

**BY ORDER OF THE COMMANDER
341ST MISSILE WING**

341ST MISSILE WING INSTRUCTION 21-201

24 SEPTEMBER 2013



Maintenance

**FOREIGN OBJECT DAMAGE (FOD) AND
DROPPED OBJECT PREVENTION (DOP)
PROGRAMS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available on the e-publishing website at www.e-publishing.af.mil for downloading or ordering.

RELEASABILITY: There are no releasability restrictions on this publication

OPR: 341 MOS/MXOOH

Certified by: 341 MW/CV
(Colonel Marné R. Deranger)

Pages: 8

This instruction complements AFI21-101, *Aircraft and Equipment Maintenance Management*, 26 July 2010. This instruction applies to 341 MW and all associate units. Air National Guard and Air Force Reserve personnel are exempt from the provisions of this publication. 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 Form 847 through the wing publishing office and then to the appropriate OPR. Waivers to this supplement will not be granted. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). This publication may not be supplemented or further implemented/extended.

1. Roles and Responsibilities The 341MW/CV will:

1.1.1. Appoint the 341 Missile Wing Foreign Object Damage (FOD) Program Monitor and Alternate.

1.1.2. Chair the monthly/quarterly FOD prevention meeting as applicable. This meeting may be combined with other related quarterly meetings.

1.2. The 341 MW/FOD Monitor will:

1.2.1. Train all unit FOD monitors and alternates. All aspects of FOD education, prevention and protection will be presented.

1.2.2. Conduct and document FOD prevention monitor program spot inspections to ensure compliance with this instruction.

1.2.3. Conduct routine inspections and follow-ups of FOD walks to ensure compliance with the prevention program.

1.2.4. Plan and facilitate a FOD walk annually to include: helicopter maintenance and operation areas.

1.2.5. Perform weekly FOD check point assessments and document compliance and noncompliance.

1.2.6. Develop a robust FOD program.

1.3. 341 MW and Tenant Units with personnel authorized unescorted entry and authorization to drive in the helicopter area will:

1.3.1. Appoint in writing, a primary and alternate FOD monitor and forward a copy to the 341 MW FOD Program Monitor. Units responsible for contracts or contracted functions will roll the contractor into their program unless the contract allows the contractor to establish their own FOD program IAW this guidance and AFI 21-101 including any supplements.

1.3.2. Comply with all requirements outlined in the 341 MW FOD plan and this instruction.

1.3.3. Contractors will follow their FOD programs accepted by the contracting officer.

1.4. The unit assigned FOD prevention monitor will:

1.4.1. Maintain FOD information on a bulletin board in each work center where personnel are authorized access to the flightline. One centrally located board may cover all shops located within a single building. Contractors will follow their FOD program accepted by the contracting officer. At a minimum, the board will contain FOD prevention point of contact visual aids for wing and unit program monitor. The board may be co-located with other safety-related items and does not need to be strictly for FOD prevention.

1.4.2. Maintain a FOD continuity binder. At a minimum the binder will contain the following:

1.4.2.1. Tab A, copy of FOD monitor appointment letter.

1.4.2.2. Tab B, copy of Wing FOD plan

1.4.2.3. Tab C, appropriate FOD self-inspection checklist.

1.4.2.4. Tab D, documentation of weekly aircraft maintenance/operation area FOD walks, spot checks, FOD briefings, and FOD walk policy letter.

1.4.2.5. Tab E, wing FOD committee meeting minutes/slides (for one year).

1.4.2.6. Tab F, copy of this instruction and FOD Prevention Plan.

1.5. IAW applicable guidance all personnel authorized on the flightline will:

1.5.1. Pay close attention to areas under and immediately in front of helicopters during all FOD walks. Contractors will follow their FOD program accepted by the contracting officer for all FOD walk requirements. FOD walk follow-up assessments and documentation requirements may be conducted by the Wing FOD Monitor or Wing Safety.

1.5.2. Monitor aircraft maintenance/operation areas to ensure a FOD free area. Secure FOD containers to vehicles that are normally operating in any aircraft maintenance/operation area in a manner that does not modify or damage rental or government leased vehicles and prevents the container from tipping over while the vehicle is in motion. Vehicle FOD containers may be locally manufactured and secured using bungee cord or similar material. Containers will not be obscured from view.

1.5.3. Call Helicopter Maintenance Operations Center (HMOC) for any aircraft area requiring a sweeper. HMOC will then make arrangements for the sweeper requirement.

1.5.4. Units will clean all grounding/mooring points within their respective areas on as needed basis. When cleaning, ensure grounding/mooring points are kept free of sand and rock build-up that could hide potential FOD sources. This only applies to the grounding/mooring points in the eight helicopter parking spot circles.

1.5.5. All maintenance personnel working in aircraft maintenance/operation areas or hanger floors will perform FOD walks or checks in their respective areas a minimum of once per day. These dock areas are subject to spot inspections by all monitoring agencies and levels of supervision.

1.5.6. All loose hardware will be contained in cloth screw bags or other suitable container that can be closed and secured to the removed item to prevent them from becoming FOD hazards.

1.5.7. All personnel performing maintenance of any kind in areas where helicopters operate or would occupy will inventory and account for all tools, equipment, and electronic devices before leaving the job sight. If a piece of equipment cannot be accounted for they will immediately notify HMOC at ext. 406-731-3813 and aircraft maintenance/operations and the job sight supervisor.

1.5.8. Engine, aircraft, and pitot tube covers (if applicable) will be removed no earlier than 2 hours prior to crew show and installed upon completion of the BPO, no later than 1hour after engine shut down or completion of spare duty for that day. High wind conditions will be considered for more stringent needs.

2. Prior to any helicopter engine operation, personnel will ensure the following:

2.1. Tools, equipment and hardware have been accounted for and secured.

2.2. A FOD Inspection of engine inlets, all decks and accessible compartments prior to engine operation is signed off in the helicopter 781A forms.

3. Flightline Clothing

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

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

3.3. Loose fitting clothing or other apparel that may be caught in on the aircraft should not be worn. Climate and safety will be considered.

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

4. Incident and mishap investigation:

4.1. The wing FOD program manager will be notified of all Dropped Objects (DOP) and suspected/confirmed engine FOD damage. The wing FOD monitor will track, report and investigate all foreign objects and dropped objects to completion and provide synopsis of each event to the 341 MW/CV and 341 MXG/CC.

5. DOP

5.1. Dropped Object (DO). A dropped object is any item that falls from an aircraft after engine start and before engine shutdown. For the purpose of this instruction, a secondary structure refers to any door, panel, cover, or cowling designed to be removed from the aircraft for maintenance purposes. Items that are dropped for mission requirements, such as Landing Zone Markers, are not considered DOs and are not reportable as such.

5.2. Preventable Dropped Object. Any item lost due to negligence during inspection or installation.

6. General

6.1. The prevention of in-flight loss of aircraft panels, parts, access doors, and other objects is the goal of DOP Program. All maintenance personnel must be aware of the potential for dropped objects. Supervisors must ensure the proper installation of panels and doors, and the quality of maintenance performed on structural components. All passengers will receive a briefing from the pilot or flight engineer and if an item is lost during flight the passenger should notify the flight engineer.

6.2. Dropped Object Prevention is the responsibility of all aircraft operators and maintainers. Prevention begins when aircraft panels are removed, access doors opened, or when maintenance is performed on an exterior component. All personnel working in, on, and around aircraft must comply with the requirements of this instruction.

7. Procedures for removal, installation, and opening and closing documentation:

7.1. Individuals tasked to remove external panels, fairings, engine cowling, antennas, windshields, and external light assemblies will enter a Red X in the aircraft forms prior to starting the removal/opening action.

7.2. The Red X will not be signed off in the forms until the panel, fairing, engine cowling, antenna, windshield, or light assembly/subassembly is properly installed/closed and inspected.

7.3. Whenever feasible, the individual tasked to perform the removal/installation or opening/closing action will remain assigned to the task until the action is completed and properly documented.

7.4. When installing aircraft panels, doors, and components, place special emphasis on the condition of latches, fasteners, hinge pins, and hinge lobes. Ensure panels, doors, and

components fit properly and are attached securely, greatly reducing the chances for dropped objects.

8. Dropped Object Prevention Inspection (Panel Inspection)

- 8.1. A panel inspection is required prior to every aircraft departure.
- 8.2. An inspector for these purposes will be a qualified technician or lead.
- 8.3. An inspector will inspect all engine and airframe panel security and streamlining. Aircraft forms will be reviewed and special attention paid to those areas where maintenance was performed.

9. Dropped Object Incident Notification

- 9.1. Anyone suspecting a dropped object will immediately notify the appropriate shift lead, HMOC, QC/QA Inspector, Site Manager or as indicated on the Dropped Object Reporting Checklist, Attachment 3.
- 9.2. Within 24 hours of the occurrence, the Dropped Object Officer/Monitor will report any dropped object to HQ AFGSC/A4MM and HQ 20AF/A4H via telephone, FAX, or e-mail.

10. Dropped Object Incident Investigation

- 10.1. Each dropped object incident will be thoroughly investigated as soon as the loss is discovered.
- 10.2. All efforts will be made to determine the exact cause of the dropped object so proper corrective action may be taken to prevent reoccurrence.
- 10.3. The shift lead will ensure the aircraft forms are reviewed to verify the item is a dropped object and was not removed by maintenance personnel.

Note: No maintenance of any type will be accomplished in the dropped object area until the appropriate activities as required by individual site host bases perform an investigation.

11. Material Deficiency

- 11.1. If a material deficiency caused the dropped object, submit a Material Deficiency Report (Deficiency Report), IAW Tech Order 00-35D-54, USAF Material Deficiency Reporting and Investigating System.

12. Dropped Object Incident Reporting

- 12.1. The Dropped Object Officer/Monitor will submit a formal report to HQ AFGSC/A4MM and HQ 20AF/A4H within three duty days and will contain as a minimum the information indicated in Attachment 2.

ROBERT W. STANLEY II, Colonel, USAF
Commander

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

AFPD 21-1, *Air and Space Maintenance*, 25 February 2003

AFI 21-101, *Aerospace Equipment Maintenance Management*, 26 July 2010, Incorporating Change 1, 16 Aug 2011

AFMAN 33-363, *Management of Records*, 1 March 2008

Technical Order 00-35D-54, *USAF Material Deficiency Reporting and Investigating System*

Technical Order 00-20-2, *Maintenance Data Documentation*

Prescribed Forms

None

Adopted Forms

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

AF Form 847, **Recommendation for Change of Publication**

Abbreviations and Acronyms

FOD—Foreign Object Damage

DO—Dropped Object

DOP—Dropped Object Prevention

DR—Deficiency Report

HMOC—Helicopter Maintenance Operations Center

QA—Quality Assurance

QC—Quality Control

Attachment 2

DROPPED OBJECT REPORT

- A2.1.** DOPP Report Number (unit, year, and month followed by sequence number – example: (341MXOOH -100401).
- A2.2.** MDS.
- A2.3.** Type Mission and mission profile.
- A2.4.** Aircraft Tail Number.
- A2.5.** Owning organization and base:
- A2.6.** Origin of sortie.
- A2.7.** Date of incident and discovery location.
- A2.8.** Geographic location of object (if known).
- A2.9.** Item, noun and description (use information from the applicable aircraft -4 series TOs).
- A2.10.** TO, figure and index.
- A2.11.** Part number.
- A2.12.** Correct Work Unit Code (WUC) (full five-digit)/Ref Des.
- A2.13.** NSN.
- A2.14.** Date of last Phase, HSC and ISO inspection.
- A2.15.** Last maintenance performed in the area and date.
- A2.16.** Investigation findings (cause).
- A2.17.** Costs in dollars to repair or replace as appropriate and cost in man-hours to repair.
- A2.18.** Actions to prevent recurrence.
- A2.19.** DR submitted?
- A2.20.** Unit POC information (Name, DSN number, and office symbol)
- A2.21.** Other pertinent information:

Attachment 3

DROPPED OBJECT REPORTING CHECKLIST

A3.1. Upon verification of a dropped object, the discovering technician or whoever has direct knowledge of the incident shall immediately notify:

A3.1.1. Helicopter Maintenance Operations Center: DATE
TIME

(HMOC)

A3.1.2. Maintenance Supervision: DATE
TIME

A3.2. The HMOC will notify:

A3.2.1. Site Manager DATE
TIME

A3.2.2. Site Quality Control (QC) Inspector DATE
TIME

A3.2.3. Contractor/QA: DATE TIME

A3.2.4. Wing Command Post: DATE TIME

A3.2.5. Wing Safety: DATE TIME

A3.2.6. MXG/CC: DATE TIME

A3.2.7. Flying squadron operations DATE TIME

A3.2.8. Flying squadron Safety DATE
TIME