



UNITED STATES MARINE CORPS  
2D MARINE AIRCRAFT WING  
II MARINE EXPEDITIONARY FORCE  
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WgO 4790.13  
ALD  
JUL 13 2011

WING ORDER 4790.13

From: Commanding General, 2d Marine Aircraft Wing  
To: Distribution List

Subj: THINGS FALLING OFF AIRCRAFT (TFOA) PROGRAM

Ref: (a) COMNAVAIRFORINST 4790.2  
(b) OPNAVINST 3750.6R w/Ch 4

Encl: (1) TFOA Analysis Checklist

1. Situation. To provide policy and procedural guidance for the establishment of a program to improve TFOA awareness and prevent its occurrence.

2. Cancellation. WgO 4790.12E.

3. Mission. This Order establishes the TFOA Program in conjunction with the requirements set forth in the references with the goal of increased awareness and promoting prevention.

4. Execution

a. Commander's Intent and Concept of Operations

(1) Commander's Intent All aviation commanders within Second Marine Aircraft Wing (2d MAW) shall establish formal TFOA Programs empowering and requiring officers and staff non-commissioned officers to increase awareness and promote the prevention of TFOA incidents.

(2) Concept of Operations

(a) Maintenance and Safety Departments shall integrate their effort to identify and report discrepancies and to track TFOA trends.

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(b) Each level of command involved in operating or maintaining aircraft shall assign an Officer to serve as the TFOA Program Manager and a qualified Staff Non-Commissioned Officer (SNCO) to serve as the TFOA Program Coordinator.

(c) TFOA Program Managers and Coordinators shall reduce human error by taking appropriate actions to reduce or eliminate TFOA incidents through training of personnel and identification of material deficiencies.

(d) All levels of command shall attempt to correct material deficiencies and elevate deficiencies that cannot be resolved to the Aviation Logistics Department of 2d MAW.

(e) The Joint Discrepancy Reporting System (JDRS) is the official system for documentation of TFOA and can be found at <https://jdrs.mil>. In-Service Support Centers (ISSC) use this tool to respond with analysis of each incident. JDRS shall be used to the maximum extent possible for squadron, Marine Aircraft Group (MAG), and 2d MAW documentation and trend analysis efforts in order to maintain the integrity and dissemination of all pertinent facts in one location.

(f) The Advanced Skills Management (ASM) organizational and intermediate-level Training Action Plans (TAP) developed by the 2d MAW TFOA Coordinator shall be used to provide indoctrination and follow-on training.

(g) Enclosure (1) shall be used to inform trend analysis efforts at all levels.

b. Subordinate Element Missions

(1) The 2d MAW Aircraft Maintenance Officer (AMO) is assigned as the 2d MAW TFOA Program Manager and shall:

(a) Serve as the primary point of contact on TFOA issues.

(b) If specific lessons learned reveal the need for immediate modification of guidance contained in this order, publish a 2d MAW Maintenance Gram to implement improvement.

(c) Assign a qualified Staff Non-Commissioned Officer (SNCO) to serve as the 2d MAW TFOA Program Coordinator.

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(d) Ensure the Aviation Logistics Management Assist Team (ALMAT) evaluates TFOA during all Maintenance Program Assist (MPA) visits and Aircraft Maintenance Inspections (AMI).

(2) The 2d MAW TFOA Program Coordinator shall:

(a) Incorporate TFOA Program questions into the Computerized Self Evaluation Checklist (CSEC) for the Foreign Object Debris Prevention, Quality Assurance Audit, and Plane Captain Qualification Programs/Areas.

(b) Review CSEC questions quarterly and update as required.

(c) During ALMAT AMIs and MPAs, evaluate at least two aircraft inspections for TFOA awareness by personnel. Using either the daily, turnaround, pre-flight, or post flight inspections are acceptable. The individual performing the inspection shall be evaluated for understanding of the impact of vibration, airstream, aging components, panel integrity, and proper use/material condition of fasteners. Documentation of this evaluation requirement shall be documented in the CSEC write-up provided to the squadron.

(d) Establish a Joint Discrepancy Reporting System (JDERS) account and ensure all Hazardous Material/TFOA (HMR/TFOA) reports are reviewed daily (an automated process exists to auto forward these reports to the individuals e-mail).

(e) Maintain TFOA documentation to include:

1. All current TFOA Watch Lists.
2. Copies of each HMR/TFOA report.
3. Other pertinent documentation.

(f) Review all source documentation and trend analysis in order to brief the TFOA Program Manager on recommended courses of action to correct negative trends.

(g) Assist with ISSC coordination when trend analysis reveals material shortcomings.

(h) Assess each HMR/TFOA report for the possibility that vibration was a contributing factor. If vibration is suspect, ensure ISSC provides analysis and feedback on vibration.

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(i) Assist as required in the development and coordination of TFOA specific training within the Aviation Training System (ATS).

(j) Publish and maintain a 2d MAW TFOA Program Indoctrination TAP in ASM to be used by each unit's TFOA Program Manager or Coordinator to provide indoctrination training to all maintenance personnel and aircrew.

(3) The 2d MAW Department of Safety and Standardization (DOSS) shall: Use the ATS to develop and implement a TFOA Prevention course at each Marine Aviation Training System Site (MATSS) within 2d MAW. This training shall:

(a) Instruct maintenance personnel on the inspection of the exterior of aircraft with a focus on TFOA prone areas for their specific T/M/S.

(b) Instruct aircrew on the inspection of the exterior of aircraft and TFOA prone areas, and ensuring the security of cargo and other gear not securely fastened to the aircraft (e.g. Cases, night vision goggles, and palletized cargo).

(4) The 2d MAW Aviation Supply Officer shall: Work with subordinate Marine Aviation Logistics Squadrons (MALs), research and resolve critical vulnerabilities in the supply system that:

(a) Because of shortages result in technicians using incorrect fasteners.

(b) Indicate materials do not meet the design specifications required for a given application when the correct fastener is used.

(5) Marine Aircraft Group (MAG) Commanders shall:

(a) Publish a TFOA order requiring:

1. The MAG TFOA Program Manager publish a standardized TFOA Watch List for each T/M/S within the MAG.

2. The MAG DOSS:

a. Analyze each TFOA incident and perform

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immediate trend analysis with a special focus on human error or material factors.

b. Work with the local MATSS to initiate and update TFOA training as trend analysis uncovers causes and proposes solutions.

c. Conduct a quarterly trend analysis of TFOA incidents.

d. Forward all trend analysis to the 2d MAW DOSS, TFOA Program Manager, and TFOA Program Coordinator.

e. Conduct an annual review of TFOA incidents within the MAG and submit a synopsis to 2d MAW TFOA Program Coordinator emphasizing unresolved issues where 2d MAW Aviation Logistics Department can assist.

(b) Directing each subordinate squadron to aggressively pursue TFOA reduction and share best practices with the MAG and Wing for inclusion into the appropriate order.

(6) The MALS, Aircraft Maintenance Officers shall:

(a) Assign the MALS Quality Assurance Officer as the MAG TFOA Program Manager.

(b) Assign a SNCO as the MAG TFOA Program Coordinator to coordinate the efforts of the TFOA Program.

(c) Ensure all Intermediate Maintenance Activity, Avionics, and Ordnance personnel receive TFOA Program indoctrination. This shall be completed using the TFOA Program Indoctrination TAP in ASM via the work-center supervisor.

(7) The MAG TFOA Program Manager shall:

(a) Monitor the MALS Aircraft Material Condition Inspection Program, and concentrated efforts toward areas prone to TFOA incidents to include evaluation of fastener control, corrosion control, and general condition of the aircraft.

(b) The program manager shall coordinate with the 2d MAW TFOA Program Manager and Coordinator on all TFOA issues, monitor TFOA incidents within the MAG and publish a consolidated

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watch list of TFOA prone areas by aircraft Type/Model/Series (T/M/S).

(c) Schedule and conduct quarterly meetings on the TFOA Program and provide the minutes of the meetings to the 2d MAW TFOA Program Coordinator.

(8) Commanding Officers of Squadrons Operating Aircraft Shall:

(a) Schedule, plan, and execute weekly aircraft inspections.

1. To be performed jointly by an aviator, Collateral Duty Inspector, and a qualified plane captain. Inspections shall be detailed and include a close examination of every component, antenna, panel, door, and fastener that could cause a TFOA incident.

2. Once per quarter, squadrons are encouraged to exchange either the aviator or plane captain with another command within the MAG in order to share best practices.

3. Squadrons shall establish an inspection interval that ensures each in-reporting-status aircraft is inspected every seven days.

4. All inspections shall be documented in Optimized Organizational Maintenance Activity (OOMA):

a. As "Conditional Inspections" in accordance with reference (a).

b. The name of the participating aviator shall be entered in the "Corrective Action" block.

c. Discrepancy work orders shall be written on all noted discrepancies.

d. In accordance with reference (a), paragraph 5.2.1.14.2.5 logging of these specific inspections on the OPNAV 4790/22A Inspection Record are hereby waived by the Commanding General.

e. Automated logbook entries in OOMA are permitted to be created on the automated Inspection Record.

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(b) Direct the squadron AMO to designate:

1. An officer to serve as the squadron TFOA Program Manager.
2. A SNCO to serve as the TFOA Program Coordinator.
3. The FOD Program Monitor to serve as the TFOA Program Monitor.

(c) Direct and ensure all aircrew receive TFOA indoctrination and recurring follow-on training.

(9) Organizational Level TFOA Program Managers and Coordinators Shall:

(a) Ensure TFOA Program Manager and Monitor are familiar with reporting requirements of references (a) and (b).

(b) Attend quarterly TFOA Program meetings conducted by the MAG.

(c) Ensure each maintenance technician assigned receives TFOA indoctrination. Indoctrination shall be completed using the TFOA Program Indoctrination TAP in ASM.

(d) In addition to indoctrination training, ensure all maintenance technicians attend MATSS TFOA training within 60 days of assignment (when formal classes are implemented by MATSS). Personnel assigned prior to the commencement of MATSS training being established are exempt from the 60 day requirement; however, commanders are encouraged to ensure maximum participation in this training.

(e) Re-indoctrinate all Plane Captain, Collateral Duty Inspector, Collateral Duty Quality Assurance Representative, and Quality Assurance Representative trainees using the TFOA Program Indoctrination TAP in ASM, focusing on the specific responsibilities of the new billet. This shall be completed prior to the individual receiving the new designation.

(f) When a Marine Expeditionary Unit (MEU) composites, the Quality Assurance Division of the command being joined shall conduct a TFOA brief for all hands covering the watch lists of all assigned T/M/S using the TFOA Program Indoctrination TAP in ASM.

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(g) Ensure all HMR/TFOA reports in JDRS lists "CG SECOND MAW//ALD//", as well as each MAG, MALS, and Marine Corps squadrons operating the same T/M/S (including MEU) as info addressees.

(h) Use enclosure (1) to perform trend analysis of each TFOA within five working days after the incident. The TFOA Program Coordinator shall provide detailed explanations and include additional comments/analysis in order to identify causal factors, recommend corrective actions, and provide feedback to the MAG DOSS and 2d MAW TFOA Coordinator.

1. Technical Dialogue within JDRS shall be used to the maximum extent possible for correspondence.

2. Coordinate with the 2d MAW TFOA Program Coordinator to apply lessons learned and implement process improvements.

(k) Provide all aircrew with TFOA indoctrination and recurring follow-on training.

5. Administration and Logistics. Recommendations concerning the contents of this Order may be forwarded to CG, 2d MAW via the appropriate chain of command.

6. Command and Signal

a. Command. This Order is applicable to all 2d MAW flying units and MALS.

b. Signal. This Order is effective date signed.

  
R. W. REGAN  
Chief of Staff

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## TFOA Analysis Checklist

Were any of the following a factor (if yes explain)?

1. Vibration (yes/no)?
2. Airstream (yes/no)?
3. Improper fastener use (yes/no)?
4. Maintenance history of last 10 flights:
  - a. TFOA related to a maintenance action (yes/no)?
  - b. QA/CDI in-processes complete and documented (yes/no)?
  - c. Last TFOA conditional inspection date: \_\_\_\_\_
5. Fastener use:
  - a. Does squadron have a proactive approach to identifying and replacing aged fasteners that have a high remove/reinstall cycle count (yes/no)?
  - b. Can age of fastener(s) be determined by reviewing maintenance history (OOMA/Deckplate search) (yes/no)?
  - c. Was fastener installed with proper torque (yes/no/unk)?
6. Does T/M/S history indicate this item is a trend (yes/no)?
7. Aircraft inspection history:
  - a. Plane captain(s) that performed daily/turnaround, name and last PC monitor date:
  - b. Has individual been involved in other TFOA (yes/no)?
8. Has the ISSC taken enough action on material factors (yes/no)?
9. Has training been implemented for human factors (yes/no)?
10. Additional comments/concerns:

**This document will be submitted as a technical dialog to the original HMR/TFOA on JDRS.mil. Addressed to the 2D MAW ALD, MAG, MALS (all with cognizance over that T/M/S) and list all T/M/S squadrons as information addressees.**

Enclosure (1)