

**BY ORDER OF THE COMMANDER
RAF LAKENHEATH (USAFE)**

LAKENHEATH INSTRUCTION

21-102

11 APRIL 2023

Maintenance

FOD PREVENTION PROGRAM



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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(Colonel Joseph M. Stangl)

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This instruction implements Department of the Air Force Policy Directive (AFPD) 21-1, and interfaces with the Department of the Air Force Instruction (DAFI) 21-101. *Aircraft and Equipment Maintenance Management*. It implements the Foreign Object Damage (FOD) program and applies to all assigned, attached, or associated units of the 48th Fighter Wing, Royal Air Force (RAF) Lakenheath, United Kingdom that maintain aircraft, aircraft systems, equipment, support equipment, components, and access the flightline area regardless of Air Force Specialty Code. This publication may not be supplemented or further extended. Refer recommended changes and questions about this publication to the Office of Primary Responsibility using the Department of the Air Force Form 847, Recommendation for Change of Publication; route DAF Form 847s from the field through the appropriate functional chain of command. Ensure that all records created as a result of processes prescribed in this publication adhere to Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed of in accordance with the Air Force Records Disposition Schedule which is located in the Air Force Records Information Management system. Compliance with attachments is mandatory.

SUMMARY OF CHANGES

Implements **Chapter 8**, Laser Foreign Object Detector (LFOD) Program. Removes Lost tool and Lakenheath Form 24 procedures, which are covered under applicable DAFI 21-101 supplements.

1. Background.

1.1. **FOD prevention is the responsibility of all personnel assigned to RAF Lakenheath.** All personnel shall implement and enforce the “Clean as You Go” concept while performing official duties on the flightline. It is the responsibility of all personnel to implement FOD prevention techniques while performing functions on the flightline. Any unit’s primary function that requires driving or working on the flightline on a regular basis (excluding emergencies) will establish and maintain an effective squadron FOD prevention program.

1.2. **FOD walks are mandatory to remove Foreign Objects (FO) from ramps, runways, maintenance areas and access roads; in addition, vacuum/magnetic sweepers, or sweeping by hand, are highly encouraged to supplement FOD walks.** FOD walks will be performed prior to the beginning of the day’s flying operations with maximum participation that covers all aircraft taxiways, aircraft movement and parking areas, Aerospace Ground Equipment sub- pools and Protective Aircraft Shelter (PAS) entrances. FOD walk start times will be annotated on the weekly flying schedule and will be tracked by the owning group. Every effort shall be made to eliminate FO in and around PAS, hangars, maintenance facilities, access routes, taxiways, and runways. **Note:** See [Attachment 2](#) for a map of FOD areas of responsibilities.

1.3. **Positive control and accountability of tools, equipment and electronic devices used on aircraft parking, runway and taxi areas are essential for the elimination of FO.** The purpose of this publication is to provide 48 Fighter Wing (FW) agencies the necessary guidance to implement a solid program to control tools and equipment taken onto the airfield. Due to the diverse nature of 48 FW agencies, one size does not fit all when it comes to tool control policy. Some units may have only a few items, while others account for hundreds of pieces of equipment. To comply with this instruction, units must establish a program or demonstrate that existing programs meet the intent of positive tool and equipment accountability and control across the 48 FW.

1.4. **FOD bulletin boards will be maintained by each section, work center, or facility that performs on/off-equipment maintenance or operates on the flightline.** The placement of the FOD bulletin board will be at the discretion of the facilities manager but is to be in a place of high visibility to increase individual awareness of FOD prevention. If there are multiple work centers within proximity, one FOD bulletin board placed in a common area is sufficient. The FOD bulletin board is the responsibility of the owning squadron/Aircraft Maintenance Unit (AMU)/flight/shop and will be kept current monthly or when required. **Note:** All required material can be obtained on the FOD page located at <https://usaf.dps.mil/sites/48FW/48thMaintenanceGroup/QA/WingFODDOPMonitor/SitePages/Home.aspx>. FOD bulletin board required contents are, but are not limited to:

1.4.1. The wing FOD monitor appointment letter.

1.4.2. Squadron or AMU FOD/Dropped Object Program (DOP) prevention representative appointment letter.

1.4.3. Any FOD/DOP Flash, newsletter, or publications that are requested by the wing FOD monitor to be displayed.

1.4.4. Suggested but not required items include:

1.4.5. Winning FOD person nomination letter.

1.4.6. Monthly winning FOD poster.

2. Roles and Responsibilities.

2.1. Squadron Commander responsibilities: Each unit will assign a primary and alternate unit FOD monitor, in writing, to attend mandatory monthly FOD committee meetings and be the point of contact for their squadron for all FOD issues. In addition, each Fighter Generation Squadron (FGS)/AMU will appoint a unit DOP monitor as point of contact for DOP issues. **Note:** The FGS/AMU appointment letter must indicate “FOD and/or DOP Representative.” Additional representatives may be appointed to assist the squadron primary and alternate FOD prevention representatives.

2.2. Squadron FOD prevention representative responsibilities:

2.2.1. Ensure maximum participation in daily FOD walks prescribed by this instruction.

2.2.2. Ensure widest dissemination of information provided by the wing FOD monitor such as flashes, reports, minutes, posters, visibility boards, videos, etc. Brief any pertinent information contained in the flashes, reports, and minutes to all work center personnel.

2.2.3. Assist the wing FOD monitor when requested.

2.3. Civil Engineering Squadron (CES):

2.3.1. Provide powered sweepers for aircraft parking ramps, taxiways, runways, flightline access roads, and other areas of the airfield.

2.3.2. Ensure recently swept areas are FOD free once sweeping operations are complete to ensure the actions did not create a FOD hazard (such as broken bristles or broken taxiway lights).

2.3.3. Provide monthly serviceability status of sweepers and hourly usage to the Wing FOD monitor for inclusion in the monthly/quarterly FOD statistics.

2.3.4. Provide assistance and technical advice to the wing FOD monitor and FOD committee for pavement repairs, airfield construction, and other functions that fall under the 48th Civil Engineering Squadron (CES).

2.4. Logistics Readiness Squadron (LRS):

2.4.1. Perform daily FOD walks of strategic aircraft ramp (Victor 1) and ensure Victor taxiway is kept free of foreign objects through daily assessment and sweeping.

2.4.2. Perform a FOD walk and coordinate sweep (if required) after an aircraft taxi off the strategic ramp.

2.5. Operations Support Squadron/Airfield Manager:

2.5.1. Conduct daily FOD checks of the primary takeoff, landing, and taxi surfaces before the start of flying activities.

2.5.2. Ensure requested sweepers are dispatched as required.

2.5.3. Notify the wing FOD monitor of any changes in airfield conditions that may cause a potential FOD hazard.

2.5.4. Attend the scheduled wing FOD meeting and brief status of airfield conditions and construction projects.

2.5.5. Ensure positive control of engineering or contractor personnel working on the airfield and inspect these areas during daily airfield inspections.

2.5.6. Forward copies of hazards/discrepancies identified in airfield inspections to the appropriate agencies upon request.

2.5.7. Provide monthly status of all airfield repair and construction projects affecting aircraft operation areas to the Wing FOD monitor.

2.5.8. Aircrew Life Support will mark all Aircrew Flight Equipment with a unit specific local identification number.

3. Training.

3.1. **FOD prevention training starts with the initial orientation and continues throughout skills certification and annual refresher courses.**

3.2. **The squadron FOD monitor/work center supervisor gives all newly assigned personnel an initial FOD awareness training before performing duties on the flightline.** At a minimum, training consists of the items listed below and will be documented in the members training record.

3.2.1. Common causes of FOD

3.2.2. Squadron policies

3.2.3. Hardware and tool control policies/practices

3.2.4. Individual responsibility to prevent FOD

3.2.5. Operation of vehicles in flight line areas

3.2.6. Control of personal items, equipment, consumables

3.2.7. Housekeeping

3.3. **Task training:** Ensure FOD prevention training is part of all task certifications, values of good workmanship, discipline, and integrity. A quality product is FOD free.

3.4. **Annual training:** MTS, incorporates FOD/DOP training for maintenance personnel during initial/recurring block training and annual maintenance training.

4. Clothing Requirements.

4.1. **Restricted area badges will be secured with a subdued nylon/cotton cord or plastic armband.** Additionally, all badges will be stowed/secured within 25 feet of any running aircraft/engine.

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

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

4.4. **The watch cap/ski mask, Operational Camouflage Pattern watch cap, or micro fleece hats are authorized on the flightline and can be worn within 25 feet of running**

engines if secured under ear defenders or ground communication headset. All other headgear is unauthorized on the flightline (e.g. ball caps, bowler hats, etc.) Hats will not interfere with the application of double hearing protection.

5. Airfield Vehicle Operation.

5.1. Vehicle operators accessing flightline areas will: Possess a current AF Form 483, Certificate of Competency, obtained and validated through 48th Operational Support Squadron (OSS)/Operations Support Airfield Agency (OSAA) as outlined in DAFI 13-213 USAFE-AFRAFRICASUP_LAKENHEATHSUP.

5.2. Inspect vehicles prior to and after use for general serviceability and ensure vehicle is free of all debris. FOD containers will be emptied at the end of each shift.

5.2.1. Any holes found in the floorboard or bed of a vehicle must be immediately/permanently repaired to prevent items from falling through onto aircraft movement areas.

5.2.2. All vehicles will have rubber boots installed around gearshift/hand brake controls.

5.2.3. Make every attempt to install FOD magnets on a portion of vehicles that conduct business on the flightline.

5.2.3.1. Magnets will have at least three but no more than five inches of clearance from the ground to the bottom of the magnet. The magnets must be annotated on the vehicle AF (Air Force) Form 1800. Magnets will also be checked for FOD during "Roll-Over" FOD checks. To avoid injury, personnel should wear leather gloves while clearing debris from magnet.

5.2.3.2. If equipped, magnetic bars will be cleaned at shift change, prior to entering the flightline area (if the vehicle has been out of the area), and when accumulation dictates.

5.3. Additional equipment for vehicles which are not permanently attached (i. e. ice scraper, fire extinguishers and flashlights) will be marked with the vehicle registration number and annotated on the vehicle's AF Form 1800.

5.4. Vehicles will not exceed 15 mph while the magnet is at the normal operating height. If the vehicle needs to travel faster than 15 mph the magnet will be raised as far as possible or temporarily removed from the vehicle to prevent damage caused by excessive swinging.

5.5. Prior to towing equipment, or aircraft, with the new style pintle hooks, vehicle operators will check pintle hook security by sharply drawing the tow bar or handle upwards and ensure pintle hook is locked in place. Ensure old style pintle hooks are pinned and always closed. Pin will be attached to the vehicle with a chain or cable.

6. Vehicle FOD Checks.

6.1. All vehicle operators accessing flightline areas will check vehicle tires for foreign objects at all FOD checkpoints (lines and signs) on the airfield, any FO found will be removed.

6.1.1. Vehicle operators will perform a tire roll over check to inspect the portion of tires not exposed during initial FOD check, tires will be checked again, and any FO found will be removed.

6.1.2. Flashlights will be used for all FOD checks during the hours of darkness and/or in cases where sufficient light is unavailable.

6.1.3. During winter months FOD checks will include the removal of snow and ice from all vehicle surfaces.

6.2. Unpaved surface vehicle operations:

6.2.1. Do not drive or park on unpaved surfaces, except in emergencies.

6.2.2. Emergency responders will perform vehicle FOD checks, to include tires, when accessing aircraft movement areas from unpaved/deteriorated surfaces and at entry control points.

6.2.3. When reentering a hardened surface, the vehicle operator will collect all debris brought onto the surface by the vehicle and ensure tires and vehicle undercarriages are free of rocks and debris. If the quantity of debris is too large, Airfield Management or MOC will be notified to coordinate with 48 CES to have a sweeper clean the area.

7. FOD Awards Program.

7.1. **The Wing FOD Monitor will maintain a Wing FOD Awards Incentive Program to promote FOD prevention measures.** This program is to recognize outstanding contributors to the FOD program. All awards will be presented at the Quarterly Wing FOD meeting.

7.2. **Golden Bolt Award:** The Golden Bolt will be etched "48 FW Golden Bolt" for accountability. This bolt will be maintained and housed with the Wing FOD Monitor. The Golden Bolt is randomly placed in various maintenance areas visible to personnel for the purpose of FOD awareness. The individual who detects this item will receive a FOD Fighter Coin and be placed in the monthly raffle. The raffle winner will be deemed the monthly Golden Bolt winner and receive a Letter of Appreciation, one Compensatory Time Off (CTO) day and one free Army Air Force Exchange Service (AAFES) Lunch voucher, presented at the quarterly Wing FOD Meeting.

7.3. **FOD Coin.** The FOD Coin will be given out once a week for the individual who finds the Golden Bolt and or is seen to greatly contribute to the FOD program. This individual(s) will be the FOD Fighter of the week. If the individual is awarded FOD Fighter of the week for discovery of the Golden Bolt, the number from the coin will be entered into a monthly raffle for the monthly Golden Bolt Award.

7.4. **FOD Poster.** The FOD poster is a monthly award in which Squadron FOD monitors present their unit submissions at the monthly Jr. FOD meeting. FOD posters must convey a strong, tasteful, positive message for FOD prevention. The submissions are voted on during the Jr. FOD meeting and the poster with the most votes wins the FOD poster award for the month. The individual who created the poster will receive a Letter of Appreciation, one CTO Day and one free AAFES lunch voucher, presented at the quarterly Wing FOD Meeting.

7.5. **FOD Professional of the Month.** The FOD Professional of the month is a monthly award in which Squadron FOD monitors or individuals submit F.O. found during FOD walks or at random, from taxiways or maintenance areas. The items are presented and the item with the most votes wins the FOD Professional of the month and will receive a Letter of Appreciation, one CTO day and one free AAFES Lunch Voucher, presented at the quarterly Wing FOD Meeting.

7.6. **FOD Professional of the Quarter.** The FOD Professional of the quarter is awarded to one of the previous monthly winners. The FOD Professional of the quarter is voted on during the Jr. FOD meeting, and the winner receives one twenty-five-dollar Base Exchange gift card and three CTO days, presented at the quarterly Wing FOD Meeting.

8. Laser Foreign Object Detector (LFOD) Program.

8.1. Wing FOD/DOP Manager Responsibilities:

8.1.1. Establish training plan for LFOD System Operators, Vehicle Operators, and any associated positions according to manufacturer's requirements.

8.1.2. Will train all Squadron FOD monitors within MXG.

8.1.3. Track all LFOD System and Vehicle Operators.

8.1.4. Establish schedule of use.

8.2. Squadron FOD Monitor responsibilities.

8.2.1. Will train and select, at a minimum, 4 individuals to be LFOD System operators and 4 individuals to be LFOD Vehicle Operators to comprise 4 teams.

8.2.2. Will add and track System and Vehicle Operators on Squadron FOD appointment letter.

8.3. **LFOD Vehicle Operator.** Must be trained by a qualified FOD Monitor or qualified Vehicle Operator and identified on the Squadron appointment letter or on a tracker in the Squadron FOD Program as a "LFOD Vehicle Operator."

8.4. LFOD System Operator.

8.4.1. Must be trained by a qualified FOD Monitor or qualified System Operator and identified on the Squadron appointment letter or on a tracker in the Squadron FOD Program as a "LFOD System Operator."

8.4.2. Will Notify MOC of LFOD Survey start and stop times once complete.

8.5. Operation.

8.5.1. An LFOD survey will be performed and completed daily on airfield taxiways before the start of the flying schedule. See [Attachment 3](#) (Taxiway Quadrant Breakdown).

8.5.2. Will require 3 personnel for operation (System Operator, Vehicle Operator and FO Retriever).

8.5.3. The LFOD vehicle will be exempt from performing FOD checks on Sierra Taxiway Industrial Crossing entering Alpha and Charlie Ramp only when performing LFOD Surveys. If not conducting an LFOD Survey, the LFOD vehicle will be subject to a FOD check.

8.5.4. Significant FO findings from LFOD Surveys will be given to the Wing FOD Monitor.

8.6. Schedule.

8.6.1. Squadrons are identified as: 492 FGS, 494 FGS, Component Maintenance Squadron (CMS), Equipment Maintenance Squadron (EMS), Munitions Squadron (MUNS), 748th Aircraft Maintenance Squadron.

8.6.1.1. FGS's may combine personnel to meet schedule requirements.

8.6.1.2. In the event squadrons cannot fulfill schedule requirements, the unit will notify the Wing FOD Monitor to arrange schedule changes. See [Attachment 3](#) (Monthly Schedule Rotation).

8.6.2. If LFOD is inoperable, squadrons will resume daily FOD Walks until LFOD is serviceable and ready for use. See [Attachment 2](#) (FOD Walk Areas of Responsibility).

JOSEPH L. CAMPO, Brigadier General
Commander, 48th Fighter Wing

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

AFPD 21-1, *Air and Space Maintenance*, 1 August 2018

DAFI 21-101, *Aircraft and Equipment Maintenance Management*, 01 October 2021

DAFI13-213 USAFE-AFRAFRICASUP_LAKENHEATHSUP, *Airfield Driving*, 10 May 2022

AFI 24-302, *Vehicle Management*, 21 February 2020

AFI 33-322, *Records Management and Information Governance Program*, 28 July 2021

Prescribed Forms

None

Adopted Forms

AF Form 1800, *Operator's Inspection Guide and Trouble Report*, 01 April 2010

AF Form 483, *Certificate of Competency*, 13 May 2020

DAF Form 847, *Recommendation for Change of Publication*, 15 April 2022

Abbreviations and Acronyms

AAFES—Army Air Force Exchange Service

AF—Air Force

AFI—Air Force Instruction

AMU—Aircraft Maintenance Unit

AMXS—Aircraft Maintenance Squadron

CES—Civil Engineering Squadron

CMS—Component Maintenance Squadron

CTO—Compensatory Time-Off

DAFI—Department of the Air Force Instruction

DOP—Dropped Object Program

EMS—Equipment Maintenance Squadron

FGS—Fighter Generation Squadron

FO—Foreign Object

FOD—Foreign Object Debris

FW—Fighter Wing

IAW—In Accordance With

LFOD—Laser Foreign Object Detector

LRS—Logistics Readiness Squadron

MOC—Maintenance Operations Center

MUNS—Munitions Squadron

MXG/QA—Maintenance Group Quality Assurance

NCOIC—Non-Commissioned Officer in Charge

OSS—Operations Support Squadron

OSAA—Operations Support Airfield Agency

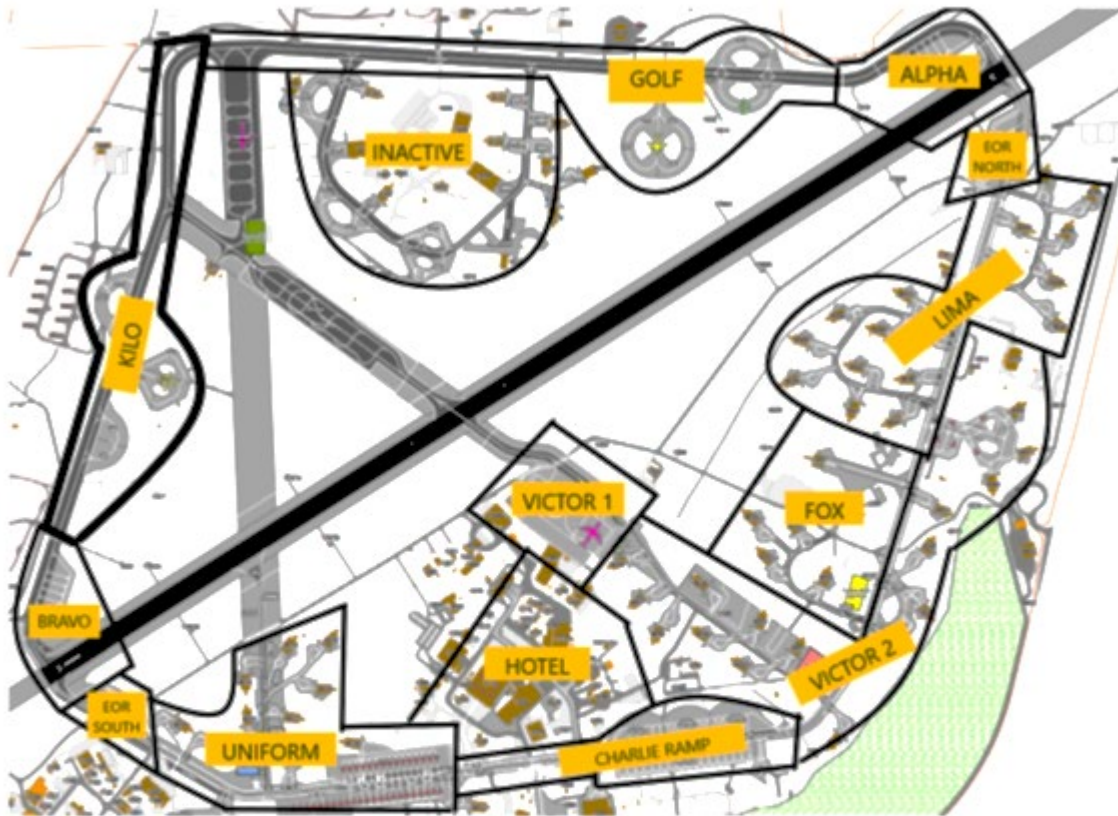
PAS—Protective Aircraft Shelter

RAF—Royal Air Force

Attachment 2

FOD WALK AREAS OF RESPONSIBILITY

Figure A2.1. FOD Walk Areas of Responsibility.



ALPHA	48 OSS	GOLF	48 MUNS
BRAVO	48 OSS	HOTEL	48 CMS
CHARLIE	48 EMS	KILO	48 MUNS
INACTIVE	N/A	LIMA	748 AMXS
EOB NORTH	492 FGS/494 FGS	UNIFORM	492 FGS/494 FGS
EOB SOUTH	492 FGS/494 FGS	VICTOR 1	48 LRS
FOX	48 CMS	VICTOR 2	492 FGS/494 FGS

Attachment 3

TAXIWAY QUADRANT BREAKDOWN

Figure A3.1. LFOD Survey on Taxiways.



Monthly Schedule Rotation

January/July	February/August	March/September	April/October	May/November	June/December
494 FGS	48 CMS	748 AMXS	48 MUNS	492 FGS	48 EMS