

**BY ORDER OF THE COMMANDER
502D AIR BASE WING**

**JOINT BASE SAN ANTONIO INSTRUCTION
21-103**



18 NOVEMBER 2011

Maintenance

***LACKLAND AFB FOREIGN OBJECT
DAMAGE (FOD), DROPPED OBJECT
PREVENTION (DOP), AND TOOLS AND
EQUIPMENT CONTROL PROGRAMS***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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(Col Richard H. Houghton, Jr.)

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The instruction only applies to Lackland AFB (LAFB). This instruction implements Air Force Policy Directives (AFPD) 21-1, *Air and Space Maintenance*, and guidance contained in AFI 21-101, *Aircraft and Equipment Maintenance Management*. The purpose of this instruction is to establish roles, responsibilities, policy and procedures for the LAFB FOD, DOP, and Tool and Equipment Control programs applicable to operations conducted on 802 MSG airfield ramps, taxiways, and runways at LAFB. The procedures in this instruction apply to Air Force Reserve, Air National Guard, or civil entities except when operating in 802 MSG airfield areas outside the distinct boundaries of their respective airfield ramps or otherwise specifically addressed in this instruction. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate functional's chain of command. **NOTE:** Ensure all records created as a result of processes prescribed in this publication are maintained in accordance Air Force Manual (AFMAN 33-363), *Management of Records*, and disposed on in accordance with the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located on the AF Portal available at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>.

SUMMARY OF CHANGES

This revision changes the 37 TRW to 802 MSG and 37 OSS to 802 OSS. Renames instruction to clearly delineate scope of application as applying to Lackland AFB only.

1. FOD/DOP Responsibilities (All Lackland AFB Organizations):

1.1. **The 802d Mission Support Group Commander is delegated as the FOD and DOP Manager for Lackland Air Force Base.** As such, the 802 MSG/CC ensures effective FOD/DOP programs are established. The FOD/DOP Manager will:

- 1.1.1. Designate a Lackland AFB FOD/DOP Monitor to oversee the Lackland AFB FOD/DOP programs.
- 1.1.2. Ensure unit commanders and operations officers actively support FOD/DOP programs.
- 1.1.3. Ensure each FOD mishap is investigated and that actions are taken to determine root causes and initiate actions to prevent recurrence where appropriate.
- 1.1.4. Review all FOD mishap reports to determine if management action is required.
- 1.1.5. Ensure the Airfield Manager and all other agencies consider FOD prevention for construction or other activities on or within proximity of airfield areas.
- 1.1.6. Ensure FOD prevention is inclusive in quality assurance programs and processes.
- 1.1.7. Ensure the Airfield Manager identifies and properly marks FOD check points at all entry points to airfield areas.

1.2. **LAFB FOD/DOP Monitor.** The LAFB FOD/DOP Monitor is appointed by 802 MSG/CC and must be a TSgt or civilian/contractor equivalent. The Monitor must have at least 8 years experience in the aircraft maintenance field. The LAFB FOD/DOP Monitor will:

- 1.2.1. Ensure a visual aid that identifies LAFB FOD/DOP monitor's name, duty phone , work e-mail, and organization location information is in a prominent place within each unit involved in the FOD/DOP program.
- 1.2.2. Inform all agencies of FOD hazards.
- 1.2.3. Ensure unit FOD monitors perform and document weekly spot checks.
- 1.2.4. Participate in FOD/DOP investigations to ensure sound corrective actions are taken.
- 1.2.5. Monitor and make recommendations to FOD prevention training classes. Ensures FOD/DOP awareness and responsibilities are included in applicable newcomer briefings.
- 1.2.6. Periodically inspect damaged pavement, construction, or other hazards on or in the proximity of aircraft parking areas, taxiways and aprons and report to the Airfield Manager. Maintain a record and follow up to ensure repairs are accomplished.
- 1.2.7. Obtain training from 502 ABW, OL-A/SE Safety staff on mishap reporting procedures and requirements.
- 1.2.8. Ensures adequate training standards are developed and used by unit DOP monitors to ensure all maintenance personnel involved in on-equipment maintenance receive adequate DOP training. As a minimum, brief personnel on prevention and investigation requirement outlined in AFI 21-101:

1.2.8.1. Prevention. Effective prevention of dropped objects starts when an aircraft door, panel, or cowling is opened for maintenance and during munitions build-up, loading, and arming. Maintenance personnel will ensure the serviceability of fasteners and the proper fit of doors, panels, connectors, etc. Place special attention on the correct length of fasteners and condition of nut plates and other securing devices. Supervisors place special emphasis on these areas during the inspection of completed maintenance actions.

1.2.8.2. Investigation. The LAFB DOP Monitor will investigate each dropped object incident. Every effort will be made to determine the precise cause to ensure positive corrective action is accomplished. Anytime a materiel or design deficiency is the cause, or suspected cause a deficiency report (DR) must be submitted per technical orders (TO), even when an exhibit is not available. Distribute investigation results to each appropriate work center for inclusion in personnel training and education programs.

1.3. Unit FOD/DOP Representative Responsibilities. Each organization represented on the FOD Committee will designate a primary and alternate FOD/DOP representative. Forward appointment memorandums to the LAFB FOD Monitor. As a minimum, include name, rank/grade, squadron, office symbols, duty phone, and work e-mail address (if applicable). As a minimum, unit FOD/DOP representatives will:

1.3.1. Post their name and duty phone number in a prominent location.

1.3.2. Provide and ensure documentation of FOD awareness training for all assigned personnel.

1.3.3. Develop and provide DOP training to aircraft maintenance personnel involved in on-equipment maintenance relative to unit mission (if applicable).

1.3.4. Attend FOD Prevention Committee meetings.

1.3.5. Report all FOD and DOP occurrences to the LAFB FOD Monitor.

1.3.6. Participate in investigation and reporting of FOD/DOP incidents within the representative's area of responsibility.

1.3.7. Report any FOD incident involving aircraft engines, auxiliary power units, or major aircraft systems to applicable organizational safety offices. Provide informational copies to the LAFB FOD/DOP Monitor.

1.3.8. Develop procedures to perform and document weekly spot checks of selected areas.

1.3.9. Maintain a continuity book of applicable material pertaining to FOD/DOP responsibilities and any items specified in this instruction or AFI 21-101.

2. FOD Prevention Committee. The 802 MSG/CC or appointed designate chairs FOD Prevention Committee. The Committee meets quarterly unless FOD standards are not met in which case meeting will be monthly.

2.1. The Committee is composed of representatives from the following organizations: 149th Fighter Wing (149 FW)

- 433d Airlift Wing (433 AW)
- Port San Antonio (PSA)
- Inter-American Air Forces Academy (IAAFA)
- 502 ABW Safety (502 ABW/SE)
- 559th Aerospace Medicine Squadron (559 AMDS)
- 802d Civil Engineering Squadron (802 CES)
- 802d Communications Squadron (802 CS)
- 802d Logistics Readiness Squadron (802 LRS)
- 802d Operations Support Squadron (802 OSS)
- 802d Security Forces Squadron (802 SFS)
- 313th Flight Test Squadron (FLTS)

2.2. The minimum agenda for FOD/DOP meetings will include:

- 2.2.1. Summary of FOD/DOP events since the last meeting.
- 2.2.2. New directives, actions, or equipment to prevent FOD/DOP.
- 2.2.3. Relevant and pertinent cross tell from other organizations to include civilian entities (when available).
- 2.2.4. Review of open action items from prior meetings.
- 2.2.5. 802 CES will provide information on sweeper usage and tasking (total hours per month or quarter) when requested by the LAFB FOD Monitor.
- 2.2.6. The 802 OSS Airfield Manager will provide information on future airfield construction projects that could increase FOD potential, and discuss potential problem areas when special events occur, i.e., air shows.

2.3. The LAFB FOD/DOP Monitor will provide and forward copies of meeting minutes to all attendees and the Air Education and Training Command Maintenance Division (AETC/A4M) FOD Monitor.

3. FOD/DOP Investigating and Reporting (All Organizations). In addition and complement to the specific procedures in AFI 21-101, the following applies:

3.1. **FOD.** When FOD is suspected or confirmed, the discovering individual(s) will immediately up channel the information to appropriate management and leadership authorities to include the maintenance operations center (MOC) (if assigned), quality assurance (QA), and appropriate squadron and group commander(s). If the incident occurs on a transient aircraft, contact the home base maintenance group commander through the organization's command post. Along with the specific procedures outlined in AFI 21-101, the following procedures apply:

- 3.1.1. Impound aircraft and/or aircraft engines sustaining FOD pending formal investigation.
- 3.1.2. The group or squadron commander responsible for the aircraft is responsible for chartering a team to conduct an investigation. Note: This investigation is secondary to a formal safety investigation called for by AFI 91-204, *Safety Investigations and Reports*.

3.1.3. The investigation will include all necessary measures to determine the cause of the FOD and contributing factors.

3.1.4. The LAFB FOD Monitor will report all FOD incidents to the AETC/A4M FOD Manager using AETC Form 199, *Foreign Object Damage (FOD) Incident Investigation*, no later than 24 hours after an occurrence. Coordinate this report through appropriate chain of command and concurrence by 802 MSG/CC is required before sending forward. See AETC Supplement 1 to AFI 21-101 for specific office symbols, facsimile phone numbers, and email addresses that apply.

3.2. **DOP.** Unit DOP Representatives will have primary responsibility for investigation with assistance and coordination from the LAFB FOD/DOP Monitor unless a formal safety investigation is called for IAW AFI 91-204 in which case the safety investigation will have priority. Along with the specific procedures outlined in AFI 21-101, the following applies:

3.2.1. If material or design deficiency is the cause or suspected cause, the applicable DOP Representative will ensure a deficiency report is prepared and properly submitted per TO requirements.

3.2.2. Report dropped objects to the LAFB FOD/DOP Monitor immediately. If the LAFB FOD/DOP Monitor cannot be reached, contact the 802 OSS Commander or Director of Operations through the 502 ABW Command Post.

3.2.3. The LAFB FOD/DOP Monitor will ensure 502 ABW/SE is notified of all dropped objects.

3.2.4. AETC units will provide an initial report for dropped objects **within 3 hours** if the incident occurs during a normal duty day (Monday through Friday) to HQ AETC/A4MS. Tenant units will ensure the applicable major command reporting requirements are met per their directives.

3.2.5. All units will provide follow-up formal reports to their respective major command DOP office within 3 duty days following an occurrence. Provide copies to the LAFB FOD/DOP Monitor. Reporting format will meet the specific elements outlined in AFI 21-101 as a minimum.

3.2.6. The LAFB FOD/DOP Monitor is responsible for ensuring home station organizations are notified of dropped objects on transient aircraft. The LAFB FOD/DOP Monitor will contact the base command post and ask for the organization's DOP representative. If there is difficulty in contacting the unit, the LAFB FOD/DOP Monitor will ensure the aircraft commander is contacted and tasked to provide information to home station.

4. Tool and Equipment Management in Airfield Areas (All Organizations). The following procedures apply to activities and tenant organization (civilian and military) that utilize or transport tools and equipment on to 802 MSG airfield ramps, taxiways, and the runway at LAFB. These are minimum requirements and they are in addition to any specific requirements levied by AFI 21-101.

4.1. **Security, Control, and Accountability.** Account for all tools and equipment transported to or used on airfield ramps, taxiways, and the runway before entering airfield areas and before beginning work. Users will control and account for tools and equipment

during work, at the completion of each task, and before exiting airfield areas. Users will secure unattended tools and equipment in a way and location that does not impede or pose a risk for aircraft or vehicles utilizing the airfield.

4.2. Inventory Requirements. As a minimum, inventory and account for tools and equipment items before entering airfield ramps, taxiways, and the runway as well as before and after each job or task performed.

4.3. On-Site Tool Transfers. Conduct a joint inventory to account for all tools and equipment before documenting transference of responsibility from one party to another. The 802 OSS Transient Alert activity will follow any additional procedures required by contract and/or internal directives.

4.4. Lost or Missing Tool Procedures. Supervisors ensure all assigned personnel are familiar with lost tool procedures. If a tool, equipment item, rag, or a portion of a broken tool is discovered missing in an airfield area or aircraft maintenance industrial shop, the following procedures apply:

4.4.1. The person identifying the missing item will search the immediate work area. If the item is not found, the individual will notify their supervisor or someone in their supervisory chain, who in-turn, will notify the 802 OSS/DO or airfield manager. Contractors working on airfield areas must immediately contact the government oversight representative, normally a Quality Assurance Evaluator (QAE) who, in-turn, will notify the Airfield Manager. The Transient Alert contractor assigned to the 802 OSS will contact the Chief QAE, the OSS Commander or OSS Director of Operations.

4.4.2. Place a Red X in the aircraft or equipment forms of all affected aircraft or equipment with a description of the item and a specific, last known location.

4.4.3. Ensure all appropriate management and leadership entities are informed of the lost item and the ongoing investigation.

4.4.4. The on-scene supervisor will initiate a thorough search for the item. If the item is not found, the person issued the item/tool will initiate a lost tool report.

4.4.5. Consider impounding aircraft and/or pausing aircraft activities on taxiways, taxi lanes, or parking ramps when appropriate.

4.4.6. AETC organizations will use AETC Form 138, *Lost Tool or Item Investigation Record*, to document the investigation and final determination. Other units will use the appropriate form relative to their organization. All organizations will route the report through appropriate supervision and management entities (includes QAEs for contract activities) and the report will be filed by respective quality assurance functions. A copy will be provided to the 802 OSS Airfield Manager if the item was lost in an airfield area.

4.4.7. The 802 OSS/CC is the sole decision authority for terminating an investigation in which a tool or item cannot be located on 802 MSG airfield areas. The 149th and 433rd MXG/CCs terminate lost tool investigations initiated in their specific ramps for assigned aircraft. Final reports will be forwarded to the 802 OSS/CC for review. The respective commander's signature on the investigation form will document this decision.

4.4.8. Limit authorization to clear aircraft and equipment Red Xs when a tool/item cannot be located to no lower than squadron commander, deputy, or operations officer equivalent.

4.4.9. When it is suspected that the item may be located in an inaccessible or unobservable aircraft area, perform a non-destructive inspection or use bore-scope equipment to aid in locating the item.

4.4.10. If the item is in an inaccessible area that poses no FOD threat and the action is to leave the item in place, maintain the x-ray (or equivalent) with the identification of the exact tool location and copies of all information concerning the lost tool in the aircraft historical file until the item/tool is recovered. The Commander of the organization to which the aircraft is assigned must approve the decision.

4.4.11. If the aircraft is a transient aircraft, the 802 OSS Transient Alert contractor will ensure the pilot and the home station command post are notified and inform the Chief QAE of the same.

4.5. **Personal Protective Equipment (PPE).** Account for, control and secure personal protective equipment the same as tools and equipment when transported to airfield ramps, taxiways, parking areas, and the runway.

4.6. **Rag Control.** Count rags (paper, cloth, etc.) brought on to airfield taxiways, parking ramps, or the runway before entering the area(s) and reconcile before leaving as well as before and after each job or task.

4.7. **Depot, Factory, or Contract Field Teams.** The sponsoring squadron commander or director is responsible for ensuring that teams working in or around airfield areas, on aircraft, aircraft support equipment, or aircraft-related trainers have an acceptable tool and equipment control process that meets the requirements of and intent of this directive.

4.8. **Airfield Maintenance Teams.** Commanders or Directors of organizations contracting construction crews and workers working on or near taxiways, ramps and the runway will ensure work statements include requirements for control and accountability that meet the requirements and intent of this directive.

5. Tool and Equipment Management in Airfield Areas (802 MSG Organizations).

5.1. **Equipment Identification Designators (EID).** 802 MSG organizations will develop a standardized identification system for all tools and equipment used on airfield ramps, taxiways and the runway. Etch or permanently affix the EID to the tools and equipment.

5.2. **Locally Manufactured Tools and Equipment.** Locally manufactured tools used on aircraft, aircraft-related trainers or aircraft support equipment will be approved using the specific procedures in AFI 21-101, Tool and Equipment Management chapter.

5.3. **Tool and Equipment Issue and Turn In Procedures.** Aircraft, support equipment and aircraft-related trainer maintenance activities will adhere to the policies and procedures required in AFI 21-101.

5.4. **Controlled Access for Tool Storage Areas.** Access to tool storage areas must be kept to the minimum personnel required to manage and operate tool storage areas. Aircraft and

aircraft-related trainer maintenance activities will follow the specific guidance in AFI 21-101.

5.5. Control and Management of Replacement, Expendable, and Consumable Hand Tools, Hazardous Materials (HAZMAT), and Other Items Contained in Tool Kits. Consumables may be placed in composite tool kits (CTKs). If so, they are identified on the tool or equipment inventory listing and identified as consumables. Examples of consumables include safety wire, adhesive, wire bundle lacing, solder, etc. Do not include common hardware items, such as, bolts, nuts, and (or) screws unless they are required as tools. If HAZMAT materials are included as part of the tool or equipment kit that is dispatched for use on airfield areas the material safety data sheet (MSDS) must accompany it.

6. General FOD Prevention Requirements and Responsibilities:

6.1. 802 CES sweepers will sweep active ramps and taxiways Monday through Friday, excluding federal holidays, or as needed.

6.2. Aircraft maintenance activities, to include Transient Alert, will conduct FOD walks on active ramp parking areas prior to the first flight of the day (as a minimum, this means the rows and taxi lanes that will be used that day). Launch and recovery crews will perform FOD walk inspections of the parking spots and taxi lanes they will use prior to launch and recovery of aircraft.

6.3. Tenant (military and civil) organizations will follow their commands or civil FOD directives. Each FOD/DOP representative's continuity book will have areas of responsibility maps.

6.4. Do not wear hats, caps, and/or wigs within the danger area of operating engines as defined in the applicable aircraft specific TO and per Air Force Occupational Safety and Health Standard (AFOSHSTD) 91-100, *Aircraft Flight Line - Ground Operations and Activities*.

6.5. Badges, as well as other types of identification, must be worn using a two-restraint system or armband to diminish their FOD hazard (reference AFOSHSTD 91-100).

6.6. Personnel performing work on airfield areas will not wear metal insignia, metal hair items, earrings, or jewelry that might fall off on airfield areas (reference AFOSHSTD 91-100).

6.7. Escorts for personnel visiting airfield areas will ensure FOD prevention measures are adhered to.

6.8. Vehicle operators will stop and perform a visual FOD inspection on all equipment and tires prior to entering the flight line areas.

6.9. Metallic shoe cleats and taps pose spark generation and FOD hazards and will not be worn on the flightline (reference AFOSHSTD 91-100).

6.10. Remove Support Equipment to include Aerospace Ground Equipment (AGE) and fire extinguishers from airfield areas when not required for use.

THERESA C. CARTER, Brigadier General, USAF
Commander

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

Air Force Policy Directives (AFPD) 21-1, *Air and Space Maintenance*, 25 February 2003

AFI 21-101, *Aircraft and Equipment Maintenance Management*, 26 July 2010

AFI 91-204, *Safety Investigations and Reports*, 24 September 2008

AFOSHSTD 91-100, *Aircraft Flight Line - Ground Operations and Activities*, May 1998

Adopted Forms

AETC Form 138, *Lost Tool or Item Investigation Record*, 25 June 2007

AETC Form 199, *Foreign Object Damage (FOD) Incident Investigation*, 25 June 2007

AF Form 847, *Recommendation for Change of Publication*, 22 September 2009