

**BY ORDER OF THE COMMANDER
14TH FLYING TRAINING WING
(AETC)**

**COLUMBUS AIR FORCE BASE
INSTRUCTION 21-104**

9 FEBRUARY 2024



MAINTENANCE

**FOREIGN OBJECT DAMAGE (FOD)
AND DROPPED OBJECT PROGRAM
(DOP)**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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(Mr. Paul Treece)

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This instruction implements Air Force Policy Directive (AFPD) 21-1, *Air and Space Maintenance*. It establishes procedure not directly covered by DAFI 21-101, *Aircraft and Equipment Maintenance Management*, AFI 21-101 AETC Sup, *Aircraft and Equipment Maintenance Management*, and establishes policies and outlines reporting procedures for the Foreign Object Damage Prevention Program (FODPP) and the Dropped Object Prevention Program (DOPP). This instruction applies to all Air Force Active Duty, civilian, and contractor personnel working in, on, or near 14 FTW aircraft or equipment, and to personnel traveling through 14 FTW facilities or aircraft parking ramp. Supervisors are responsible for ensuring compliance with this instruction. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual AFMAN 33-322, *Records Management and Information Governance Program*, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at https://www.my.af.mil/afirms/afirms/afirms/rds/rds_series.cfm. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using Department of the Air Force (DAF) Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional chain of command.

1. Overview.

1.1. Foreign Object Damage (FOD), as defined in Air Force Instruction (AFI) 21-101, is:

1.1.1. Any damage to an aircraft, engine, aircraft system, component, tire, munitions, or support equipment caused by a foreign object(s) (FO) which may or may not degrade the required safety and/ or operational characteristics of the aforementioned items.

1.2. As such, it is imperative that personnel have an understanding of their roles and responsibilities as it pertains to detecting, reducing, and eliminating FOD instances on Columbus Air Force Base (CAFB).

1.3. All personnel (military, civilian, and contractors) working in, on, around, or traveling through areas near aircraft, munitions, Aircraft Ground Equipment (AGE), engines, or components thereof will comply with FOD prevention.

2. Roles and Responsibilities.

2.1. The Deputy Wing Commander (WG/CD) will:

2.1.1. Be assigned as the FOD Prevention Program Manager and will ensure that a wing FOD monitor is appointed.

2.1.1.1. The appointed individuals name will be posted in all units that enter the flightline area, in a prominent place on a locally developed visual aid which also provides contact information.

2.1.2. Ensure all personnel operating on the flightline will actively support the FOD Prevention Program.

2.1.3. Review all unit FOD mishap reports and analyze the reports and other data for trends identifying areas requiring management action.

2.1.4. Coordinate FOD prevention needs with the airfield manager and other agencies when construction is in progress on or near the flightline, or other areas where FOD incidents could occur.

2.1.5. Ensure FOD prevention is part of Quality Assurance (QA) inspections.

2.1.6. Coordinate with the airfield manager to identify and properly mark FOD checkpoints.

2.2. Wing FOD monitor, at a minimum, will:

2.2.1. Inform all wing agencies of FOD hazards.

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

2.2.3. Be involved in each FOD investigation and help ensure corrective actions are sound.

2.2.4. Monitor and recommend changes to FOD prevention training.

2.2.5. Units will ensure an initial FOD awareness and responsibilities briefing is given to all newly assigned personnel.

2.2.6. Periodically inspect and report damaged pavement, flightline construction, or other hazards in or near aircraft parking ramps or taxiways to the airfield manager and monitor status to ensure timely repairs.

2.3. The Aircraft Maintenance Contractor shall:

2.3.1. Establish and manage the FOD prevention program for the aircraft maintenance operating area IAW DAFI 21-101, Defense Contract Management Agency (DCMA) 8210.1C, and the aircraft maintenance contractor's local guidance.

2.3.1.1. For the purpose of FOD prevention, the aircraft maintenance operating area is defined as the aircraft parking ramp, maintenance shops, hangars, hangar aprons, engine trim pads, engine test cells, noise suppression systems, equipment parking areas, adjacent flightline roads, maintenance shop to parking ramp connecting roads and parking ramp entrance and exit roads.

2.3.2. Include the FOD prevention program in the Quality Management System (QMS) Plan.

2.3.3. Appoint a qualified maintenance member (if designated by Statement of Work (SOW) or Performance Work Statement (PWS)), to the position of FOD Monitor.

2.3.4. Perform and document, as a minimum; daily FOD walks on the aircraft parking, trim pads, and hangar aprons. Keep aircraft and engine operating areas FOD free throughout the day. Pick up FOD as it is created, and maintain FOD prevention practices in shops, test cells, noise suppression system, and vehicles.

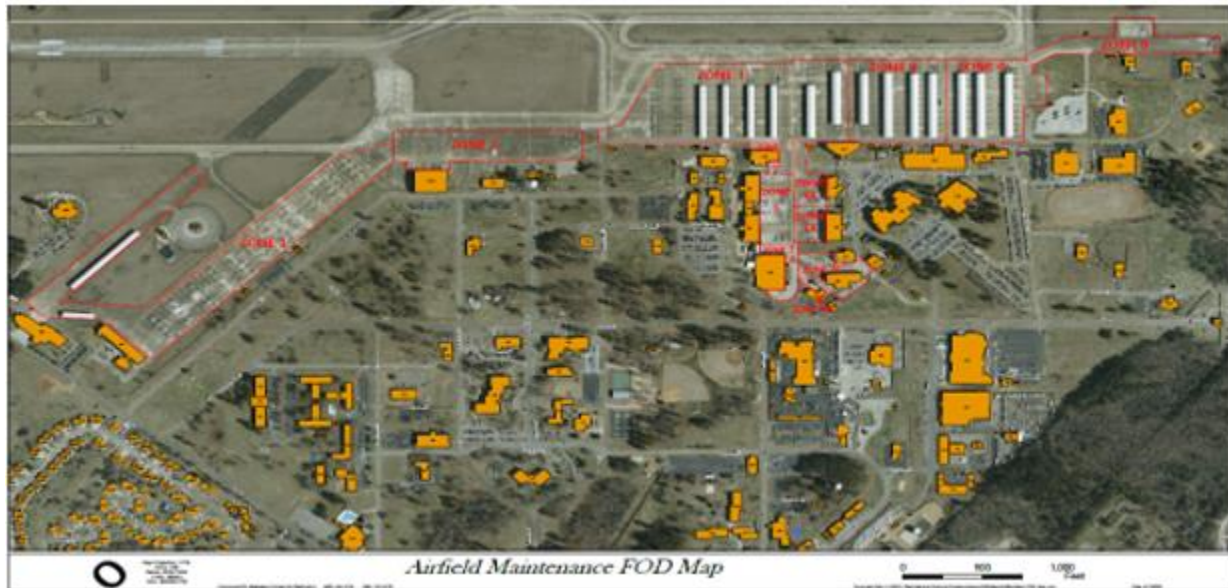
2.3.4.1. To enhance the FOD Prevention Program, Branches will use the "FOD Boss" a minimum of three times per week. FOD Boss usage will be documented on the maintenance contractor's local form. Magnetic rollers will be used daily to facilitate FOD prevention.

2.3.4.2. Branch Managers, Expeditors, or Pro Supers will lead FOD walks and complete random FOD walk follow-ups.

2.3.5. Monitor assigned operating areas for FOD and contact Base Operations for sweepers as necessary. Report damaged pavement areas and other hazards in or near parking ramps or taxiways to the airfield manager.

2.3.6. Base FOD walks zones are established per the maintenance contractor's local guidance. **Figure 1** provides an example of Columbus AFB FOD walk zones.

Figure 1. Example of Base FOD Walk Zones.



2.3.7. Provide FOD training to all aircraft maintenance personnel and all other service and construction personnel that will be performing work in, around, or drive through operational areas.

2.3.8. Provide course material that address common causes of FOD; local shop, flightline, and hangar work policies; hardware, debris, and tool control policies; and individual responsibilities to prevent FOD. Maintain records of FOD training provided to all aircraft maintenance personnel and all other service and construction personnel.

2.3.9. Facilitate Wing FOD meetings, create, and distribute FOD prevention meeting minutes within five duty days of meeting adjournment. Submit FOD reports on applicable forms (as required), publishing FOD report findings, build and distribute FOD meeting slides.

2.3.10. Perform FOD and Dropped Object Investigations and Reporting.

2.3.11. Report FOD incidents immediately to the Vice Wing Commander, Functional Commander, Contracting Officer, Chief Contracting Officer Representative and 19AF FOD Manager within 24 hours via SharePoint link <https://eis.aetc.af.mil/19af/LG/FOD/SitePages/Home.aspx>. A follow up report is required every 45 days until closeout.

2.3.12. Ensure the FOD report is filled out in its entirety with clear and concise information. A detailed damage description is required prior to submitting the form. Describe compressor and turbine damage at each stage, how many blades or vanes are affected, and blade or vane damage appearance, nicks, dents, tears, etc. Example: #2 engine sustained damage to the following areas: two each 1st stage IGV's nicked, five each 2nd stage compressor rotor nicked blades, all 3rd stage compressor rotor and stators damaged beyond repair. High/low pressure turbine sustained damage throughout.

2.3.13. Ensure FOD investigation and reporting is completed.

2.3.14. Ensure a Failure Analysis Service Technology (FAST) test kit is on hand for forensic analysis.

2.3.14.1. Coordinate FAST samples taken for engine investigation with Wing Safety. The damaged areas will not be tampered with or touched when FOD damage is discovered.

2.3.15. Gather Forensic evidence. Example: Gain access to the top half of the J85 compressor at the request of the FOD monitor or investigator. An engine or module that the root cause of FOD has not been determined, will require 19AF FOD Manager approval of engine shipment to a repair facility. Gain access to FOD damaged engines to the fullest extent possible without compromising results.

3. Clothing Policy.

3.1. All personnel performing duties on the airfield will adhere to the additional flightline clothing guidance in AFI 21-101 and applicable supplements as well as items listed below.

3.1.1. Metal insignias/badges will not be worn on the flightline.

3.1.2. Wigs, hairpieces, metal hair fasteners, earrings, or any other jewelry/loose items that may fall off without notice, are not authorized on the flightline.

3.1.3. Escorts of visiting personnel will ensure FOD prevention measures are taken.

3.1.4. Contracted aircraft maintenance service provider employees will refer to their respective local guidance on wearing hats or headgear on the flight-line. All other personnel will adhere to the following requirements:

3.1.4.1. Under no circumstances will any hat or cap be worn on the flightline.

3.1.4.1.1. The no hat area will be extended to include Hangars 3, 4, and 7 and their outside parking lots the flightline side of Tuskegee Airman Drive to Shumake Street and Tuskegee Airman Drive to Timeline Road.

3.1.4.2. Form-fitting skull-type caps are authorized on the flightline (and during engine operation).

4. General FOD Prevention Requirements.

4.1. Open containers including, but not limited to, glass bottles and aluminum cans are prohibited on the flight line and aircraft maintenance areas. Water bottles are allowed as long as they are marked with employee's name.

4.2. Pilots and aircrew members must account for all equipment and personal items before and after each flight and ensure any items that become lost during flight are documented in the aircraft AFTO Form 781A.

4.3. Prior to cockpit entry, personnel will ensure all pockets have been emptied of loose articles that pose a FOD hazard. Personal articles may be stored in an FO bag for this purpose. A thorough foreign object inspection will be performed prior to leaving the work area and all items accounted for.

4.4. At no time will items (e.g., aircraft forms binders, Video Tape Recorder (VTR) tapes, checklists, tools, etc.) be placed in or on engine intakes. Note: Does not apply to technicians

performing inlet maintenance, inspections and blade blending requiring lights, files, or other tools inside aircraft inlets.

4.5. Aircraft forms, small portable objects and loose materials are a FOD hazard on the flight line and must be kept secure from sudden winds or jet blasts at all times.

4.6. All agencies operating on the flight line, or other aircraft maintenance areas, will:

4.6.1. Control each tool, part, and material/hardware used.

4.6.2. Keep all support equipment free from foreign/loose objects.

4.6.3. Perform thorough checks before and after of all tool containers, ducts, and the area around aircraft.

4.6.4. Pick up all loose objects in the work centers, hangars, and on the flight lines.

4.6.5. Deposit all found objects into approved FO containers.

4.6.6. Remove all loose objects from clothing prior to working around or in aircraft.

4.6.7. "Clean as you go" during flightline activities.

4.7. Lost or missing tools/equipment will be reported immediately to the supervisor of the affected work area. In the event of a lost/missing tool or item, all efforts should be made to locate the tool/item, or a determination made that no FO hazard exists.

5. Vehicle FOD Prevention.

5.1. Prior to entry, a tire rollover FO check (to include towed equipment) will be accomplished at the actual point of entry to flight line and/or aircraft maintenance areas.

5.1.1. Exception: Emergency vehicles responding to actual emergencies do not need to conduct tire checks upon initial response. Once the actual emergency is over, a tire foreign objects FO check will be accomplished prior to the next vehicle movement.

5.2. Vehicle operators are responsible for inspecting the interior, cargo bed area and tires prior to use on flight line or aircraft maintenance areas. Remove or secure all foreign material that could pose a potential FOD hazard.

5.3. All vehicles driven primarily on the flightline for direct aircraft maintenance support activities must be equipped with secured and lidded FO containers. Contractors will supply their own FOD containers. Note: Permanently affixed FO containers must be approved by Vehicle Management prior to installation IAW AFI 24-302 (with the exception of contractor owned vehicles).

6. Base Wide FOD Walks.

6.1. In cases such as air shows, open houses, or severe weather, when debris is found to pose a FOD hazard to aircraft and flightline operations, base personnel will work in conjunction with Airfield Management and the Wing FOD monitor to FOD walk all areas in and around the flightline, not including the aircraft maintenance operating area (as defined in [paragraph 2.3.6](#)), which the contractor is responsible for (i.e. runways, access roads, and all other areas within the vicinity).

6.2. FOD walks are base wide events and require participation from all units. As such, units will provide all available bodies as necessary to accomplish the FOD walk without impacting the base's security and daily operations.

6.3. The Wing FOD monitor will be the POC for any base wide FOD walks.

6.3.1. The Wing FOD monitor will contact Airfield Management to arrange a time for the airfield to be closed so the base FOD walk can occur.

6.3.2. The Wing FOD monitor, working with Airfield Management, will ensure that the FOD walk is completed prior to resuming flying operations.

6.3.3. The wing FOD monitor will work with LRS vehicle operations section to arrange bus transportation from a "designated staging location" to the SAC ramp. Additionally, this arrangement will include pick up of FOD walk participants at the completion point for return to the designated staging location.

Figure 2. Drop off location at starting point.



6.4. Participants will meet in the designated staging location at the prescribed time. Members will assemble in the designated staging location for pickup (area for bus pick-up and drop off shall be marked with highly visible traffic cones). From there, they will be bussed to the SAC ramp parking lot by the ECP which will be the rally point.

6.5. At the conclusion of FOD walk, participants will meet at the bus pickup area for transporting back to designated staging location (reference [Figure 2](#) and [Figure 3](#)).

Figure 3. Pickup location at ending point.



6.5.1. For the FOD walk, all personnel will line up on the airfield from North to South (from 13 L to 13 R) and will FOD walk East to West from the end of the runway 13C to the end of runway 31 C (**Figure 3**).

6.6. Base flying operations will not resume until the Wing's FOD monitor and Airfield Managers certify the FOD walk as complete.

Figure 4. Base Wide FOD Walk Route.



JUSTIN T GRIEVE, Colonel, USAF
Commander

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

AFMAN 33-322, *Records Management and Information Governance Program*, 23 March 2020

DAFI 21-101, *Aircraft and Equipment Maintenance Management*, 16 January 2020

AFI 21-101 AETCSUP, *Aircraft and Equipment Maintenance Management*, 21 May 2015

DAFI 91-202, *The US Air Force Mishap Prevention Program*, 11 March 2020

Prescribed Forms

None

Adopted Forms

DAF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AFTO—Air Force Technical Order

AGE—Aircraft Ground Equipment

DCMA—Defense Contract Management Agency

FAST—Failure Analysis Service Technology

FO—Foreign Object

FOD—Foreign Object Damage

IGV—Inlet Guide Vane

POC—Point of Contact

PWS—Performance Work Statement

QA—Quality Assurance

QMS—Quality Management System

SOW—Statement of Work

VTR—Video Tape Recorder