Each aircraft dedicated crew chief will notify the CTK Section when corrosion inspections are accomplished.

A1.2.3. Within 3 days of the corrosion control tool completion, CTK personnel will conduct a follow-up inspection.

A1.3. Inventory:

A1.3.1. The user will conduct a complete toolbox inventory before and after use.

A1.3.2. The PACAF Form 140 will be documented after all tools have been inventoried.

A1.3.3. The CTK will be inventoried prior to or in conjunction with the following:

A1.3.3.1. Before flight.

A1.3.3.2. The start of the day checkout.

A1.3.3.3. At shift change.

A1.3.3.4. The end of the day check-in/close-out.

A1.3.4. Before flight, the Production Supervisor/Expediter will ensure the Red X entry stating, "Tool box inventory check due" is signed off prior to performing an exceptional release (ER) on the aircraft AFTO Form 781A, **Maintenance Discrepancy and Work Document.** The inventory check will be signed off by an individual (third party) not involved in the preflight, engine run prep, or use of the box.

NOTE: This write-up will be cleared prior to any maintenance engine runs.

A1.3.5. As part of the closeout procedure, another individual will perform a visual inspection to ensure that all of the tools have been accounted for. The individual will then sign their name and write their employee number next to the name of the person closing out the box on the PACAF Form 140, **CTK Inventory and Inspection Log**.

A1.4. Broken Tools:

A1.4.1. When a tool is broken, crew chiefs will be required to bring the broken tool and the PACAF Form 140 to the CTK Section for a tool exchange. A duplicate PACAF Form 140 will be maintained IAW 18 WGI 21-132, Paragraph **5.1.3.**

A1.4.2. CTK Section will provide a properly etched tool for replacement.

A1.4.3. If a tool that needs to be exchanged is not in stock, CTK personnel will annotate the tool on the PACAF Form 140, Part II.

A1.5. Security:

A1.5.1. Secure toolbox with a resettable combination lock.

A1.5.2. CTK Section and the APG Flight Chief will maintain a current list of combinations.

A1.5.3. The Support CTK Supervisor will approve and issue new lock combinations upon compromise of existing combination.