

**BY ORDER OF THE COMMANDER
AVIANO AIR BASE (USAFE)**

**AVIANO AIR BASE INSTRUCTION
21-102**



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Maintenance

**WING FOD/TOOL CONTROL AVIANO
WING FOREIGN OBJECT DEBRIS &
FLIGHTLINE TOOL CONTROL**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Foreign Object Damage/Debris (FOD) and tool control policies IAW Department of the Air Force Instruction (DAFI) 21-101 Aircraft and Equipment Maintenance Management Dated. It provides guidance and establishes procedures for FOD prevention practices and Tool control policies for Aviano AB. New requirements take effect immediately and will apply to all Department of Defense military, civilian, and contractor personnel assigned to Aviano Air Base, including Civil Air Patrol (CAP), Air Force reserve Command (AFRC), and the Air National Guard (ANG), along with their subordinates. Host nation military and civilian personnel are encouraged to comply with the prohibitions contained within. 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 Forms 847 from the field through the appropriate functional Chain of Command. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33- 363, Management of Records, and disposed of IAW the Air Force Records Information Management System Records Disposition Schedule. 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 substantially revised and must be completely reviewed. This revision supersedes the Aviano Wing FOD Directive, 18 August 2020. This creates a requirement for all groups with personnel that bring tools into the aircraft movement area to establish their own tool control operating instruction (Approved by MXG/CC.) If the group chooses to not create their own supplement, they will follow the 31 MXG's operating instruction 21-101.

1. Background.

1.1. This publication is written to meet the requirements outlined in DAFI 21 -101 for a Wing Tool Control Policy.

2. Roles and Responsibilities.

2.1. FOD prevention is the responsibility of all personnel assigned to Aviano AB. All personnel shall implement and enforce the “Clean as You Go” concept while performing official duties on the flightline. It is also 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.

2.2. Group Commanders will:

2.2.1. Establish tool control operating instructions that meet the requirements outlined in DAFI 21-101 paragraph 2.2.3 & paragraphs 8.2.1–8.2.16 As the OPR, these operating instructions must be approved by the MXG/CC.

2.2.2. Groups that do not create their own operating instruction will follow the guidance in MXG operating instruction 21-101 paragraphs 8.2.1–8.2.17, located at <https://usaf.dps.mil/sites/Aviano/31MXG/QA/Publications>

2.3. Squadron Commanders will:

2.3.1. Ensure compliance with this instruction and establish guidance, as required, so every precaution is taken to prevent FOD. Organizations must ensure newly assigned personnel receive the FOD Prevention Orientation and Familiarization briefing.

2.3.2. Ensure agencies under their authority account for tools, equipment, and electronic devices dispatched to aircraft movement and maintenance areas.

2.3.3. Appoint primary and alternate unit FOD monitors. Appointment letters will be routed to the Wing FOD Prevention Monitor for the following units: 56 RGS, 555 FGS, 510 FGS, 31 MXS, 31 MUNS, 31 LRS, 31 FW/SE, 31 CES, 31 SFS, 31 OSS, and 724 AMS.

2.4. Unit FOD Monitors will:

2.4.1. Ensure widest dissemination of information provided by the Wing FOD monitor such as flashes, reports, posters, visibility boards, etc. Brief any pertinent information contained in the flashes or reports to all workcenter personnel.

2.4.2. Assist the Wing FOD monitor when requested.

2.4.3. Develop and maintain a FOD Prevention board that will have the following mandatory items displayed: Wing FOD monitor Visual Aid, Unit FOD/DOP Monitor Poster, most recent FOD flash, most recent FOD poster. Optional items include Aviano FOD Award procedures, Aviano Form 145, this instruction, and current Wing FOD/DOP Appointment letters.

2.4.4. Ensure a unit FOD monitor is designated for aircraft deployments/TDY. Contact the Wing FOD Monitor prior to the deployment for a FOD, dropped object, and lost tool procedures briefing.

2.5. Civil Engineer Squadron will:

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

2.5.2. Ensure recently swept areas are FOD free upon completion of sweeping operations to ensure the actions have not created a FOD hazard; such as broken bristles or broken taxiway lights.

2.5.3. Provide quarterly serviceability status of sweepers by the 5th day of Jan/Apr/Jul/Oct to the Wing FOD monitor for inclusion in the quarterly FOD statistics.

3. Training:

3.1. FOD prevention training will be provided by the squadron/unit FOD monitor/workcenter supervisor. This gives all newly assigned personnel initial FOD awareness training prior to performing duties on the flightline. At a minimum, training consists of the items listed below and will be documented. (MXG training will be provided at maintenance orientation.)

3.1.1. Common causes of FOD.

3.1.2. Lost tool procedures as outlined in 31 MXG OI 21-101 <https://usaf.dps.mil/sites/Aviano/31MXG/QA/Publications>

3.1.3. Hardware and tool control practices.

3.1.4. Individual responsibility to prevent FOD.

3.1.5. Operation of vehicles in flightline areas.

3.1.6. Control of personal items, equipment, and consumables.

3.1.7. Housekeeping.

3.2. Upon request, the Wing FOD monitor will be available to brief squadrons, flights and sections on matters concerning the FOD prevention program.

4. FOD Walks:

4.1. The FGS/RGS DO/SEL (or equivalent for TDY units) will ensure FOD walks are accomplished prior to the first sortie of each day for their respective unit and ensure maximum unit participation. FOD walk times will be no later than two hours prior to first scheduled take off time and be published on the weekly flying schedule. If no sorties originated from Aviano AB, but aircraft are arriving from other locations, FOD walks will be accomplished no later than one hour prior to recovering aircraft. Do not limit FOD walks to just the taxiway, units are responsible for conducting FOD walks in the protective aircraft shelters, hangars, pads, hardstands and taxiways within their assigned areas/loops that come in contact with aircraft movement. Contact Airfield Management to coordinate sweeper support as needed.

4.2. End-of-Runway (EOR) and hot pit crews will perform a FOD walk of all EOR, hot pit, and holding areas prior to use. When an EOR or hot pit location changes during the flying day, the EOR crew or hot pit crew must FOD walk the new location prior to use.

4.3. While performing FOD walks, personnel will continuously look at the ground and actively search for FOD.

4.4. Each FGS/RGS will be responsible for their aircraft parking areas, the adjacent portions of the taxiway and access road. If cracks or damage are found in the concrete, contact airfield management to coordinate repairs.

4.5. Units that occupy facilities that contact the aircraft movement area will perform a FOD walk once a week on Mondays or the first duty day of the week (minimum of 100 feet from the edge of facility or to the edge of the taxiway).

4.6. A FOD walk will be conducted following extended periods of time (3 days or more) when operational aircraft are not located in aircraft parking areas/loops. The unit planning to occupy the area will perform the FOD walk. Any PASs that will be used must be FOD walked prior to the occupation of aircraft. Tower loop, Mike loop, NATO pads, Strat pads and Hot Cargo pad will also be FOD walked daily prior to the first launch of the day by the units occupying those areas. No less than 48 hours prior to known occupation of Tower loop by aircraft, 31 MUNS will ensure taxiways and PASs are clear of debris and ready to use.

4.7. FOD bosses will be driven daily by the 555 FGS and 510 FGS in all areas that they are operating out of (i.e. Sierra Loop, Tower Loop, or South ramp).

4.8. All significant FOD found in an aircraft movement or maintenance area (i.e. hardware, tools, and pieces of equipment) to include items found in FOD boss, will be bagged and labeled with date and location and turned in to the Unit FOD monitor. These will be given to the Wing FOD monitor.

5. Additional FOD Prevention Practices:

5.1. Prior to F-16 aircraft engine runs in Protective Aircraft Shelters (PAS), the engine operator and ground observation personnel will ensure all possible F.O. in the PAS is secured or properly disposed (e.g., aircraft forms, TOs, aircraft covers). All trash and spill pad receptacles must be secured away from engine intake and exhaust. A 100% tool inventory will be accomplished prior to engine start.

5.2. Upon the completion of any maintenance task in the aircraft movement or aircraft maintenance area, a FOD inspection will be completed in and around the work area.

5.3. Unless removed to facilitate maintenance/inspections, the F-16 intake cover will not be removed until crew show and all other protective covers will not be removed more than 15 minutes prior to crew show. All covers must be installed prior to maintenance team leaving the spot.

5.4. Unless removed to facilitate maintenance/inspections, the HH-60 dash-21 will be removed as close to crew show as possible and must be installed within 1 hour of recovery.

6. Clothing:

6.1. Hats or headgear required as PPE during maintenance, servicing, or as required for personnel carrying arms are authorized on the flight line or in industrial aircraft maintenance areas (providing wear does not interfere with proper wear of double hearing protection).

6.2. Wear of the seasonal OCP watch cap, micro fleece hat or boonie cap (with strap cinched) is authorized on the flightline or in industrial aircraft maintenance areas and can be worn within 25 ft. of running engines if secured under ear defenders or ground communication headset providing wear does not interfere with proper wear of double hearing protection.

- 6.3. Hoods on clothing must be tucked in or secured/tied within 25 ft. of an operating engine. Rain ponchos will not be worn within 25 ft. of an operating engine. (HH-60 exempt).
- 6.4. Restricted area badges will be secured with a non-metallic cord or plastic armband when worn on the flightline.
- 6.5. Restricted area badges will be removed while performing intake/inlet/exhaust inspections/maintenance when personnel physically enter these areas.
- 6.6. Line badges not secured by arm band, watches, and all jewelry must be removed and all pockets emptied prior to entering the cockpit.
- 6.7. Line badges not secured by arm band must be removed within 25 ft. of an operating engine. (HH-60 exempt)
- 6.8. Metal insignias/badges are not authorized on the flightline.
- 6.9. Wigs, hairpieces, metal hair fasteners, earrings, or any other jewelry that may fall off without notice, are not authorized on the flightline.
- 6.10. Escorts of visiting personnel will ensure FOD prevention measures are taken.

7. Tools:

- 7.1. At a minimum all personnel will conduct an inventory/accountability check of all tools, equipment, electronic devices and PPE dispatched to the flightline upon initial checkout, prior to start of a job and upon completion at the job site.
 - 7.1.1. The use of personal electronic devices (e.g., smart phones, cell phones) is permitted on the flightline and in work areas unless otherwise directed by AFI or technical data.
 - 7.1.2. Restricted area/flightline photography will be limited to personnel authorized by an approved Photo Authorization Letter on file with 31 SFS/S5IS.
- 7.2. A single CTK will not be used on multiple aircraft at the same time. The CTK being used must be located at the same location as the aircraft.
- 7.3. If a tool or object is potentially lost in the flightline it must be immediately reported to the Maintenance Operations Center (MOC) and the procedures outlined in the 31 MXG OI 21-101 will be followed. <https://usaf.dps.mil/sites/Aviano/31MXG/QA/Publications>
- 7.4. All individually issued tools/equipment (e.g. reflective belts, headsets, hearing protectors, etc.) will be accounted for at the beginning and end of each shift and will be marked with owner's first initial, last name, and employee number.
 - 7.4.1. For personnel not assigned to the 31 MXG, individually issued tools/equipment will be labeled with owner's first initial, last name, and squadron.
 - 7.4.2. If any items are lost, they will be treated as a lost tool.
- 7.5. 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 aircraft AFTO Form 781A. Lost tool/item procedures outlined in the 31 MXG OI 21-101 will be followed. <https://usaf.dps.mil/sites/Aviano/31MXG/QA/Publications>
- 7.6. All tools that will be used regularly on the flightline will have RTV placed over small screws and fasteners that are not required for tool operation to prevent inadvertent loss.

8. Airfield Vehicle Operation:

8.1. Vehicle operators accessing flightline areas will.

8.1.1. Inspect vehicles prior to and after use for general serviceability and to ensure vehicle is free of all debris.

8.1.2. Ensure vehicle is equipped with a FOD container secured to the vehicle. FOD containers will be emptied daily.

8.1.3. Ensure keys are secured to a high visibility device (i.e. streamer or reflective placard). The device will be marked with the vehicle registration number. All items attached to the key ring (i.e. keys, FOD pick, fuel key, etc.) will be annotated on the vehicle's AF Form 1800.

8.1.4. Items permanently stored in vehicle will be documented on AF Form 1800 (i.e. FOD container, flashlight, first aid kit, spill kit, reflective vest, etc.) The vehicle serial number will be etched or permanently marked on these items.

8.2. Vehicle Magnets:

8.2.1. If FOD magnets are installed ensure they have at least 3 but no more than 5 inches of ground clearance from the bottom of the magnet. FOD magnets must be annotated on the vehicle AF Form 1800.

8.2.2. If equipped, magnetic bars will be cleaned at shift change or when accumulation dictates. (To avoid injury, personnel should wear sturdy gloves while clearing debris from magnet).

8.2.3. 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, stowed in the up position or temporarily removed from the vehicle to prevent damage caused by excessive swinging.

8.3. Ensure old style pintle hooks are pinned at all times. Pin will be attached to the vehicle with a chain or cable.

8.4. All vehicle operators accessing flightline areas will check vehicle tires for foreign objects at all FOD checkpoints (lines and signs) on the airfield performing a "Roll Over" FOD check.

8.5. When reentering a hardened surface, the vehicle operator will collect all debris brought onto the surface by the vehicle and ensure tires and undercarriages of vehicle are free of rocks and debris. If the quantity of debris is too large, Airfield Management or MOC will be notified to coordinate with 31 CES to have a sweeper clean the area.

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

8.7. First responders are exempt from performing FOD checks ONLY when responding to real world alarms and emergencies. MOC and airfield management must be notified of all areas that have been compromised with potential FOD and they will coordinate a sweeper be sent to the area. After the alarm or emergency first responders must perform a tire FOD check and assist in sweeping the compromised area as required.

8.8. FOD checks are not required for GOV or POV when crossing Mike Taxiway from Viale Giulio Cesare. Traffic must be stopped and a FOD walk performed by the owning/responsible agency prior to any aircraft towing or taxiing operation in the area. When a GOV enters the flightline area from Viale Giulio Cesare, a “Roll Over” FOD check must be performed.

9. FOD Incidents:

9.1. No maintenance shall be completed prior to aircraft release by wing safety.

9.2. All FOD mishaps will be investigated by the Wing FOD monitor and will ensure all actions that are needed to solve the underlying problems are taken.

10. FOD Prevention Awareness:

10.1. Golden Bolt Award—will be awarded to any individual that discovers the Golden bolt. The Golden Bolt will be placed by QA/Wing FOD monitor at least once per quarter. Winner will receive a one day pass from the WG /CV. Pass must be coordinated through member’s supervisor.

10.2. FOD Poster Award—Will be awarded to the best FOD poster submission as judged by Wing FOD monitor. Submission can be submitted to the FOD sharepoint or emailed to the Wing FOD monitor. Winner will receive a one day pass from the WG/CV. Pass must be coordinated through member’s supervisor.

<https://usaf.dps.mil/sites/Aviano/31MXG/QA/FOD/SitePages/FOD-DOP.aspx>

10.3. FOD Warrior of the Quarter—Will be awarded recognizing an individual who made a significant contribution to FOD prevention or awareness. Member must be nominated by supervisor on the FOD sharepoint or emailed to the Wing FOD monitor. Winner will receive a one day pass from the WG/CV. Pass must be coordinated through member’s supervisor.

<https://usaf.dps.mil/sites/Aviano/31MXG/QA/FOD/SitePages/FOD-DOP.aspx>

TAD D. CLARK, Brigadier General
Commander, 31st Fighter Wing

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

DAFI 21-101, *Aircraft and Equipment Maintenance Management*, 1 October 2021

MXG OI 21-101, 31 *MXG Aircraft and Equipment Maintenance Management*, 7 January 2021

Prescribed Forms

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

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Aviano Form 145, *Lost Tool/Object Report*

Abbreviations and Acronyms

AFMAN—Air Force Manual

AFRC—Air Force Reserve Command

AFTO—Air Force Technical Order

AMS—Air Mobility Squadron

ANG—Air National Guard

CAP—Civil Air Patrol

CES—Civil Engineer Squadron

CTK—Consolidated Tool Kit

DOP—Dropped Object Prevention

FGS—Fighter Generation Squadron

FOD—Foreign Object Damage or Foreign Object Debris

FW/SE—Fighter Wing Safety Office

GOV—Government Owned Vehicle

IAW—In Accordance With

LRS—Logistics Readiness Squadron

MOC—Maintenance Operations Center

MUNS—Munitions Squadron

MXG—Maintenance Group

MXS—Maintenance Squadron

OCP—Occupational Camouflage Pattern

OPR—Office of Personnel Responsibility

OSS—Operations Support Squadron

PAS—Protective Aircraft Shelter

POV—Personally Owned Vehicle

PPE—Personal Protective Equipment

QA—Quality Assurance

RGS—Rescue Generation Squadron

RTV—Room Temperature Vulcanizing

SFS—Security Forces Squadron

TDY—Temporary Duty