

**BY ORDER OF THE COMMANDER
JOINT BASE ANDREWS**

**JOINT BASE ANDREWS INSTRUCTION
21-119**



13 DECEMBER 2024

Maintenance

***FOREIGN OBJECT DAMAGE AND
DROPPED OBJECT PREVENTION
PROGRAM***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements DAFI 21-101, *Aircraft and Equipment Maintenance Management*. All tenant organizations shall adhere to their specific service or higher headquarters guidance for Foreign Object Damage (FOD) prevention except where specifically noted with an “at” symbol (@). This instruction establishes policies and outlines reporting procedures for Joint Base Andrews (JBA) Foreign Object (FO) Damage (FOD) Prevention Program (FODPP) and Dropped Object (DO) Prevention (DOP). This instruction applies to all personnel working in, on, around or traveling through areas near aircraft, support equipment, engines or engine components on Joint Base Andrews. This publication also applies to the Air National Guard and Air Force Reserve units assigned to JBA. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW the Air Force Records Information Management System (AFRIMS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional’ s chain of command. 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 document has been revised and should be completely reviewed. Changes include: FOD walk Area of Responsibilities and DOP requirements.

Chapter 1

GENERAL FOD/DOP PROGRAM INFORMATION

1.1. General.

1.1.1. The primary purpose of this instruction is to provide guidance and outline procedures for an effective FOD/DOP program on JBA. Effective prevention of FOD/DOP to aircraft and equipment depends upon support from every individual who has any contact with aircraft/equipment. Individual involvement in the program will improve readiness and save material, manpower, money and lives.

1.1.2. Personnel Responsibility. Since everyone plays a role in FOD prevention, they have the responsibility to suggest new and innovative ideas on prevention and detection methods, as well as, improvements to the FOD program. Submit these ideas to your respective Wing FOD monitor.

1.1.2.1. Prevention is the proactive approach and primary goal to eliminating FOD. Detection is the reactive approach and the secondary goal of eliminating FOD.

1.1.2.2. Prevention methods include, but are not limited to, good housekeeping, use of FOD bags, new and used hardware control, proper use and labeling of parts bags, picking up items as they are dropped, and use of caps, plugs, and covers.

1.1.2.3. Detection methods include, but are not limited to, use of magnetic FOD bars on vehicles, FOD walks, FOD sweepers, FOD bosses, post maintenance FOD inspections, and engine intake and exhaust inspections.

1.2. FOD/DOP Program Management.

1.2.1. The 89th Airlift Wing Vice Commander (89 AW/CV) is the FOD committee chairperson. In his/her absence the 89th Maintenance Group Commander (89 MXG/CC) will chair the quarterly FOD/DOP meeting. Minimum attendee representation is Commanders (or their representatives) of units with aircraft maintenance personnel, safety, civil engineering, airfield management, operations, and security forces.

1.2.2. 89 MXG Aircraft Maintenance Contractor will appoint and submit FOD/DOP Monitors to the 89 WG/CV in writing as required by the FOD/DOP program provisions outlined in the contract Performance Work Statement (PWS).

1.2.3. The following base agencies will form the Joint Base Andrews FOD/DOP committee. Commanders will appoint a primary and an alternate unit FOD/DOP monitor. Tasked units will forward a copy of the appointment letter (include name, grade, office symbol, duty extension, and functional address) to the Executive Airlift Maintenance Contractor Quality Assurance (QA). The primary or alternate FOD/DOP monitor will represent their respective unit at quarterly meetings and any other special meetings held.

1.2.3.1. 89 MXG/CC

1.2.3.2. 89 AW/SEF

1.2.3.3. 89 OSS/OSA

1.2.3.4. 89 APS

- 1.2.3.5. 316 WG/SEF
- 1.2.3.6. 316 OSS/OSA
- 1.2.3.7. 316 OG/DD
- 1.2.3.8. 316 LRS/Supply Contractor
- 1.2.3.9. 316 CES
- 1.2.3.10. 316 SFS
- 1.2.3.11. 1 AS
- 1.2.3.12. 1 HS
- 1.2.3.13. 99 AS
- 1.2.3.14. PAG
- 1.2.3.15. Executive Airlift Maintenance Contractor Leadership/appointed FOD/DOP Monitors
- 1.2.3.16. Transient Alert
- 1.2.3.17. NAFWASHDC
- 1.2.3.18. 113 WG
- 1.2.3.19. 213 MXS
- 1.2.3.20. 459 ARW/MXQ
- 1.2.3.21. USA/PAT
- 1.2.3.22. Civil Air Patrol
- 1.2.3.23. Maryland State Police
- 1.2.3.24. 1 HS Maintenance Contractor Leadership/appointed FOD/DOP Monitors

1.2.4. The Wing FOD monitors will:

- 1.2.4.1. Schedule and conduct quarterly FOD/DOP prevention meetings and any special meetings that may be required.
- 1.2.4.2. Manage the Joint Base Andrews FOD/DOP program and provide assistance as outlined in DAFI 21-101 and applicable Supplements.
- 1.2.4.3. Investigate and report all FOD/DOP incidents to the appropriate Higher Headquarters FOD/DOP Manager. (NOTE: Tenant units shall follow service specific or HHQ reporting instructions. Tenants should notify the JBA FOD/DOP manager of the incident for installation situational awareness).

1.2.5. Unit FOD/DOP monitor will:

- 1.2.5.1. Conduct and document weekly spot checks, weekly FOD walks for their assigned areas, and perform FOD assessments in/around the flight line and maintenance areas.
- 1.2.5.2. Spot inspections and assessments will cover, but are not limited to, the following areas: prevention (sweeper utilization and condition), housekeeping (shop, aircraft, tool

control, hardware control, etc.), Consolidated Tool Kit (CTK) (FOD in tool boxes, support equipment electrical receptacles capped/plugged, sweeper log (if applicable), lost tool log, vehicles (FOD bars, cleanliness, and FOD containers), and aircraft (use of intake plugs, tubing, and electrical caps/plugs, pitot tube covers, streamers, and throttle quadrant covers).

1.2.5.3. @Annotate spot inspections and assessments in the applicable QA Database.

1.2.5.4. @Keep all inspection documentation on file with the applicable QA office.

1.2.5.5. Develop and monitor FOD/DOP training programs with necessary changes.

See DAFMAN 90-161, paragraph 4.5. for further guidance on publication formatting.

1.2.6. Unit FOD/DOP Representative Duties. Unit/flight representatives if assigned are required to perform the following duties. If not assigned, these responsibilities will be executed by the FOD/DOP Monitor:

1.2.6.1. Inform sections within unit of potential FOD/DOP hazards, trends, and prevention practices.

1.2.6.2. Assist Wing FOD/DOP Monitor with investigations as requested.

1.2.6.3. Conduct and document minimum of one spot-check per duty week within the unit/flight. Document spot checks on a locally developed form to include the following information: Inspector, date, and findings. Start new documentation at the end of each fiscal year. See [Chapter 2](#) for FOD Prevention Practices.

1.2.6.4. Attend all FOD/DOP Program Committee meetings.

1.2.6.5. Maintain current FOD/DOP awareness boards, if required.

1.2.6.5.1. Required awareness board items:

1.2.6.5.1.1. Respective FOD/DOP Monitor Appointment Letter with contact information.

1.2.6.5.1.2. Squadron/Flight FOD Representative Appointment Letter with contact information.

1.2.6.5.1.3. Current Quarterly FOD/DOP Grams (in color if available).

1.2.6.5.1.4. FOD Posters

1.2.6.6. Optional awareness board items include but are not limited to:

1.2.6.6.1. Wing/Squadron/Flight incentive program award winners, FOD/DOP incidents.

1.2.6.6.2. FOD/DOP related news/magazine articles.

1.2.6.6.3. FOD Walk slides.

1.2.6.6.4. Monitor unit FOD sweeper usage.

Chapter 2

FOD PREVENTION

2.1. FOD Prevention Practices.

2.1.1. FOD prevention is the responsibility of all personnel working in, on, around, or traveling through areas near aircraft, munitions, Aerospace Ground Equipment (AGE), engines or components. Personnel working in or transiting the aforementioned areas will comply with this instruction.

2.1.2. Good Housekeeping. Practice good housekeeping and hardware accountability at all times. Use parts bags at all times and attach to the associated component or area as applicable. Use attached tag to indicate types and totals of items inside and aircraft/equipment ID. Plastic “Ziploc” type bags are authorized as parts bags, provided they have a listing included on paper or have the contents annotated on the package with permanent ink. Locally produced part accountability kits are also authorized to account for component hardware (e.g., engine mount bolt kit).

2.1.3. Hardware, shop stock, and work order residue control. Account for hardware, shop stock, and work order residue at all times while performing maintenance on and around aircraft, engines, and support equipment.

2.1.4. Streamers and test equipment. Use “REMOVE BEFORE FLIGHT” streamers on ground wires and any external cover(s) applied to the aircraft on the ground. Test equipment will have receptacles capped and cable ends protected with a cap/plug or bag when not in use.

2.1.4.1. Cap and plug all disconnected aircraft/engine lines and electrical connectors, unless immediately reconnected.

2.1.5. Clothing restrictions. Hats are not authorized within 50 feet of an operating engine intake or within an operating engine’s exhaust/propeller blast area, unless secured to head by headsets, chin strap, etc. (Winter stocking hats are authorized during cold weather operations.) All personnel performing ground observer duties during man-on-stand leak checks must clear pockets of foreign objects (pens, pencils, etc.) prior to engine operation.

2.1.5.1. Restricted area badges will be secured with a subdued non-metallic cord or plastic armband when worn on the flightline.

2.1.5.2. Restricted area badges will be removed when performing intake/inlet/exhaust inspections if personnel physically enter these areas.

2.1.5.3. Metal insignias/badges/service caps may be worn on the flightline by designated base greeters and support/operations personnel if required by their official duties to support 89th Airlift Wing Executive Airlift Special Air Mission (EA SAM) mission requirements.

2.1.5.4. Wigs, hairpieces, metal hair fastener, earrings, or any other jewelry/loose items that may fall off without notice, are not authorized on the flightline unless worn by Distinguished Visitors, members of their staff, press and news personnel, and/or any personnel associated with the 89th Airlift Wing SAM.

2.1.5.5. Escorts of visiting personnel will ensure FOD prevention measures are taken. See DAFMAN 90-161, paragraph 4.5. for further guidance on publication formatting.

2.1.6. FOD stickers on FOD containers. Empty all FOD containers when full or at the end of each shift, whichever comes first.

2.1.7. FOD Walks. FOD walks are conducted IAW applicable guidance. Air Force units will refer to DAFI 21-101 for FOD prevention procedures.

2.1.7.1. Personnel will assemble prior to FOD walk and receive a safety briefing. The FOD walk supervisor has ultimate authority in controlling procession of the line and personnel will disperse evenly as directed. Movement is at a slow pace, paying special attention to ground points, expansion joints, and cracks in pavement.

2.1.7.2. The Executive Airlift Maintenance Contractor Aircraft Branch will FOD walk aircraft parking rows 6-8.

2.1.7.3. The Executive Airlift Maintenance Contractor Maintenance Branch will FOD walk north and south of Aprons 3 and 4 and north of Hangar 5, the wash rack area and the Fuel Cell Hangar to include the apron.

2.1.7.4. US Army Priority Air Transport (USAPAT) Contractors will FOD walk Hangar 2 to include the aprons.

2.1.7.5. Transient Alert (TA) will FOD walk aircraft parking rows 1-4 and 9-13 using the FOD boss.

2.1.7.6. The 1st Helicopter Maintenance Contractor will FOD walk areas around Hangar 1 and the helicopter parking area.

2.1.7.7. 89 APS will FOD walk aircraft parking rows 5 and 14.

2.1.7.8. The Executive Airlift Maintenance Contractor Isochronal (ISO) Branch will FOD walk the aprons of Hangars 6 and 7.

2.1.7.9. The Executive Airlift Maintenance Contractor Maintenance Branch will FOD walk areas around Hangar 5.

2.1.7.10. 459 MXG will FOD walk their parking ramps and around their hangars.

2.1.7.11. PAG will FOD walk their facilities up to whiskey taxi way and ramp in front of the PAX Terminal on POTUS launches.

2.1.7.12. 213 MXS will FOD walk the ramp areas around Hangars 8/9 and up to whiskey taxi way.

2.1.7.13. NAFW will FOD walk rows 11/12 on the East Ramp.

2.1.7.14. VR1/G5/C37 will FOD walk rows 9/10 on the East Ramp.

2.1.7.15. VR53/C130 will FOD walk rows 6/7/8 on the East Ramp.

2.1.7.16. VMR/C35 will FOD walk rows 4/5 on the East Ramp.

2.1.7.17. 113 MXG does daily FOD walks prior to crew show. Areas covered include from E- 6 across the 113 WG ramp areas to the hold line on E-5 and the Airspace Control Alert area to the hold line on E-2.

2.1.7.18. Maryland state police will FOD walk Hangar 17.

2.1.7.19. Civil Air Patrol will FOD walk Hangar 18.

2.1.7.20. Inclement weather procedures. FOD walks are cancelled or terminated during inclement weather (i.e., heavy fog [near zero visibility]), severe temperatures, or when the Maintenance Operations Center (MOC) announces inclement weather warnings.

2.1.7.21. In addition to weekly FOD walks, FOD walk around individual aircraft after completion of any maintenance on, near, or around the aircraft, and before/after blocking out. The alternative procedure is for units to assemble a structured line once a day in their area and conduct a FOD walk; either method is acceptable.

2.1.7.22. Each Units Area of Responsibility for FOD walks is outlined in [Attachment 2](#) of this document.

2.1.8. Supplemental FOD Prevention Practices. Towed FOD sweepers and airfield sweeper vehicles may be used to supplement base FOD prevention efforts.

2.1.8.1. The unit FOD representative or CTK will notify the FOD monitor when a sweeper goes down for maintenance.

2.1.8.2. FOD sweepers are not required to be used on the same day as the unit FOD walk. When used, FOD sweeper should focus attention on parking spots recently vacated by aircraft. After days of inclement weather, it is recommended that the FOD sweeper be utilized to ensure a FOD free ramp.

2.1.8.3. CTK will maintain a FOD sweeper sign out log. This log will contain the applicable sweeper operator manual and a general-purpose form to track usage. At a minimum, the general-purpose form will contain the following information: name and rank, organization, date, time, and rows pulled.

2.1.8.4. Use any available vehicle to pull the FOD sweeper so long as good coverage of the ramp is achieved. To prevent damage to the FOD sweeper, backing of the vehicle is prohibited with the FOD sweeper installed. See DAFMAN 90-161, paragraph 4.5. for further guidance on publication formatting.

2.1.8.5. Any individual who identifies an area of concern on the flightline can coordinate areas requiring airfield sweepers through the Airfield Manager.

2.1.9. Engine maintenance. Aircraft engine maintenance is a FO/FOD critical area. All personnel will exercise caution when performing maintenance in these areas. Strict tool and hardware control practices are enforced during engine and APU maintenance.

2.1.9.1. Engine inlet covers (e.g., engine inlet, pitot tube(s), and protective covers should be installed IAW MDS (Mission Design Series) specific Technical Data, prior to any maintenance performed on the engine/propeller forward of the engine firewall. These requirements are also applicable to all training aircraft.

2.1.10. Engine blade damage. Upon discovery of blade damage, the discovering technician will annotate the AFTO Form 781A, Maintenance Discrepancy and Work Document IAW applicable Technical Orders (T.O.). A qualified mechanic will then be consulted to determine if the damage is outside the limits identified in the applicable technical data. If damage is within limits, the qualified mechanic will sign off the discrepancy and annotate historical engine records accordingly.

2.1.11. Vehicles are potential FO/FOD hazards. Maintain all vehicles FO-free at all times. Check vehicles, tires, and magnetic FOD bars for cleanliness prior to use and at the beginning of each shift. If a vehicle goes onto a public access road or leaves the paved surface, conduct a rollover tire FOD check and re-inspect installed FOD bars at the marked FOD check points on the flight line access roads. Vehicles involved in an actual emergency response are exempt from these tire checks. During hours of darkness, use a bright flashlight for this inspection.

2.1.11.1. FOD containers are required on all vehicles that operate on the flight line. FOD bags and pouches are authorized for use in place of metal FOD containers.

Chapter 3

DROPPED OBJECT PREVENTION (DOP)

3.1. General.

3.1.1. DOP is the responsibility of all aircraft operators and maintainers.

3.2. DOP Practices.

3.2.1. Accomplish DOP inspections after all flights and after all exterior maintenance actions are completed. NOTE: Limited DOP inspection not required for routine fueling of rotary-wing aircraft.

Chapter 4

FOD/DOP REPORTING AND INVESTIGATIONS

4.1. Reporting and Investigations.

4.1.1. When a FOD or dropped object incident is discovered, unit supervision will immediately notify the MOC that a FOD/DOP incident has occurred. The MOC will notify the applicable FOD/DOP monitors, Maintenance Contractor/Organizational QA, and Contracting Officer's Representative (COR) offices. Impound aircraft/engine as required IAW DAFI 21-101 and applicable operating instructions.

4.1.1.1. The respective FOD/DOP offices will accomplish all FOD and dropped object investigations. The unit discovering the incident will complete a Cost Estimate Worksheet. Submit cost estimate and information worksheets the next duty day to the applicable FOD/DOP offices. This time allotment ensures timely reporting to headquarters as required per DAFI 21-101 and MAJCOM supplements. When possible, interview crewmembers prior to leaving debrief.

4.1.1.2. The FOD/DOP office is responsible for any HQ AMC reporting and completion of the Foreign Object Damage Incident Investigation.

4.1.1.3. @When material deficiency is determined to be the cause, or a suspected cause, the unit discovering the incident will submit a material deficiency report IAW TO 00-35D-54, USAF Deficiency Reporting and Investigating System and applicable MAJCOM guidance.

4.1.1.4. Units will support investigating officials as requested.

4.1.1.5. For compressor FOD investigations where the impacting item is not easily identifiable, units may use the privately contracted forensic metal sampling process from Failure Analysis Service Technology (FAST) sampling (<https://www.fod.com>). This will be at the request of the owning Wing or the applicable FOD monitor; however, the Wing is responsible for the cost of this service (approximately \$1,800).

Chapter 5

TRAINING

5.1. Training.

5.1.1. This section is applicable to both EA Contract Maintenance and Active Duty personnel within the 89 MXG. Initial FOD prevention training personnel will be conducted IAW MAJCOM guidance or during maintenance orientation briefing and will include results from previous FOD/DOP investigations. Tenant units will conduct training IAW their MAJCOM guidance or local policies.

5.1.2. Recurring FOD/DOP prevention training for aircraft maintenance personnel will be conducted during maintenance block training.

5.1.3. Unit and flight FOD/DOP representatives if assigned/required will receive training on requirements associated with their position from the applicable FOD/DOP monitor.

See DAFMAN 90-161, paragraph 4.5. for further guidance on publication formatting.

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

DAFI 21-101, *Aircraft and Equipment Maintenance Management*, 21 May 2015 AFMAN 33-363, *Management of Records*, 01 March 2008

TO 00-35D-54, *USAF Deficiency Reporting Investigation, and Resolution*, 01 September 2015

Prescribed Forms

None

Adopted Forms

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

Abbreviations and Acronyms

AGE—Aerospace Ground Equipment
CE—Civil Engineering

COR—Contracting Officer’s Representative

CTK—Consolidated Tool Kit

DOP—Dropped Object Prevention
EA—Executive Airlift

FAST—Failure Analysis Service Technology

FODPP—Foreign Object Damage Prevention Program

FOD—Foreign Object Damage

MOC—Maintenance Operations Center

MDS—Mission Design Series

PAG—Presidential Airlift Group

PAX—Passenger

POTUS—President of the United States

QA—Quality Assurance

RIL—Routine Inspection List

Terms

Composite Tool Kit (CTK)—A controlled area or container used to store tools or equipment and maintain order, positive control, and ease of inventory. CTKs are assembled as a kit and designed to provide quick, easy visual inventory and accountability of all tools and equipment.

Contracting Officer Representative (COR)—A COR is an individual designated in accordance with Department of Defense Federal Acquisition Regulation Supplement subsection 201.602-2 and authorized in writing by the contracting officer to perform specific technical or administrative functions.

Mission Design Series (MDS)—Alpha and numeric characters denoting primary mission and model of a military weapons system.

Quality Assurance (QA)—Office or individual who monitors maintenance (organic or contractor) on a daily basis.

Shop Stock—Includes items such as sheet metal, electrical wire, fabric, and metal stock, used and stored within a maintenance work center to facilitate maintenance.

Technical Data—Information (regardless of the form or method of the recording) of a scientific or technical nature, including computer software documentation.

Attachment 2

89 AW FOD/DOP REPORTING PROCEDURE

Figure A2.1. 89 AW FOD/DOP Reporting Procedure.

