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FLIGHT SAFETY FOR THE CANADIAN FORCES

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LIST OF AMENDMENTS

Refer to the DFS Internet and Intranet websites for the list of amendments. It is the responsibility of the owner of this publication to keep it current. Insert latest changed pages; dispose of superseded pages in accordance with applicable orders.

NOTE

Zero in Change No. column of the list of effective pages indicates an ORIGINAL page.

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CHAPTER 1 – PROGRAM DESCRIPTION

GENERAL

1. The Flight Safety (FS) Program is a force enabler for the Canadian Forces. FS contributes to mission accomplishment in the DND / CF through the elimination of the accidental loss of aviation resources.
2. Orders and standards for operational and support personnel are, for the most part, developed out of concern for the safety of people and equipment. These standards represent levels of risk which are considered acceptable and practical for the full spectrum of DND / CF activities from peacetime training to wartime operations. It is understood that Commanders (Comds) in high intensity wartime action are likely to accept higher levels of risk than those considered acceptable in peacetime force generation activities. Risk management in the planning and execution of the DND / CF mission is fundamental to safe operations.

DEFINITIONS

OPERATING UNIT

3. This term refers to the unit under whose authority a flight has been authorized in accordance with B-GA-100-001/AA-000, National Defence Flying Orders.

AIR WEAPONS CAPABLE WING / UNIT

4. A wing / unit which uses ammunition, explosives and / or pyrotechnics in support of its role.

AIR WEAPONS SYSTEM

5. A system containing armament computers, mechanical, electromechanical and electronic components, that is part of the aircraft permanent equipment or installed as a mission kit and is used to suspend, launch, release or fire ammunition / explosives and / or pyrotechnics in support of the mission being flown.

AIR WEAPONS

6. Air Weapons are any ammunition, explosives and/or pyrotechnics suspended, launched, released or fired from an aircraft. It includes any aircraft store (see below) that interfaces with the Air Weapons System, it includes bombs, missiles, torpedoes, flares, pyrotechnics, SKADs (excluding the SKADs dropped as cargo), chaff and flares, releasable external fuel tanks from the time the load starts to the time it is unloaded from the aircraft, sonobuoys, and airborne targets and banners; etc. This shall apply to both live and training weapons.

- a. **Aircraft store**. Aircraft Store is any device intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the item is intended to be separated in flight from the aircraft. Aircraft stores are classified in two categories as follows:

- (1) **Expendable store**. Expendable store is an aircraft store normally separated from the aircraft in flight such as a missile, rocket, bomb, mine, torpedo, pyrotechnic device, sonobuoy, signal underwater sound device, survival kit (SKAD) or other similar items.

- (2) Non-expendable. store Non-expendable store is an aircraft store that is not normally separated from the aircraft in flight such as a tank (fuel or spray), pod (refuelling, thrust augmentation, gun, electronic countermeasures, target designator, etc), multiple racks, target, cargo drop container, luggage/equipment carrier (Pannier), drone or other similar items.

NOTE

Aircraft fire detection and extinguishing systems, ejection and escape explosive charges, shielded mild detonating cord (SMDC) lines and aircraft hoisting systems are not considered Air Weapons. Although they all contain explosives, they do not interface with the armament system and are not considered Air Weapons therefore no armament implications.

PYROTECHNIC

7. A chemical mixture of oxidizing and reducing agent capable of reacting exothermically. Such mixtures are used to produce light, heat, smoke or gas and may also be used to introduce delays into explosive trains.

AIM

8. The aim of the FS Program is to prevent accidental loss of aviation resources while accomplishing the mission at an acceptable level of risk.

SCOPE

9. The FS Program is a program of education, promotion and analysis. It is directed at military and civilian personnel involved in Canadian Forces aviation and its contracted support elements. Since understanding why safety occurrences happen is the key to an effective accident prevention program, accidents and incidents representing a risk to aviation, or which could lead to the implementation of preventive measures (PMs), should be investigated.

10. The whole FS Program is based on the primacy of having a “just culture”. A “just culture” lies between a non-punitive culture and one of sanction and punishment. Free and open sharing of critical safety information between managers and operational personnel, without the threat of punitive action, represents the basis of a reporting culture. Personnel are able to report occurrences, hazards or safety concerns as they become aware of them, without fear of sanction or embarrassment. However, while a non-punitive environment is fundamental for a good reporting culture, the workforce must know and agree on what is acceptable and what is unacceptable behaviour. Negligence or wilful, deliberate deviations must not be tolerated by leadership. A “just culture” recognizes that, in certain circumstances, there may be a need for punitive action and defines the line between acceptable and unacceptable actions or activities.

POLICY

11. The Canadian Forces shall conduct flying operations in accordance with this publication. An FS Program consistent with the roles and missions of the DND / CF shall be established at each level of

command where flying operations are supervised or supported. Personnel at every level are required to participate in and support the program.

FUNDAMENTAL PRINCIPLES

12. The FS Program is based on the following four fundamental principles:

- a. the main focus of the FS Program is on the prevention of occurrences. Although cause factors are assigned to occurrences, this is only done to assist in the development of effective PMs;
- b. personnel involved in conducting and supporting flying operations are expected to freely and openly report all FS occurrences and FS concerns;
- c. in order to determine the cause of occurrences such that appropriate, effective PMs can be developed and implemented, personnel involved in conducting and supporting flying operations are expected to voluntarily acknowledge their own errors and omissions; and
- d. in order to facilitate free and open reporting and voluntary acknowledgement of errors and omissions, the FS Program does not assign blame. Personnel involved in a FS occurrence are de-identified in the final reports and the reports themselves cannot be used for legal, administrative, disciplinary or other proceedings.

UNIVERSALITY OF FS PROGRAM

13. The Chief of the Air Staff (CAS) has been designated as the Airworthiness Authority (AA) for DND / CF. CAS retains as a residual responsibility the oversight of the FS Program across the full spectrum of DND / CF operations, at home or abroad. Therefore, the FS Program is applicable to:

- a. all DND / CF units conducting flying operations or supporting flying operations; and
- b. any contracted organizations conducting or supporting flying operations, be it for maintenance support, logistics support or any other support role.

AIR WEAPONS SAFETY

14. The FS Program encompasses all maintenance and operational air weapons activities, including flying operations, from the moment that air weapons are removed from storage until they are delivered on target or are returned to storage. The Safety Orders for Canadian Forces Air Weapons Systems (B-GA-297-001/TS-000) remains the primary reference for all other air weapons related issues. All wings and units with an air weapons capability shall ensure that their FS Program encompasses air weapons safety (AWS) requirements.

RESPONSIBILITY FOR FS PROGRAM

OVERALL RESPONSABILITY

15. The FS Program is based on the continuous monitoring of hazards, appropriate investigation of aviation safety occurrences and thorough analysis of the investigation findings so that the risk of recurrence can be reduced. The complete program involves pre-occurrence activities like education and promotion; PMs and risk management techniques designed to reduce the chances of an occurrence; and post-occurrence activities including occurrence response procedures, investigations, occurrence analysis and feedback. Early involvement in capital acquisition projects is essential to ensure FS issues are considered in major equipment procurements

16. CAS is responsible for FS policy in DND / CF. FS policy is implemented by the chain of command at wings, bases and units. This policy also applies to National Defence Quality Assurance Regions (NDQAR) and work centres at contractor facilities where CF aircraft are being manufactured, overhauled, inspected or repaired. Supervisors at all levels are responsible for establishing their own FS Programs.

INDIVIDUAL RESPONSIBILITIES

17. The success of the FS Program is reliant upon “buy in” and a commitment to the program by all personnel associated with DND / CF flying operations. This commitment can only materialize if all personnel believe in the value of the program and understand that they have a responsibility to actively participate in flight safety. In order to facilitate this, the individual shall be able to report any flight activity concerns and occurrences or propose better ways of doing business without fear of retribution.

18. Personnel are responsible for:

- a. immediately ceasing unsafe activities under one’s direct control;
- b. notifying their supervisor and the FSO of the unsafe activity; and
- c. formally identifying and reporting hazards.

UNIT RESPONSIBILITIES

19. The FS Program is designed to ensure that DND / CF flying activities remain safe while remaining operationally focused. The scope of the FS Program shall be such that individuals belonging to an organization conducting or supporting air operations will have a structured FS Program in place. Every unit conducting or supporting air operations shall have a flight safety program.

MANAGEMENT RESPONSIBILITIES

20. The management responsibilities are as follows:

- a. immediately ceasing activities that are deemed unsafe or where an UNACCEPTABLE risk exists;

NOTE

It is the responsibility of each individual to cease unsafe activities, regardless of rank or position in the organization.

- b. notifying higher authorities of UNACCEPTABLE risks and the actions taken to mitigate them or of the need to seek additional resources to mitigate them;
- c. reviewing and accepting / rejecting the risk as per the auth delegated from AA, OAA and TAA;
- d. establishing the unit’s risk control strategy;
- e. measuring and reporting on the effectiveness of risk management activities within the unit; and
- f. promoting risk management activities at the unit and formation level.

FSO RESPONSIBILITIES

21. The FSO is responsible for:
- a. consulting and being aware of the unit's risk assessment criteria; and
 - b. immediately notifying the CO of any unsafe activities and unacceptable risks. In these cases the FSO must seek an order from an appropriate authority to cease the activity until the problem can be assessed and either resolved or mitigated to an acceptable level.

AIRWORTHINESS RISK MANAGEMENT

FS RISK DEFINITION

22. A FS risk is defined as a possibility of injury, illness or loss measured according to the probability and severity of an adverse effect on health, property or safety of flight.

AIRWORTHINESS PROGRAM PRINCIPLES

23. The DND / CF Airworthiness Program is based on the fundamental principles that airworthiness-related activities are:

- a. completed to accepted standards;
- b. performed by authorized individuals;
- c. accomplished within accredited organizations; and
- d. performed using approved procedures.

AIRWORTHINESS PROGRAM ROLES

24. A regulatory approach is the most common method employed to implement. A regulatory approach means to control by rule and involves using regulations, orders, directives and standards to control airworthiness-related activities. A regulatory approach for controlling airworthiness activities has the following three distinct roles:

- a. Regulator. The regulator develops the airworthiness instrument (rules and standards) for the engineering, manufacture, maintenance, materiel support and operation of aeronautical products and ensures compliance (e.g. Transport Canada for civil aviation);
- b. Implementer. The implementer conducts the aviation activities associated with the engineering, manufacture, maintenance, materiel support and operation of aeronautical products (e.g. airlines, manufacturers and maintenance organizations for civil aviation); and
- c. Investigator. The investigator investigates airworthiness-related safety occurrences and aviation safety issues. The investigator is normally independent from the regulator and implementer. The investigator is also empowered to investigate the role that the regulator and implementer may have had in any aviation occurrence (e.g. Transportation Safety Board (TSB) for civil aviation).

25. Unlike civil aviation, where the airworthiness regulator, implementer and investigator are totally independent, the Aeronautics Act has assigned DND a self-regulating and self-investigating responsibility for airworthiness.

RESPONSIBILITY FOR ACCEPTING RISKS

26. The ARM process ensures that conflicts between aviation safety mission accomplishment and resource expenditures are balanced. As promulgated in A-AG-005-000/AG-001 – DND / CF Airworthiness Program (to be published), overall responsibility for managing risks rests with COs, DND / CF managers at all levels, and designated contractor representatives. The identification / recognition of hazards is a responsibility shared by all DND / CF personnel or supporting personnel.

27. Due to the inherent dangers associated with operating military aircraft, a certain acceptance of safety risks is often required. The decision to accept risk must be controlled, balanced and approved at the appropriate level. The airworthiness risk management (ARM) process provides a logical and systematic means of identifying and controlling safety risks in the decision-making process.

28. Aviation safety-related risk is a primary concern of the Airworthiness Program. Other forms of risk, such as operational, financial and legal, may also be factors in any decision-making process and may at times conflict with aviation safety goals. The ARM process provides a means to assess and proactively balance airworthiness risk against both mission accomplishment and available financial resources. All personnel associated with aviation - from the pilot-in-command (PIC) of an aircraft to the technician troubleshooting an unserviceability on the hangar floor - will be required to make a decision, at some point, involving some degree of airworthiness risk assessment. Adoption of a standardized ARM methodology enhances the quality of these decisions.

AIRWORTHINESS PROGRAM AUTHORITIES

29. The Airworthiness Program contributes to aviation safety by influencing areas related to aeronautical products and their operation. The DND / CF Airworthiness Program is mandated by the Minister of National Defence (MND) as detailed in DAOD 2015-0 (Draft) and DAOD 2015-1 (Draft) and amplified in A-GA-005-000/AG-001 – DND / CF Airworthiness Program. The elements of an effective airworthiness program consist of a full range of aviation activities including design, manufacture, maintenance, materiel support, facilities, personnel and operations.

30. Under the provisions of the Aeronautics Act, the MND delegates powers and responsibilities to the Airworthiness Authority, Technical Airworthiness Authority, Operational Airworthiness Authority and Airworthiness Investigative Authority. These roles and responsibilities are described in A-GA-005-000/AG-001 – DND / CF Airworthiness Program. Their roles and responsibilities are summarized below.

AIRWORTHINESS AUTHORITY (AA)

31. The AA is responsible for the development, promotion, supervision and management of an Airworthiness Program for the DND / CF. This includes the appointment of competent individuals to fill the positions of Operational Airworthiness Authority and Investigative Airworthiness Authority, described below, and in consultation with the Assistant Deputy Minister (Materiel) (ADM (Mat)), the appointment of a competent individual as Technical Airworthiness Authority. The CAS is the AA for DND / CF.

TECHNICAL AIRWORTHINESS AUTHORITY (TAA)

32. The TAA is responsible for the regulation of the technical airworthiness aspects of the design, manufacture, maintenance and materiel support of aeronautical products and the determination of the airworthiness acceptability of those products prior to operational service. The Director General of Aero-

space Equipment and Program Management (DGAEPM) is the TAA for DND / CF.

OPERATIONAL AIRWORTHINESS AUTHORITY (OAA)

33. The OAA is responsible for the regulation of all flying operations. This includes responsibility for operational procedures; flight standards; operator training, qualification and licensing; aerospace control operations; and operational airworthiness clearance of aeronautical products prior to operational service. The Comd of 1 Canadian Air Division (Comd 1 Cdn Air Div) is the OAA for DND / CF.

AIRWORTHINESS INVESTIGATIVE AUTHORITY (AIA)

34. The AIA is responsible for regulating the airworthiness aspects of the FS Program. The AIA is also responsible for the investigation of airworthiness-related occurrences and for monitoring the Technical and Operational Airworthiness Programs to identify deficiencies. DFS is the AIA for DND / CF.