

**BY ORDER OF THE COMMANDER
HILL AIR FORCE BASE (AFMC)**



**AFMC INSTRUCTION 21-122
HILL AIR FORCE BASE
Supplement 1
3 MAY 2002**

Maintenance

**FOREIGN OBJECT DAMAGE (FOD)
AND DROPPED OBJECT (DO)
AWARENESS AND PREVENTION PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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Maintain and dispose of records created as result of prescribed processes in accordance with AFMAN 37-139, *Records Disposition Schedule*. An * indicates a revision from the previous edition.

SUMMARY OF REVISIONS

This supplement is revised to add paragraph 3.2.9.2. referring to rag control procedures outlined in AFMCI 21-107/Hill AFB Supplement 1.

AFMCI 21-122, 20 December 2000 is supplemented as follows:

1.2. Because of the criticality of the maintenance performed at Ogden ALC (OO-ALC) and the potential for loss of life and/or Air Force assets due to Foreign Objects (FO), Foreign Object Damage (FOD), and Dropped Objects (DO), all maintenance organizations to include facilities and areas, tow and taxi lanes, and flight line areas under the control of the OO-ALC will be in compliance with AFMCI 21-122 and this supplement.

1.3. Each OO-ALC Directorate responsible for producing and/or maintaining aerospace products or vehicles, including aircraft, engines, electrical systems, and/or any subsystems, subsystem components, or ground support equipment and components thereof, will establish written OI of FOD prevention procedures, policies, and requirements as stipulated in, AFMCI 21-122 and this supplement. Coordinate operating instructions (OI) with the OO-ALC FOD Manager in the Safety Directorate (OO-ALC/SE) and American Federation of Government Employees (AGFE).

1.4.4. (Added) Benchstock. Hardware and other items that are used during the production process.

1.4.5. (Added) Consumables. Items that are used up or lose their existing configuration due to use (i.e. safety wire, tape, sanding disks, sand paper, wire connectors, splices, solder, etc.).

1.4.6. (Added) Foreign Object Debris (FOD). A substance, debris or article foreign to an aircraft or system which if undetected could/will cause damage, system malfunction or deterioration, or total destruction of the aircraft or system.

1.4.7. (Added) Foreign Object Elimination (FOE). A highly visible proactive program or process used to ensure a FOD-free area, product, or system.

2.2. Add the following bullets:

- (Added). Chair the OO-ALC FOD committee (quarterly as a minimum).
- (Added). Be OPR for AFMCI 21-122/Hill AFB Supplement.
- (Added). Distribute FOD prevention materials to unit monitors, as required.

2.3.1. (Added) Directorate/Group FOD Prevention Program Manager will:

2.3.1.1. Keep Directorate and Deputy informed on any critical FO/FOD related issues.

2.3.1.2. Be the Directorates designated impoundment official on all FOD related mishaps.

2.3.1.3. Keep Directorate and division-level management officials and division FOD prevention focal points apprised of all changes to the OO-ALC FO/FOD policies.

2.3.1.4. Act as directorate representative to the OO-ALC FOD Prevention Committee distributing all committee meeting minutes and correspondence to applicable divisions.

2.3.1.5. Investigates all FOD related incidents within the directorate and comply with the FOD reporting IAW AFMCI 21-122 and this supplement.

2.3.1.6. In unison with OO-ALC/SE, brief Directorate and/or Deputy, AGFE, and OO-ALC/SE on any FOD incident meeting the reporting requirements of AFI 91-204, *Safety Investigations and Reports*. Any correspondence associated with the FOD incident will be coordinated with directorate prior to forwarding the information to the OO-ALC/SE Office. Responsibility for submitting the final FOD incident report to the OO-ALC/SE resides with the directorate FOD Program Manager.

2.3.1.7. On a quarterly basis, brief the status of the Directorate FOD Prevention Program to directorate management.

2.3.1.8. Obtain and distribute FOD prevention information to division FOD Prevention Focal Points.

2.3.1.9. Analyze FO/FOD accumulated data/information received from the division monitors and/or obtained through the directorate-level inspections to determine the status of the Directorate FOD Prevention Program.

2.3.1.10. Coordinate with the Industrial and Logistics Training Division (OO-ALC/TIU) annually to ensure FO/FOD training requirements are being met and that training provided is current and tailored to the type of maintenance being performed within the unit.

2.3.1.11. When conditions warrant higher-level management involvement, elevate FO/FOD Prevention Program concerns to upper management.

2.3.2. (Added) The Division/Branch/Squadron/Unit FOD Prevention Program Monitor will:

2.3.2.1. Immediately report any FOD mishaps to the Directorate FOD Prevention Program Manager and provide a written preliminary investigation report to the Program Manager within 12 hours.

2.3.2.2. When conditions warrant higher-lever management involvement, elevate concerns to the Directorate FOD Prevention Program Manager.

2.3.2.3. Distribute all committee-meeting minutes and FO/FOD-related correspondence received from the Directorate FOD Prevention Program Manager to applicable FOD focal points within the division. Ensure high visibility of FOD related information such as posters and banners with all maintenance areas.

2.3.2.4. Conduct random division FO/FOD inspection audits using AFMC Form 315, **Supervisor Safety Inspection Record**. A copy of all inspection audits will be forwarded up to the FOD/PD (Product Directorate). Each PD will establish a time frame for conducting periodic FOD audits in their supplement to this instruction.

2.3.2.5. Ensure division personnel are aware of the identity of the OO-ALC and Directorate FOD Program Managers.

2.3.2.6. Comply with all FOD reporting requirements IAW AFMCI 21-122 and this supplement.

2.3.3. (Added) The PD quality assurance divisions will perform FOD assessments IAW the PDs Quality Assurance Plan (QAP) and as required by AFMCI 21-115, *Depot Maintenance Quality Assurance*. All quality assurance FOD assessments will be documented on AFMC Form 343, **Quality Assurance Assessment**.

2.5.1. Supervisors will brief newcomers on FOD awareness and prevention prior to starting work and within 10 days of reporting to duty. Initial FOD briefing will be made part of the Job Safety Training Outline and incorporated during the initial and annual work center briefing on the employees AF Form 55, **Employee Safety and Health Record**, CAMS, or PAC SSQ.

2.5.2. On a quarterly basis, supervisors will brief their personnel on FOD prevention awareness. The briefing will be annotated on an AFMC Form 316, **Supervisor Safety Meeting Minutes**. The AFMC Form 316 will annotate the number of personnel attending along with the names of personnel absent from the briefing. This form will be available for review by authorized personnel in the performance of their official duties. Each Product directorate (PD) will establish filing procedures for AFMC Form 316 in their FOD OI and maintain coordination and file copies according to AFI 37-138, *Records Disposition-Procedures and Responsibilities and AFMAN 37-139*.

3.2.3.1 (Added) Use vacuums, magnetic sweepers, personnel sweeps, and/or foreign object debris walks, to remove foreign objects from ramps, runways, and access roads. FOD walks will be conducted daily on flight line ramps including taxi areas paying particular attention to grounding points and expansion joints. All production areas will perform FOD walks around maintenance hangars, buildings, etc. on a scheduled basis to be determined by each PD in their OI.

3.2.7.1. (Added) Ensure strict accounting procedures are in place for all material, such as parts, hardware, consumables, or residue used/produced during aircraft intake repairs. All benchstock and consumables will be controlled during the production process. All hardware/consumables will be placed in closed containers if personnel are working in enclosed areas such as cockpits, fuel cells, engine intakes and exhausts. Personnel will empty all pockets and check soles of shoes prior to entering any cockpit, engine intake, engine exhaust, fuel cell area or any enclosed aircraft/missile/safety areas.

3.2.7.2. (Added) Perform operations and maintenance tasks according to technical data. Maintenance and manufacturing debris must be removed from equipment and surrounding areas

(including sweeping floors and vacuuming aircraft access panels). Do not use compressed air to “blow” sheet metal shavings and dirt from areas.

3.2.7.3. (Added) All personnel will take actions to preclude foreign object entrapment during assembly sequencing, maintenance, and/or manufacturing. After completing work inside a panel, personnel will immediately clean the area to include wiping out and or vacuuming the area if required prior to closing the panel.

3.2.7.4. (Added) Use x-ray, borescope, and other state-of-the-art equipment to locate foreign objects in inaccessible areas as required.

3.2.9. Ensure tool control and accountability is strictly enforced for all tools IAW AFMCI 21-107 and Hill AFB Supplement, *Tool Control and Accountability Program*. Each director will identify critical areas within their unit that requires two-person sign-off to verify no tools, equipment, rags, residue, or hardware have been left behind. The requirement to check for tools, equipment, rags, residue and hardware in these areas will be specifically annotated on a work control document. These procedures will be outlined in the PD OI to this supplement.

3.2.9.1. (Added) AFMC Form 310, **Lost/Found Item Report**, copies of the lost tool report will be provided to the directorate’s FOD program manager and the directorates quality assurance division for filing. Further lost tool report instructions are contained in AFMCI 21-107/Hill AFB Supplement.

*3.2.9.2. (Added) Rag control procedures are found in AFMCI 21-107, Hill AFB Supplement 1.

3.2.10.1. (Added) All vehicles routinely accessing the runway, taxiway, flightline areas, or aircraft parking ramps during periods of darkness will be equipped with a flashlight to allow for FOD inspection of tires at night. The flashlight should be identified to the vehicle by using the vehicle ID number.

3.2.11.1. (Added) Whenever entering the flightline area with a vehicle, all tires (to include towed support equipment) will be thoroughly checked for FOD and all FOD removed. All vehicles will be cleaned of all debris daily before use or as required during the day.

4.2.1. (Added) Supervisor procedures to follow after discovery of FOD to any system is as follows:

4.2.1.1. Secure the item involved in FOD and do not allow personnel to continue working on the item. Report the FOD discovered through written media (e-mail message, hand-scribed note, etc.) to his or her assigned division FOD prevention program monitor. At a minimum, the written media will contain:

- A brief description of the circumstances leading to the discovery of the FOD.

- A brief description of the damage discovered.
- What caused the damage and/or if the item causing the damage was retrieved.
- Location of the damage.
- Location of damaged equipment.
- Serial number of equipment.
- Date and time of discovery.
- Estimated cost to repair the FOD. Work with the applicable Weapon System Support Center (WSSC) logistics specialist to accurately calculate the estimated repair costs. The estimated repair costs will be itemized to include labor hours needed to make the repair and materials needed to support the repair.
- Specify whether FOD was an incoming condition or was caused as a result of OO-ALC maintenance, modification, repair, and overhaul actions.

4.2.1.2. Work with the applicable specialist to accurately calculate the estimated repair costs. The estimated repair costs will be itemized to include labor hours needed to make the repair and materials needed to support the repair.

4.2.1.3. Ensure appropriate maintenance work requests (MWR) and/or work control documents (WCD) are initiated to cover FO search time and any repairs made to the aircraft or subsystem component by notifying the applicable aircraft or RCC logistics specialist. The rework labor hours and material expended to accomplish the rework will be documented and tracked according to directorate's written policies.

4.2.1.4. Assign an employee to conduct a search of the aircraft panel, door, plate area, and/or component where the FOD was discovered to ensure the item causing the damage is found and removed. The results of this inspection/search must be reported through written media to the applicable division FOD prevention program monitor and the Directorate FOD Prevention Program Manager.

4.2.1.5. Ensure FOD caused by internal material failure of a component/part is reported according to the paragraph below.

4.2.1.6. This will be accomplished by contacting his or her applicable Quality Deficiency Report (QDR) point of contact (POC) and providing the necessary information to the POC.

4.2.2 (Added). Division FOD Focal Point will:

4.2.2.1. Immediately notify through written media (e-mail, etc.) of any discovered FOD to the applicable management officials, the division and directorate FOD and Safety Program Managers, the work center's customer relations department, and center FOD Prevention Program Manager. If reportable, report any foreign object damage in accordance with AFI 91-204.

4.2.2.2. Report the FOD to the customer relations' office assigned to applicable work center customer relations' office. If applicable, this office will report the FOD to the owning organization by priority message within 24 hours after discovery. A draft copy of the message will be prepared and coordinated with the applicable work center "fixer," the division/squadron/unit chief and/or deputy, the directorate FOD Prevention Program Manager, and the OO-ALC FOD Prevention Program Manager prior to the message being sent. Information copies of the approved coordinated message will be sent to addressees as specified in AFMCI 21-122 and the Directorate FOD Prevention Program Manager and Directorate Safety Officer. The approved/coordinated message will be sent to the owning MAJCOM, the Directorate FOD Prevention Program will file copies of the messages IAW AFMAN 37-139.

4.2.2.3. For FOD discovered on a weapon system or component being worked in a support/back shop, the supervisor will contact the division FOD prevention program monitor who will notify the Directorate FOD Prevention Program Manager. The Directorate FOD Prevention Program Manager will coordinate the report with the appropriate weapon system "fixer" and representatives of the "fixer's" customer support office prior to transmitting the message.

4.2.3. (Added). In conjunction with the RCC supervisor, ensure FOD caused by internal material failure of a component/part is reported according to Directorate's procedure. Copies of the finalized QDR will be forwarded to the Directorate FOD Prevention Program Manager and Directorate Safety Officer.

4.2.3.1. Maintain coordination and file copies of the messages according to AFI 37-138 and AFMAN 37-139.

4.2.3.2. Stay apprised of any FOD investigations conducted as a result of impoundment procedures initiated by maintaining open lines of communications with the "impoundment authority," and/or "impoundment official."

4.2.4 (Added). The Directorate FOD Prevention Program Managers will:

4.2.4.1. Track all FOD reports and provide additional copies to the OO-ALC FOD Prevention Officer upon request. Ensure any FOD-related report/information is coordinated through Directorate chief prior to releasing the report and/or information.

4.2.4.2. On a quarterly basis, brief directorate management officials. At a minimum, the information briefed will identify:

- The number of incidents.
- A brief description of damage being identified and/or reported.
- Whether the FOD was internally or externally reported.
- Whether the FOD was organically caused and/or discovered during incoming inspections.
- If the FOD was organically caused, the preventative actions that were implemented.
- An analysis of information from the 3 previous quarters to identify trends. When trends are identified, they will be briefed.

4.2.4.3. Brief the Directorate Director and/or Deputy Director of the FOD incident. A copy of the FOD notification received from the division FOD prevention program monitor will be provided to the director and/or deputy director. The briefing will be scheduled through the Directorate office.

4.2.4.4. Maintain file copies of the FOD notification messages and any other media associated with specific FOD incidents received according to AFI 37-138 and AFMAN 37-139.

4.2.5. (Added). External Customer-Reported FOD/FO:

4.2.5.1. All FOD caused as a result of OO-ALC maintenance/modification/overhaul actions reported through the Information Central (G021) QDR Program outlined in TO 00-35D-54 and/or reported through other methods will be reported through written media to the Directorate FOD Prevention Program Manager.

4.2.5.2. For aircraft-related FOD reports, the responsibility resides to report FOD to Directorate FOD program manager with the applicable Division weapon system customer support specialist assigned to the applicable weapon system "fixer's" organization. Normally, the information will be provided to the division and directorate FOD prevention program managers within 3 workdays of completing the investigation of the reported discrepancy.

4.2.5.3. For aircraft-related FOD reports, the responsibility resides to report FOD to Division FOD Program Manager with the applicable Division weapon system customer support specialist assigned to the applicable weapon system "fixer's" organization. Normally, the information will be provided to Division FOD Prevention Program Monitor and the Directorate FOD Prevention Program Manager within three workdays of completing the investigation of the reported discrepancy.

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