

**BY ORDER OF THE COMMANDER  
42D AIR BASE WING (AETC)**



**AIR FORCE INSTRUCTION 21-101  
AIR EDUCATION AND TRAINING  
COMMAND**

**Supplement**

**MAXWELL AIR FORCE BASE  
Supplement**

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**Maintenance**

**AIRCRAFT AND EQUIPMENT  
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This publication implements and fulfills the AFI 21-101, *Aircraft and Equipment Maintenance Management*, requirement. It establishes the Foreign Object Damage (FOD) Prevention Program and adds supplemental Consolidated Tool Control (CTK) guidance at Maxwell AFB. Refer recommended changes and/or corrections to this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*, through your chain of command. Waiver requests can be submitted to 42 OSS/OSQ. Subordinate units may issue implementing publication, but must coordinate with 42 OSS on draft publications prior to certification and approval. Copy of implemented publication must be sent to 42 OSS/OSQ. 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 the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). It applies to all flying and maintenance activities, transportation, civil engineering, security forces, and the fire department (any entity that has access to the airfield and poses FOD potential). It applies to the 908th Airlift Wing (AFRC) and the Civil Air Patrol-USAF. The use of the name or mark of any

specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

### ***SUMMARY OF CHANGES***

This publication was completely rewritten and should be reviewed in its entirety. Wing tool control procedures have been added as directed by AFI 21-101, *Aircraft and Equipment Maintenance Management*, Chapter 8.

8.2.1. All agencies will control tools, equipment and electronic devices that are dispatched to the aircraft parking/runway/taxiway area and aircraft maintenance area IAW chapter 1, chapter 8 and chapter 11 of AFI 21-101.

8.2.1.1. Per AF/A4L waiver dated 15 Sep 2011 and AFI 21-201 para 8.5.1, Maxwell flight line contract maintenance units may continue to use chit systems.

8.2.5.1. The two individuals who are authorized to chit out tools from CTK XP-3 will conduct the tool pouch transfer at the jobsite. Return the transfer card that is part of the tool pouch's inventory to the mechanic on duty to confirm the tool pouch is inventoried by the two individuals who transferred the tool pouch at the job site. Place the transfer card in CTK XP-3 in the respective spot of the tool pouch(s) transferred at job site(s); the chit of the person who accepted the tool pouch will replace the chit of the person who originally chitted out the tool pouch. AETC Form 1042, *CTK Tool Checklist*, section will be annotated to account for the removal of the transfer card from the pouch inventory. The card will be left in the applicable pouch storage position until the pouch is turned in to CTK XP-3. Return the card to the respective tool pouch(s) at the end of the shift when CTK XP-3 is inventoried and closed. If at any time during the above transfer procedures a tool is not accounted for, initiate a missing tool report.

8.2.9.1.1. Transient Alert uses absorbent paper towels in lieu of rags but shall maintain control of them as a CTK item. These paper towels will be inventoried as a tool and issued accordingly.

8.2.15.1. CTKs will not be signed in by same person that signed it out. One person shops (42 OSS/AGE and Survival Equipment) will sign out the CTK at beginning of the shift and the Transient Alert supervisor or mechanic on duty will sign the CTK back in.

8.5.1. Until such time as a Tool Accountability System (TAS) is required for 42 OSS contracted Transient Alert maintenance functions, utilize AETC Form 1042 to identify all tools removed from CTKs with the appropriately colored chit as shown in Table 8.1.

**Table 8.1. (Added) Chit Color Codes.**

<b>Chit Color</b>	<b>Assigned CTK</b>
Silver	Tools :(10 each) assigned per individual CTK XP-3 and 15 assigned to the GSE Mechanic for CTK XP6
Red	(5 each) Missing Tools, numbered (1-5)
Yellow	(5 each) Tools removed for maintenance, numbered (1-5)
White	(5 each) Tools broken and removed, numbered (1-5)
N/A	No chits are assigned to CTK S2-11(non-dispatchable)

8.5.3.3. **(Added)** Visiting maintenance teams, factory representatives, and contract field teams will be briefed by the applicable area supervisor or the Transient Alert mechanic on duty. The procedures in this instruction will be discussed to ensure that tools and equipment in their possession are accounted for prior to starting maintenance and before departing the work areas. All lost or missing tools by visiting teams will be handled IAW all local guidance's in this supplement and AFI 21-101 procedures listed in Chapter 8.

8.5.3.4. **(Added)** Non-aircraft maintenance personnel: This includes any personnel performing work or activities on the flight line to include Civil Engineering, Crash Fire Rescue, Security Forces, contractors, etc. In addition to adhering to AFI 21-101, these personnel will:

8.5.3.4.1. **(Added)** Prior to entering the airfield, perform a thorough check of all tools, equipment, materials and any personal devices to ensure they are secured and will not fall from the vehicle while on the airfield.

8.5.3.4.2. **(Added)** Inventory tools, equipment, and personal devices prior to and after each maintenance task performed while on the airfield.

8.5.3.4.3. **(Added)** Immediately notify Transient Alert (953-4566) and Airfield Management (953-6961/2) when a tool or item is suspected as being lost or missing on the airfield. Conduct a thorough search for the lost tool or item. After the search is accomplished, and the tool or item is not found, the responsible party will initiate a lost tool report using AETC Form 138, *Lost Tool or Item Investigation Record*. Submit the lost tool report to Airfield Management or Transient Alert for investigation, tracking, recommended action and COR notification

8.6.1. Mark each CTK per individual designation, assigned locally by the Air Force: T/A XP-3, GSE XP6 and S2-11.

8.6.1.3.5. Use paint to identify items too small to etch the CTK ID as shown in Table 8.2.

**Table 8.2. (Added) CTK Color Codes.**

<b>CTK</b>	<b>Paint Color</b>
XP-3	International Orange
XP6	Blue

8.6.2. Mark grease guns and oil squirt cans with type of substance as well as MILSPEC classification and CTK designation. The CTK custodian or designated alternate will maintain strict control of replacement or substitution of all consumables. The following markings will be utilized by Transient Alert: Grease gun (XP6) will be etched for use with: MIL-G-10924; Squirt can (XP6) will be etched for use with: MIL-PRF-2104.

8.6.6. Warranted tool management is not applicable to the 42 OSS Transient Alert BOS contract.

**8.7. Locally Manufactured, Developed, or Modified Tools and Equipment.** The 42 OSS/DM will approve all locally manufactured or developed tools and equipment for CTKs. Review locally manufactured tools annually. Keep a copy of the review documentation in the CTK binder and another copy forwarded to the COR for filing and validation.

8.8.1.1. Only the CTK custodian or designated alternate are authorized to procure, replace, and add tools and consumables to CTKs.

8.8.1.2. Tools removed from all assigned CTKs used outside the normal work area will be strictly controlled by the using the chits assigned to the technicians for that CTK or, AF Form 1297, *Temporary Issue Receipt*, when issued by the CTK monitor. Tools removed from CTKs for reasons other than normal work area tasks will be logged out on AETC Form 1042, *CTK Tool Checklist*. Once a Tool Accountability System (TAS) or other suitable automated tool control system is implemented, chits will no longer be authorized and the TAS system will be utilized for accountability of tools.

8.8.2.1.1. CTKs will be locked at all times and only accessed/unlocked by the Transient Alert supervisor or mechanic on duty. Secure the shop any time personnel vacate the building. CTK monitors are responsible for tool accountability on each shift by annotating AETC Form 1042 *CTK Tool Checklist*. Chits are controlled as tools and inventoried at the beginning and end of each shift. Use chits and AF Form 1297 Hand Receipt as required. CTK monitors issuing the tool will put the appropriate chit in the appropriate tool space. CTK monitors will ensure CTKs, sub-located CTK tools and equipment are controlled, inventoried, and secured. For purposes of inventory on the job site, use AETC Form 1042 when issuing tools in pouches. Once a Tool Accountability System (TAS) or other suitable automated tool control system is implemented, chits will no longer be authorized and the TAS system will be utilized for accountability of tools and all tools will be marked with standard EID's IAW AFI 21-101, Chapter 8.6.

8.9.2.3. Transient Maintenance Manager or the mechanic on duty will immediately notify the responsible Contracting Officer Representative (COR), if item is not found.

8.9.2.3.2. Initiate and complete AETC Form 138, *Lost Tool or Item Investigation Record*, even if the lost tool is found. AETC Form 138 will be routed via the Transient Alert Maintenance Manager to the COR. The Transient Alert Maintenance Manager will maintain copies of AETC

Form 138.

11.1.2. Each individual assigned to Contracted Transient Alert will be issued PPE as needed. Store PPE in CTK XP-3 and XP6. No PPE required for S2-11. Use the chit system to issue and account for the PPE. **Note:** *The Survival Equipment work center does not conduct aircraft equipment work on the site and CTK S2-11 tools are not to be removed from shop area nor deployed to flight line area for any reason. These tools are maintained as a CTK for standardization and ease of use only.* It also serves to outline tool and equipment control requirements for visiting maintenance personnel or other entities entering the airfield environment.

11.8.3.13.2. Flight Crew Responsibilities. Flight crews must account for all equipment and personal items after each flight, and ensure that any items that become loose, damaged, or lost during aircraft operation are documented in the AFTO Form 781A, *Maintenance Discrepancy and Work Document*, or equivalent form. Maintenance personnel practice proper control of personal tools and account for hardware. If any item becomes lost and cannot be located after search, the AFTO Form 781 or equivalent form is annotated and the COR/QAE notified.

11.8.3.16. Vehicles are a major source of foreign objects and operators must ensure all equipment carried on their vehicle is properly stowed and secured. In addition, the vehicle will be inspected for FOD potential immediately before entering the airfield environment. When vehicles are operated on unpaved surfaces, operators must stop and remove foreign material from their tires before returning to the airfield pavement. **EXCEPTION:** Emergency vehicles responding to any in-flight or ground emergencies on the airfield are not required to perform a FOD inspection.

11.8.4.1.2. **(Added)** Initial FOD prevention training shall be given to all newly assigned operations, maintenance, and base support personnel who work in and around operational areas before they are granted airfield driving privileges. Supervisors and personnel conducting training must emphasize areas covered in "FOD Prevention Topics". Transient Alert personnel receive FOD prevention indoctrination and training in accordance with company FOD prevention programs and AF standards. Training accomplished is maintained and made available for QAE review.

11.8.4.3.2. **(Added)** FOD prevention is the responsibility of all maintenance, operations, and base support personnel who work in, around, or drive through airfield operational areas. 42 OSS/DM (Division Manager,) 42 CES/DM (Division Manager,) 42 LRS/DM (Division Manager,) and 42 MSG/QC (BOS Quality) are responsible for ensuring contract personnel comply with individual company FOD prevention policies and this instruction. All personnel performing maintenance activities must practice good housekeeping at all times and perform maintenance tasks according to their respective directives, contract statements of work or performance work statement, and base operating procedures.

11.8.6.1.1. The appropriate commander or COR/QAE is notified immediately of all foreign object conditions that could affect safety or contribute to the loss or damage of Air Force property. In addition, the FOD Prevention Program Manager encourages and reviews suggestions relating to FOD prevention for possible adoption.

11.8.6.1.2. **(Added)** The responsible unit sends the completed AETC Form 199, *Foreign Object Damage (FOD) Incident Investigation*, to the Maxwell FOD Monitor (42 OSS/DM). The form is then reviewed with 42 ABW/SE and forwarded to AETC/A4M.

11.8.6.1.3. **(Added)** All FOD incidents are jointly investigated by the respective maintenance lead, QAR/COR and unit FOD monitor. Contract maintenance follows company reporting and AF procedures. Units notify airfield manager and 42 OSS/DM of FOD mishaps involving transient or locally-stationed aircraft. Report FOD incidents on the AETC Form 199, *Foreign Object Damage (FOD) Incident Investigation*. (908 AW comply with AFRC directives.)

11.8.7. Maxwell FOD Prevention Committee Meetings are conducted quarterly, or as required. 42 OSS/DM interfaces with the base-wide FOD/DO Prevention Committee comprised of the following members: 42 ABW/CV (Chairperson,) 42 MSG/CC (Alternate Chairperson,) 42 ABW/SE, 42 OSS/CC/OSQ, 42 CES/DM, 42 LRS/DM, 42 OSS/OSA, 42 MSG/CEF, 42 SFS/SFO, 908 AW/SE, 908 AW/MXG, and HQ CAP-USAF/SE. All minutes of meetings shall be forwarded to the 42 ABW/CV for review and approval prior to dissemination. The Airfield Operations Division Manager (42 OSS/DM) is the installation FOD/ Dropped Object Prevention Monitor for Maxwell AFB. Responsible for tracking adverse trends and making sure FOD awareness information is distributed to all committee members. The following topics are standard briefing items at each meeting:

11.8.7.2. Agenda Items:

11.8.7.2.14. **(Added)** Significant Air Force/AETC/42 ABW Trends

11.8.7.2.15. **(Added)** Airfield Sweeper Status (42 CES/CEO)

11.8.7.2.16. **(Added)** Show-and-Tell FOD items brought to the meeting (All)

11.8.9. **(Added)** Airfield FOD Inspections. Airfield Management conducts daily airfield inspections with particular awareness for foreign objects on ramps, taxiways, runways and access roads. Airfield Management personnel will brief contractors performing work on the airfield and will visit work sites routinely to ensure compliance with FOD prevention guidance. Airfield Management may inspect the runway environment for possible damage or FOD after a heavy aircraft lands or departs Maxwell.

11.8.10. **(Added)** FOD Sweeper Operations. CE Site Maintenance provides regular sweeping operations on the airfield during normal working hours and at other times deemed necessary by Airfield Management. Airfield Management and Transient Maintenance supplement sweeper operations utilizing FOD Boss rapid response sweepers and towed magnets as required.

11.8.11. **(Added)** Aircraft Maintenance Responsibilities. All aircraft maintenance organizations are responsible for keeping their respective parking locations clean, picking up all foreign objects, properly securing or disposing of them, and reporting all observed potential FOD conditions to the appropriate maintenance supervisor. Additionally, 908 AW and CAP-USAF are responsible for the housekeeping of their respective hangars and areas in the immediate vicinity of the hangars.

11.28.2.5.7. Inventory CDDAR equipment (Chains and Tie down straps) stored in storage container on Crash Recovery Trailer G0007 annually. Issue items from the storage container using AF Form 1297. The Transient Alert Maintenance Manager or mechanic on duty will ensure that, when required, the AF Form 1297 is filled out accurately and maintained or disposed of properly.

ANDREA D. TULLOS, Col, USAF  
Commander

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION***Adopted Form*

AF Form 847, *Recommendation for Change of Publication*

*Abbreviations and Acronyms*

**ABW**—Air Base Wing

**AW**—Airlift Wing

**CAP**—USAF—Civil Air Patrol-United States Air Force



**Attachment 22 (Added)****FOD PREVENTION TRAINING TOPICS****A22.1. (Added) FOD Hazards Peculiar to the Type of Aircraft Assigned:**

- A22.1.1. (Added) Close proximity taxiing;
- A22.1.2. (Added) Aircraft inlet and exhaust blast hazards;
- A22.1.3. (Added) Use of engine run-up areas;
- A22.1.4. (Added) Operation of engines overhanging unimproved areas.

**A22.2. (Added) Types and classes of foreign objects (Metal, Stone, and Miscellaneous).**

**A22.3. (Added) Cost of Carelessness.** Discuss how a moment of carelessness can result in an unnecessary expenditure of material and man-hours. If available, cite specific instances of engine compressor and turbine damage, aircraft surface damage, gear damage, tire cuts, etc. Also, discuss man-hours spent attempting to locate lost items in enclosed areas.

**A22.4. (Added) Control of Individual Items.** Control of individual articles of clothing and personal equipment such as hats, pens, pencils, coins, identification badges, metal fasteners, aircraft safety pins, forms, manuals, and safety lock and pins.

**A22.5. (Added) FOD Prevention Controls.** FOD prevention controls for intakes, movable control surfaces, landing gear, tires and air inlet ducts.

**A22.6. (Added) Protection of Aircraft.** Proper protection of aircraft during hazardous periods such as high winds.

**A22.7. (Added) Disposing of FOD.** Proper use of receptacles to dispose of foreign objects.

**A22.8. (Added) Reporting Procedures.** Reporting procedures for FOD occurrences.

**A22.9. (Added) Inspecting Vehicles.** How to inspect for foreign objects on vehicles such as refueling trucks, supply trucks, contract vehicles, and any other assigned vehicles authorized to operate within the airfield and hangar areas.

**A22.10. (Added) Contract Maintenance Policies.** Policies for contract maintenance FOD prevention in hangars, airfield, and work areas (contained in company FOD prevention programs). In general:

- A22.10.1. (Added) Maintenance engine runs;
- A22.10.2. (Added) Control of debris and good housekeeping;
- A22.10.3. (Added) Tool control and hardware accountability;
- A22.10.4. (Added) FOD walks, disposal, and documentation;
- A22.10.5. (Added) Control of personal items;
- A22.10.6. (Added) FOD reporting;
- A22.10.7. (Added) Proper use of intake and inlet covers, plugs, etc.
- A22.10.8. (Added) Procedures for requesting CE sweeping equipment.