National Defence Défense nationale

A-GA-135-003/AG-001

AIRWORTHINESS INVESTIGATION MANUAL (AIM)

For The Department of National Defence and the Canadian Forces (DND / CF)

26 November 2009

Canada

FOREWORD

1. The Airworthiness Program for the Department of National Defence and the Canadian Forces (DND/CF) was established by the Minister of National Defence (MND) on 18 September 1998. This program is designed to assist the MND in meeting national and international obligations for airworthiness management of military aviation as outlined in the *Aeronautics Act*. This legislation charges the MND with “regulation of aeronautics and supervision of all matters connected with aeronautics” for all military aeronautical products in Canada. This includes both the aeronautical products of DND/CF operating on a worldwide basis as well as those of visiting forces while operating in Canada.

2. The aim of the DND/CF Airworthiness Program is to ensure that an acceptable level of aviation safety is achieved and maintained for military aviation. In order to achieve this mandate, the DND/CF Airworthiness Program established a management accountability framework, which consists of an Airworthiness Authority (AA), a Technical Airworthiness Authority (TAA), an Operational Airworthiness Authority (OAA) and an Airworthiness Investigative Authority (AIA), as well as two specialist advisors; the Aerospace Medical Authority (AMA) and the Flight Test Authority (FTA). Furthermore, the program tasks the AA, the TAA, the OAA and the AIA to establish airworthiness instruments, which may include regulations, for their areas of responsibility.

3. The objective of this Airworthiness Investigation Manual (AIM) is to delineate AIA policies. It also outlines the basis for AIA standards, procedures and instructions and details how the AIA interacts within DND/CF and with persons, agencies, companies or authorities outside of DND/CF. This Manual expands on Defence Administrative Orders and Directives (DAODs 2015-0 & 2015-1) and is designed to complement the A-GA-005-000/AG-001 (DND/CF Airworthiness Program), the A-GA-135-001/AA-001 (Flight Safety Program for the Canadian Forces) and the A-GA-135-002/AA-001 (Occurrence Investigation Techniques for the Canadian Forces).

4. Enquiries or proposed amendments should be directed to Directorate Flight Safety 2 (DFS 2).

DISTRIBUTION LIST

1 AIR MAINTENANCE SQUADRON

1 CANADIAN AIR DIVISION HEADQUARTERS DETACHMENT - REGIONAL AIR COMPONENT ELEMENT PACIFIC

1 CANADIAN AIR DIVISION CONTINGENCY CAPABILITY CENTRE

1 CANADIAN AIR DIVISION HEADQUARTERS DETACHMENT - REGIONAL AIR COMPONENT ELEMENT ATLANTIC

1 CANADIAN AIR DIVISION HEADQUARTERS DETACHMENT LFAA

1 CANADIAN AIR DIVISION HEADQUARTERS DETACHMENT OTTAWA

1 CANADIAN AIR DIVISION HEADQUARTERS FIGHTER STANDARDS EVALUATION TEAM DETACHMENT COLD LAKE

1 CANADIAN AIR DIVISION HEADQUARTERS MARITIME HELICOPTER STANDARDS EVALUATION TEAM DETACHMENT SHEARWATER

1 CANADIAN AIR DIVISION HEADQUARTERS MARITIME STANDARDS EVALUATION TEAM DETACHMENT GREENWOOD

1 CANADIAN AIR DIVISION HEADQUARTERS TACTICAL AVIATION STANDARDS EVALUATION TEAM DETACHMENT KINGSTON

1 CANADIAN AIR DIVISION HEADQUARTERS TRANSPORT STANDARDS EVALUATION TEAM DETACHMENT TRENTON

1 CANADIAN AIR DIVISION HEADQUARTERS// COMD

1 CANADIAN AIR DIVISION HEADQUARTERS// DFSO

1 CANADIAN MECHANIZED BRIGADE GROUP HEADQUARTERS AND SIGNAL SQUADRON

1 WING HEADQUARTERS DETACHMENT CMTC WAINWRIGHT

1 WING HEADQUARTERS DETACHMENT EDMONTON

1 WING HEADQUARTERS DETACHMENT GAGETOWN

1 WING HEADQUARTERS DETACHMENT PETAWAWA

1 WING HEADQUARTERS

10 FIELD TECHNICAL TRAINING SQUADRON

103 SEARCH AND RESCUE SQUADRON

12 AIR MAINTENANCE SQUADRON

12 WING HEADQUARTERS

14 AIR MAINTENANCE SQUADRON

14 WING

15 WING

16 WING

17 WING

19 AIR MAINTENANCE SQUADRON

19 WING

2 CANADIAN FORCES FLYING TRAINING SCHOOL

21 AEROSPACE CONTROL AND WARNING SQUADRON

22 WING

29 AEROSPACE CONTROL SQUADRON

3 AIR MAINTENANCE SQUADRON

3 CANADIAN FORCES FLYING TRAINING SCHOOL

3 WING

4 WING

400 TACTICAL HELICOPTER SQUADRON

402 SQUADRON

403 HELICOPTER OPERATIONAL TRAINING SQUADRON

404 MARITIME PATROL AND TRAINING SQUADRON

405 MARITIME PATROL SQUADRON

406 MARITIME OPERATIONAL TRAINING SQUADRON

407 MARITIME PATROL SQUADRON

408 TACTICAL HELICOPTER SQUADRON

409 TACTICAL FIGHTER SQUADRON

410 TACTICAL FIGHTER OPERATIONAL TRAINING SQUADRON

412 TRANSPORT SQUADRON

413 TRANSPORT AND RESCUE SQUADRON

417 COMBAT SUPPORT SQUADRON

419 TACTICAL FIGHTER TRAINING SQUADRON

42 RADAR SQUADRON

423 MARITIME HELICOPTER SQUADRON

424 TRANSPORT AND RESCUE SQUADRON

425 TACTICAL FIGHTER SQUADRON

426 TRANSPORT TRAINING SQUADRON

427 TACTICAL HELICOPTER SQUADRON

430 TACTICAL HELICOPTER SQUADRON

431 AIR DEMONSTRATION SQUADRON

435 TRANSPORT AND RESCUE SQUADRON

436 TRANSPORT SQUADRON

437 TRANSPORT SQUADRON

438 TACTICAL HELICOPTER SQUADRON

439 COMBAT SUPPORT SQUADRON

440 TRANSPORT SQUADRON YELLOWKNIFE

442 TRANSPORT AND RESCUE SQUADRON

443 MARITIME HELICOPTER SQUADRON

444 COMBAT SUPPORT SQUADRON

5 WING GOOSE BAY

51 AEROSPACE CONTROL AND WARNING OPERATIONAL TRAINING SQUADRON

8 AIR MAINTENANCE SQUADRON

8 WING

9 WING

AEROSPACE AND TELECOMMUNICATIONS ENGINEERING SUPPORT SQUADRON (ATESS)

AEROSPACE ENGINEERING TEST ESTABLISHMENT

BELL HELICOPTER

BRISTOL AEROSPACE LTD

CANADA COMMAND HEADQUARTERS

CANADIAN COMPONENT 552 AIR CONTROL WING

CANADIAN COMPONENT NATO AIRBORNE EARLY WARNING FORCE

CANADIAN CONTINGENT ALASKAN NORAD REGION HEADQUARTERS

CANADIAN CONTINGENT ALASKAN NORAD REGION HEADQUARTERS

CANADIAN EXPEDITIONARY FORCE COMMAND HEADQUARTERS
CANADIAN FLEET ATLANTIC HEADQUARTERS
CANADIAN FLEET ATLANTIC
CANADIAN FLEET PACIFIC
CANADIAN FLEET PACIFIC HEADQUARTERS
CANADIAN FORCES AIR NAVIGATION SCHOOL
CANADIAN FORCES COLLEGE
CANADIAN FORCES ENVIRONMENTAL MEDICINE ESTABLISHMENT
CANADIAN FORCES JOINT HEADQUARTERS
CANADIAN FORCES NAVAL OPERATIONS SCHOOL HALIFAX
CANADIAN FORCES SCHOOL OF AEROSPACE CONTROL OPERATIONS
CANADIAN FORCES SCHOOL OF AEROSPACE TECHNOLOGY AND ENGINEERING
CANADIAN LAND FORCE COMMAND AND STAFF COLLEGE
CANADIAN SPECIAL OPERATIONS FORCES COMMAND HEADQUARTERS
CANADIAN SPECIAL OPERATIONS REGIMENT
CASCADE AEROSPACE
CENTRAL FLYING SCHOOL
CF-18 WEAPON SYSTEM MANAGER DETACHMENT MIRABEL
COLD LAKE AIR CADET SUMMER TRAINING CENTRE
CONUS NORAD REGION HEADQUARTERS
DEFENCE RESEARCH AND DEVELOPMENT CANADA - TORONTO
DEPUTY COMMANDER NORTH AMERICAN AEROSPACE DEFENCE COMMAND
FIELD AVIATION COMPANY INC.
HER MAJESTY'S CANADIAN SHIP ALGONQUIN
HER MAJESTY'S CANADIAN SHIP ATHABASKAN
HER MAJESTY'S CANADIAN SHIP CALGARY
HER MAJESTY'S CANADIAN SHIP CHARLOTTETOWN
HER MAJESTY'S CANADIAN SHIP FREDERICTON
HER MAJESTY'S CANADIAN SHIP HALIFAX
HER MAJESTY'S CANADIAN SHIP IROQUOIS
HER MAJESTY'S CANADIAN SHIP MONTREAL

HER MAJESTY'S CANADIAN SHIP OTTAWA

HER MAJESTY'S CANADIAN SHIP PRESERVER

HER MAJESTY'S CANADIAN SHIP PROTECTEUR

HER MAJESTY'S CANADIAN SHIP REGINA

HER MAJESTY'S CANADIAN SHIP ST JOHNS

HER MAJESTY'S CANADIAN SHIP TORONTO

HER MAJESTY'S CANADIAN SHIP VANCOUVER

HER MAJESTY'S CANADIAN SHIP VILLE DE QUEBEC

HER MAJESTY'S CANADIAN SHIP WINNIPEG

IMP GROUP LIMITED

JOINT RESCUE COORDINATION CENTRE HALIFAX

JOINT RESCUE COORDINATION CENTRE HALIFAX

JOINT RESCUE COORDINATION CENTRE TRENTON

JOINT RESCUE COORDINATION CENTRE VICTORIA

JOINT TASK FORCE (NORTH) HEADQUARTERS DETACHMENT NUNAVUT

JOINT TASK FORCE (NORTH) HEADQUARTERS DETACHMENT WHITEHORSE

JOINT TASK FORCE (NORTH) HEADQUARTERS

JOINT TASK FORCE (WEST) HEADQUARTERS

L-3 COMMUNICATIONS MAS (CANADA) INC.

MARITIME FORCE ATLANTIC HEADQUARTERS

MARITIME FORCES PACIFIC HEADQUARTERS

MARITIME PROVING AND EVALUATION UNIT

NATIONAL ARCHIVES OF CANADA

NATIONAL DEFENCE QUALITY ASSURANCE COASTAL AND NATIONAL CAPITAL REGION WORKCENTRE ENFIELD

NATIONAL DEFENCE QUALITY ASSURANCE ONTARIO AND PRAIRIES REGION WORKCENTRE MISSISSAUGA

NATIONAL DEFENCE QUALITY ASSURANCE REGION ONTARIO AND PRAIRIES CALGARY WORKCENTRE

NDHQ - LIBRARY

NDHQ - ASSISTANT DEPUTY MINISTER (MATERIEL)

NDHQ - CHIEF OF LAND STAFF

NDHQ - CHIEF OF THE AIR STAFF

NDHQ - CHIEF OF THE DEFENCE STAFF

NDHQ - CHIEF OF THE MARITIME STAFF

NDHQ - DIRECTOR CADETS

NDHQ - DIRECTOR FLIGHT SAFETY

NDHQ - DIRECTOR GENERAL AEROSPACE EQUIPMENT PROGRAM MANAGEMENT

NDHQ - DIRECTOR GENERAL MATERIEL SYSTEMS AND SUPPLY CHAIN

NDHQ - DIRECTOR QUALITY ASSURANCE

NDHQ - STRATEGIC JOINT STAFF

NDHQ - VICE CHIEF OF THE DEFENCE STAFF

QUALITY ASSURANCE WORKCENTRE EDMONTON

QUALITY ASSURANCE WORKCENTRE QUÉBEC

QUALITY ASSURANCE WORKCENTRE TRENTON

QUALITY ASSURANCE WORKCENTRE VANCOUVER

QUALITY ASSURANCE WORKCENTRE WINNIPEG

QUALITY ENGINEERING TEST ESTABLISHMENT

QUARTIER GENERAL DE LA FORCE OPERATIONNELLE INTERARMEES (CENTRE)

QUARTIER GENERAL DE LA FORCE OPERATIONNELLE INTERARMEES (PACIFIQUE)

REGIONAL CADET AIR OPERATIONS CENTRE (PACIFIC)

REGIONAL CADET SUPPORT UNIT (ATLANTIC)

REGIONAL CADET SUPPORT UNIT (CENTRAL)

REGIONAL CADET SUPPORT UNIT (EASTERN)

REGIONAL CADET SUPPORT UNIT (PACIFIC)

REGIONAL CADET SUPPORT UNIT (PRAIRIE)

REGIONAL GLIDING SCHOOL (ATLANTIC)

REGIONAL GLIDING SCHOOL (CENTRAL)

REGIONAL GLIDING SCHOOL (EASTERN)

REGIONAL GLIDING SCHOOL (PRAIRIE)

SEA TRAINING ATLANTIC

SEA TRAINING PACIFIC

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 indicates an ORIGINAL page. A black vertical line in the margin indicates the portion of the text affected by the latest change. Changes to illustrations are indicated by miniature pointing hands or black vertical lines. The use of the letter E or F indicates the change is in English or French only.

AMENDMENT	NUMBER	DATE
ORIGINAL	0	Nov 09
Change # 1		
Change # 2		
Change # 3		
Change # 4		
Change # 5		
Change # 6		
Change # 7		

LIST OF EFFECTIVE PAGES

The number 0 in the amendment number column indicates an original page.

SECTION#	AMENDMENT #	PAGE #	# of PAGES
Cover page	0		1
Foreword	0	i	1
Distribution List	0	ii to viii	7
List of amendments	0	ix	1
List of effective pages	0	x to xi	2
Table of contents	0	xii to xvi	5
Chapter 1	0	1 to 6	6
Chapter 2	0	7 to 9	3
Chapter 3	0	10 to 14	5
Chapter 4	0	15 to 24	10
Chapter 5	0	25 to 29	5
Chapter 6	0	30 to 35	6
Annex A	0	6A-1 to 6A-5	5
Annex B	0	6B-1 to 6B-10	10
Annex C	0	6C-1 to 6B-3	3
Chapter 7	0	36 to 38	3
Chapter 8	0	39 to 43	5
Chapter 9	0	44 to 48	5

SECTION#	AMENDMENT #	PAGE #	# of PAGES
Chapter 10	0	49 to 51	3
Chapter 11	0	52 to 55	4
Chapter 12	0	56 to 60	5
		This publication contains	**95**

Publication OPI: DFS 2, NDHQ Ottawa/CAS/DFS, dfs.dsv@forces.gc.ca. Please report any errors or omissions to the publication OPI.

TABLE OF CONTENTS

CHAPTER 1

DND/CF AIRWORTHINESS PROGRAM

GENERAL

1. The *Aeronautics Act* governs aviation activities in Canada. This legislation applies to two federal ministers; the Minister of Transport and the Minister of National Defence (MND). The *Aeronautics Act* charges the respective Ministers with responsibility "for development and regulation of aeronautics and supervision of all matters connected with aeronautics" with the scope that applies to "all aeronautical products and other things in Canada, to all persons outside Canada who hold Canadian aviation documents and to all Canadian aircraft and passengers and crew members thereon outside Canada." Further, the MND is charged with these responsibilities for "military personnel or a military aircraft, military aerodrome or military facility of Canada or a foreign state (while operating in Canada)". In order to fulfill the MND's obligations with respect to this responsibility, the Department of National Defence and the Canadian Forces (DND/CF) established an Airworthiness Program. The objective of this chapter is to briefly outline the DND/CF Airworthiness Program.

BACKGROUND

2. Prior to the DND/CF Airworthiness Program, an internal 1993 audit by the Chief of Review Services identified deficiencies that showed the need for the creation of a more structured DND/CF Airworthiness Program. Some of the specific concerns were:

a. the MND's national and international airworthiness obligations for military aviation were not being met;

b. the MND had not delegated any of his airworthiness responsibilities;

c. there was no airworthiness management accountability framework; and

d. DND/CF airworthiness rules and standards were not harmonized with Transport Canada (TC) and the manner in which civilian contractors, who were supporting CF flying operations, could perform various airworthiness activities was unclear.

3. In response to these concerns, the MND directed that a structured DND/CF Airworthiness Program be developed and the Concept Paper for a DND/CF Airworthiness Program was approved on 16 September 1998.

DND/CF AIRWORTHINESS PROGRAM

4. The DND/CF Airworthiness Program is based upon airworthiness management concepts used world wide by military and civil airworthiness authorities, while being tailored to meet the unique needs of the DND and the CF. It is based on the fundamental principles that

airworthiness-related activities are completed to accepted standards, performed by authorized individuals, accomplished within accredited organizations, and done using approved procedures.

5. The objective of the DND/CF Airworthiness Program is to achieve and maintain an acceptable level of safety for military aviation.

6. The concepts that govern the DND/CF Airworthiness Program are that it must:

a. document formally and control assignment of authority, including the associated responsibilities and accountabilities;

b. establish independence between the Regulator (the individual responsible for making the rules) and the Implementer (the individual who conducts the activity);

c. control the design, manufacture, maintenance, materiel support and operational usage of aeronautical products;

d. ensure the airworthiness of an aeronautical product prior to its service use;

e. maintain, once established, the initial state of airworthiness of an aeronautical product throughout its entire operational service use;

f. conduct all airworthiness-related activities involving aeronautical products within an effective quality system framework; and

g. achieve the applicable objectives of the *Aeronautics Act*.

AIRWORTHINESS PROGRAM ROLES

7. Within the CF, the operational staffs are responsible for flying operations, aerospace control and operator training and qualification. Similarly, the technical staffs are responsible for the design, manufacture, maintenance and materiel support of aeronautical products, as well as for the training and qualification of technical personnel. To accommodate these responsibilities, the Airworthiness Program elements have been split into operational and technical areas. This division of responsibility has given rise to the Operational and Technical Airworthiness Programs. The Airworthiness Investigative Program has been added to monitor the Airworthiness Program and to investigate aviation safety-related issues and occurrences.

8. There are three distinct roles present in the Airworthiness Program. They are Regulator, Implementor and Investigator.

a. The Regulator (OAA & TAA) develops airworthiness instruments for design, manufacture, maintenance, material support and operation of aeronautical products and ensures their compliance.

b. The Implementor conducts the activities for the associated aeronautical products as directed by the regulator. This role is assumed by employees and members of the DND/CF as they conduct airworthiness related tasks.

c. The Investigator role is assumed by the AIA and this role ensures that airworthiness related safety occurrences and safety issues are investigated "independently" of the regulator and implementor.

OVERVIEW OF PROGRAM AUTHORITIES

9. The DND/CF Airworthiness Program established a management accountability framework of four Airworthiness Authorities, with clear delegation of authority from the MND to the specified positions in DND/CF. The MND directed the CDS (in 2005) to delegate to these Authorities, under section 4.3(1) of the *Aeronautics Act*, the powers, duties and functions necessary for the Airworthiness Program. Further assignment of the authorities permits the application of the Airworthiness concepts and principles to be utilized at the lowest possible levels in the Department and supporting organizations. The tasks that are to be performed by the specific airworthiness authorities are outlined in individual CDS (delegation) Orders. The four Authorities are:

a. the Airworthiness Authority (AA);

b. the Technical Airworthiness Authority (TAA);

c. the Operational Airworthiness Authority (OAA); and

d. the Airworthiness Investigative Authority (AIA).

10. The AA has the authority to approve airworthiness-related policy and is responsible for the development, promotion, supervision and management of the DND/CF Airworthiness Program. The Chief of the Air Staff (CAS) is normally the AA. Significantly, for the investigative portion of the program, the AA must ensure "that the Airworthiness Investigative Authority is not impeded in any way in the investigation of matters concerning aviation safety conducted under paragraph 4.2(*n*) of the *Aeronautics Act*."

11. The TAA is responsible for the regulation of the technical airworthiness aspects of the design, manufacture, maintenance and material support of aeronautical products and the determination of the airworthiness acceptability of those products prior to granting them Technical Airworthiness Clearance (TAC). The person holding the position of Director General Aerospace Equipment Program Management (DGAEPM) or, in the event of the absence or incapacity of the Director General, the person holding the position of Director Technical Airworthiness and Engineering Support (DTAES), or in the event of the absence or incapacity of the Director General and the Director, the person holding the position of Director Aerospace Equipment Business Management is the TAA for DND and the CF.

12. The OAA is responsible for the regulation of all flying operations. This includes responsibility for the regulation of operational procedures, flight standards, operator training, qualification and licensing, aerospace control operations and the determination of the airworthiness acceptability of aeronautical products prior to granting them Operational Airworthiness Clearance (OAC). The CDS has designated the officer holding the position of the Commander, 1 Canadian Air Division (1 Cdn Air Div) or, in the event of the absence or

incapacity of the Commander or, if the position is vacant, the officer performing the duties and functions of the Deputy Commander Force Generation, as the OAA for DND and the CF.

13. The AIA is responsible for the regulation of the airworthiness aspects of the Flight Safety Program. The AIA is also responsible for the independent investigation of airworthiness-related occurrences and for the monitoring of the DND/CF Airworthiness Program to identify deficiencies. The CDS has designated the officer holding the position of Director Flight Safety (DFS) or, in the event of the absence or incapacity of DFS, or if the position is vacant, the officer performing the duties and functions of DFS, as the AIA for DND and the CF.

14. In addition to the four airworthiness authorities that comprise the DND/CF Airworthiness Program management accountability framework, there are two additional authorities associated with the program. These are the Flight Test Authority (FTA) and the Aerospace Medical Authority (AMA).

15. The CAS and Assistant Deputy Minister (Materiel) (ADM (Mat)) have designated the Commanding Officer Aerospace Engineering Test Establishment (AETE) as the CF Flight Test Authority (FTA). Amongst other duties, the FTA is to assist the Airworthiness Authorities in their responsibilities within the airworthiness program and to ensure that Flight Test activities conducted in support of the program are conducted in a safe manner by qualified and authorized personnel. The flight testing conducted must ensure the flight safety concerns based on the intended operational usage of aeronautical products outlined in the Statement of Operational Intent (SOI) are properly addressed prior to operational flight evaluation.

16. The CAS and Chief of Military Personnel (CMP) have designated the person holding the position as Medical Adviser to the CAS, or the person performing this duty as the AMA who is also appointed the MND's Medical Adviser for the purposes of section 6.5(1) of the *Aeronautics Act*. This section of the *Aeronautics Act* requires that the MND designate a contact point to receive personal medical information about persons involved with aeronautical activities or products and that might compromise safety by the nature of the medical condition. Separate from the MND's Medical Adviser, the AMA has duties that involve a large number of airworthiness issues that have a medical nexus and the mandate of the AMA is to provide any required medical advice to the Airworthiness Authorities. One such duty is the responsibility to ensure the fitness of all aircrew who are either in direct control of CF aircraft, or who are performing essential tasks onboard an aircraft.

17. A full description of the DND/CF Airworthiness Program can be found in A-GA-005-000/AG-001, DND/CF Airworthiness Program.

AIRWORTHINESS INVESTIGATIVE AUTHORITY MANDATE

18. The AIA mandate is outlined in a CDS Order, which is signed by the CDS upon direction of the MND. This Order designates as the AIA for the DND/CF, the officer holding the position of Director of Flight Safety (DFS) or in the event of the absence or incapacity of the Director or if the position is vacant, the officer performing the duties and functions of the Director. In addition, under subsection 4.3(1) of the Aeronautics Act, this letter further delegates to the AIA, certain powers, duties and functions:

a. the power to convene a board of inquiry under section 6.3 of the *Aeronautics Act*;

b. independently investigating matters concerning aviation safety under paragraph 4.2(n) of the *Aeronautics Act* and informing the Minister of National Defence, through the Airworthiness Authority and the Chief of the Defence Staff, of any apparent, potential or real interference with the execution of the powers, duties or functions delegated to the AIA;

c. issuing airworthiness instructions and standards respecting the investigation of aviation-safety-related occurrences and issues that will satisfy the aviation safety requirements of the *Aeronautics Act*;

d. assigning investigative authority to organizations and individuals involved in the investigation of aviation-safety-related occurrences and issues;

e. taking immediate appropriate action if any circumstance, practice or procedure causes any doubt as to the airworthiness of a military aeronautical product;

f. monitoring airworthiness activities and functions to ensure they comply with established regulations, standards and orders to identify any deficiencies in the DND/CF Airworthiness Program, and reporting them to the Airworthiness Authority;

g. conducting audits of processes and procedures with a view to recommending preventive measures to correct deficiencies if identified in the DND/CF Airworthiness Program or if aviation safety is suspected of being compromised;

h. informing the MND, through the AA and CDS, of any significant airworthiness matter concerning military aviation;

i. preparing draft aeronautical regulations and orders relating to airworthiness investigative matters for submission to the Governor in Council and the MND, as appropriate; and

j. acting as the investigative member of the Airworthiness Review Board (ARB) and of the Airworthiness Advisory Board (AAB).

AIM OBJECTIVE

19. The purpose of this manual is to issue airworthiness policies, instructions and standards respecting the investigation of aviation-safety-related occurrences, airworthiness program monitoring functions and other issues that will satisfy the AIA's roles in the Airworthiness Program and the investigation-associated safety requirements of the *Aeronautics Act*. It also outlines the AIA's policies, procedures and means of compliance with applicable sections of the *Canadian Transportation Accident Investigations Safety Board Act (CTAISB) Act* .

APPLICABILITY

20. This document is produced by the AIA under the authority of the AA. As indicated in the A-GA-005, "new airworthiness instructions...are issued with a statement of applicability, means of compliance...and time. Compliance...shall be mandatory...unless an exemption or compliance

extension (is issued)." As such, this publication is effective within 60 days of the date of publishing and any exemption or compliance extension must be applied for within that timeframe (see Chapter 5, paras 10&11).

AIRWORTHINESS AND FLIGHT SAFETY

21. It is important to understand the relationship between the DND/CF Airworthiness Program and the Flight Safety Program. As stated in the A-GA-005, "the CF Flight Safety Program performs the vital role of providing an independent review and assessment of the suitability and effectiveness of the Airworthiness Program, including its policies, standards and procedures." As outlined in the preceding paragraphs, one of the objectives of the Airworthiness Program is to establish and maintain an acceptable level of safety for military aviation, which is predicated on weighing the safety level desired against cost and operational capability of the various aircraft fleets. The acceptable level of safety varies for the fleet types and roles the aircraft assume because some safety levels for civilian aircraft types and roles are impractical for military operations. The As Low as Reasonably Practical Principle (ALARP) for risk is primary in the pursuit of these levels of safety; meaning risk reduction is pursued but must be weighed against financial and operational impacts of the implementation of initiatives.

22. The objective of the CF Flight Safety Program is to prevent the accidental loss of aviation resources through a program of safe behaviour, promotion, education and the investigation and analysis of matters concerning safety. A comparison of the two programs reveals that the Investigative Authorities' portion of the DND/CF Airworthiness Program closely matches the long-standing and very effective investigation and analysis segment of the Flight Safety Program. Consequently the investigation and associated segments of the CF Flight Safety Program now form the Airworthiness Investigation program.

23. In keeping with this concept, this Manual and the A-GA-135 -001/AA-001 and A-GA-135-002/AA-001 (Flight Safety for the Canadian Forces – Parts I & II) are designed to complement one another. The latter two documents outline the entire Flight Safety Program for the CF whereas the Airworthiness Investigation Manual (AIM) outlines the DND/CF Airworthiness Program policy for the AIA's investigation standards, authorities and processes.

CHAPTER 2

AIRWORTHINESS INVESTIGATION PRINCIPLES

INTRODUCTION

1. The RCAF and the CF have had an active and successful Flight Safety Program since 1942. Part of this program involved the investigation of aviation related occurrences. The investigation and associated segments of the Flight Safety Program form the Airworthiness Investigation program. In order to achieve the same successes that the Flight Safety Program has enjoyed, the Airworthiness Investigative Authority (AIA) employs many of the same principles that the Flight Safety Program used so successfully.

2. Of note and because the Flight Safety Program predates the Airworthiness Program, the terms for the AIA's products and processes remains the same as those that exist in the Flight Safety Program. For example, accident reports remain Flight Safety Investigation Reports (FSIRs), even though they report the results of an Airworthiness Investigation.

3. The objective of this chapter is to outline the principles employed by the AIA in conducting investigations.

AIRWORTHINESS PRINCIPLES

4. 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. done using approved procedures.

5. Airworthiness investigations comply with these principles with some minor deviation. In the case of airworthiness investigations, the powers that authorized individuals employ may be augmented for a specified time by certain AIA "retained" authorities depending on the circumstances associated with the investigation. The authority to conduct an Enhanced Supplementary Report (ESR), as described in A-GA-135, is one example of such "retained" authority.

AIA PRINCIPLES

6. The objective of the DND/CF Airworthiness Program is to establish and maintain an acceptable level of safety for military aviation. In order to accomplish this, airworthiness investigations are based on four principles:

a. airworthiness investigations are conducted independently from any influence of the Chain of Command;

b. airworthiness investigators must not assign blame;

c. the focus of airworthiness investigations is to develop effective, practical Preventive Measures (PM) that will preclude or reduce the risk of a reoccurrence; and

d. airworthiness investigations (through the AIA) make recommendations to the Chain of Command for action, if the Commanders deem it appropriate. Recommendations are not binding.

7. Independence from the Chain of Command. If Commanders were actively involved in investigations of occurrences in which the decisions or actions of the Commander may have been causal, it would be an obvious conflict of interest. In order to avoid this situation (or the perception of a conflict of interest), airworthiness investigators must be independent of any influence from the Chain of Command. This independence is extremely important in order to maintain the credibility of the AIA organization. In support of this principle, the AA is charged (through the CDS Delegation Order) with the responsibility of ensuring that the AIA is not impeded in any way in the investigation of matters concerning aviation safety conducted under paragraph 4.2(n) of the *Aeronautics Act*; and the AIA must inform “the Minister of National Defence, through the Airworthiness Authority and the Chief of the Defence Staff, of any apparent, potential or real interference with the execution of the powers, duties or functions” delegated to the AIA.

8. No Blame Investigations. It is critical that airworthiness investigators receive honest, accurate and complete information from the individuals involved in an occurrence. It is only with this type of information that investigators can identify all the facts and determine all the circumstances that led to the occurrence. This can only be achieved in an organizational culture in which individuals can freely and openly admit their errors and omissions without fear of recrimination from the organization. This concept requires a commitment from the organization not to use airworthiness investigation information for legal, administrative or disciplinary purposes. In addition, it requires that airworthiness investigators ensure that their reports do not assign blame (or appear to assign blame) for the occurrence.

9. Focus on Preventive Measures (PMs). The primary focus of all airworthiness investigations will be to identify effective, practical PMs in a timely manner to the Chain of Command. In order to do this, all PMs will be based on well-researched information and sound analysis. PMs must clearly articulate the problem, the expected action to rectify the problem and a proposed level of command (tactical, operational or strategic) to ensure that the proposed actions are completed. PMs are to be forwarded to the chain of command (or via the DND/CF sponsor to a civilian air operator) for consideration and action as soon as practical and need not wait for the formal publishing of reports. Consequently, safety actions can begin quickly as facts are revealed in the investigation, analysis is conducted and appropriate PMs become evident.

10. Recommendations to the Chain of Command. The aim of airworthiness investigations is to develop PMs. These PMs are then forwarded as recommendations to the

Chain of Command. As one of the basic building blocks of the Airworthiness Program the “AA requires that any reduction to the accepted level of safety must be fully documented and accepted in all situations where time permits the application of a formalized risk management process.... the TAA and OAA are engaged fully in these processes.” (A-GA 005 Part 1, Section 1 para 15) However, the Chain of Command is not obligated to accept these PM recommendations. Upon receipt of the recommendations of an airworthiness report, Commanders have options based upon the format of the recommended PM;

a. they can accept the recommendation and direct the implementation of the proposed action;

b. if the recommendation is supported but is beyond the purview of the local Commander, then the recommendation can be forwarded to the appropriate Commander (through the Chain of Command) with the recommendation that it be implemented; or

c. the Commander can reject the recommendation and accept the risk of a similar occurrence happening in the future.

    i. should the PM be part of an Action Directive from the CAS (the end result from a completed FSIR) and because such a course of action implies a reduction in the accepted level of risk, a risk assessment must be undertaken to fully document the accepted level of risk.

    ii. the Commander could partially accept the recommendations and implement the accepted portion of the recommendation. However, this also would require a risk assessment to document the mitigated level of risk for this situation. The risk assessment should include an explanation of the decision for the rejected part of the recommendation

    iii. should the PM be the results of an investigation not involving an Action Directive (an SR, CR or ESR), documentation of the reasons and the assessment for not implementing the PM should be forwarded to the AIA and other levels in the Flight Safety chain. It will then be recorded on the FSOMS.

CHAPTER 3

INVESTIGATION CLASSIFICATION SYSTEM

BACKGROUND

1. The CF Flight Safety (FS) system encompasses detailed processes for reporting and investigating safety situations and the DND/CF Airworthiness Program mandates the requirement to conduct investigations of matters related to aviation safety. Also, in an effort to identify hazards before they cause serious occurrences, the FS system encourages all personnel associated with flying operations to report all situations that have the potential to cause a flight safety incident or accident. The purpose of investigating is to analyse the information derived from these investigations and to develop effective Preventive Measures (PMs) to reduce the risk of reoccurrence.

REPORTING INFORMATION AND SECURITY

2. Reporting Flight Safety information is vital to the Flight Safety and Airworthiness Investigation Program. However, there will be times when Operational Security (OPSEC) and Operational/time sensitive information could have implications on active operations. In these cases, the method and security associated with reporting must be adjusted to counter the possible negative effects that public release of information or knowledge of an occurrence could impart on non-friendly forces. For example, it may not be appropriate to transfer information in an unsecure manner on an occurrence for an air asset that is actively engaged in operations in a forward area since the knowledge of this event could be advantageous to enemy operations. For such circumstances, reports must still be made as indicated within timelines outlined in the A-GA-135 but in a secure manner so as to preclude any advantages such knowledge might impart on these non-friendly forces.

REPORT TYPES

3. It is important that airworthiness investigation reports are completed by the appropriate AIA's authorized individuals and forwarded in a timely manner. However, not all occurrences are investigated to the same degree due to a number of factors. Therefore, there are several types of airworthiness investigations, as well as various timelines by which the investigation reports are to be produced. Similarly, there is a hierarchy associated with the authorized individuals (investigators) that are assigned to complete the investigations and associated reports, based upon the individuals' training, position, experience, certification and AIA delegated authority that must be matched with the investigation class and complexity (as outlined in Chapters 4, 5 & 6). A summary of the different types of airworthiness investigation reports and the time in which they would normally be completed follows.

4. Initial Reports (IR). IRs are required for all occurrences and should normally be submitted by the unit of occurrence within 12 hours of the occurrence. These reports give the initial details noted around the situation and a brief description of the unsafe nature of the occurrence.

5. Supplementary Reports (SR). SRs are normally completed within 30 calendar days of the occurrence. SRs give details revealed from the investigation related to the cause of an occurrence, assign cause factors and recommend Preventive Measures. This is normally the conclusion of most occurrence investigations.

6. Combined Reports (CR). CRs are complete occurrence reports (IR and SR) in a single submission and format and are normally submitted within 48 hours. Usually this is for simple investigations where detailed investigation is not required or where the occurrence is one that has occurred before and the associated details are known (i.e. Repetitive Occurrence - RO).

7. Enhanced SR (ESR). An Enhanced SR will be used for occurrences that are sufficiently complex to warrant a more thorough investigation than a normal SR but do not require the same degree of scrutiny that is required for an FSIR. An Enhanced SR will be tasked by the AIA (DFS) and will normally be completed within 60 calendar days of tasking.

8. Flight Safety Investigation Reports (FSIRs). FSIRs are designed to provide a comprehensive report on an occurrence, are usually produced by a team of investigators chosen for the particulars surrounding the occurrence and generally follow the International Civil Aviation Organisation (ICAO) Annex 13 format. In compiling an FSIR, a number of interim reports are prepared with various distribution protocols. These reports and their associated timelines are:

a. Preliminary FSIR. The Preliminary FSIR is distributed to the senior leadership and provides the initial factual information pertinent to the occurrence and makes recommendations for immediate preventive measures. It should be produced within 30 calendar days;

b. From the Investigator (FTI). The FTI summarizes the information in the Preliminary Report and is produced in bilingual format for public distribution via the DFS website and Flight Comment magazine. The FTI should be produced within 30 calendar days of the occurrence;

c. FSIR Draft For Comment. The FSIR Draft For Comment is simultaneously distributed to all Persons (Parties) of Direct Interest (PDIs) for review and comment in order to confirm the accuracy and completeness of the draft report. The FSIR Draft For Comment should be produced within six months of the occurrence and distributed to PDIs within seven months of the occurrence. Replies are returned directly to the AIA (DFS) to ensure privileged information is protected as required by the *CTAISB Act*;

d. Final FSIR. The Final FSIR is the comprehensive bilingual report on the occurrence and is a refined version of the Draft Report that includes valid PDI inputs and should be completed within 10 months of the occurrence and distributed within 12 months of the occurrence. The AIA(DFS) is the tasking and release authority for the report. It is published on the DFS website; and

e. Epilogue. The Epilogue summarizes the information contained in the Final FSIR Report. Similarly, it should be produced in bilingual format within 10 months of the occurrence and distributed within 12 months of the occurrence. It is published on the DFS website and in Flight Comment.

9. Abbreviated FSIR (A/FSIR). An A/FSIR is produced for occurrences with no further substantive corrective actions, if the PMs have already been implemented or if the investigation concludes with findings and recommendations that are not expected to be controversial. A/FSIRs are completed using the same format as a regular FSIR but they contain only essential factual information and an abbreviated analysis. They will follow the same staffing process as an FSIR to ensure completeness and accuracy. Often the requests for comment on these reports are done using e-mail and the replies are expected within 10 working days, thereby greatly reducing the duration of the associated review process.

10. It must be emphasized that the timelines outlined in the aforementioned paragraphs are planned target dates and may vary depending on the complexity of the investigation and investigator workload but serve as the normal expected guidelines.

AIRWORTHINESS INVESTIGATIONS

11. There are two key factors that must be addressed when considering airworthiness investigations. The first factor is that the investigations are focussed on developing effective and reasonable Preventive Measures (PM) but not all occurrences will yield these useful PMs. The second factor is that the perceptions of all personnel involved in DND/CF air operations are critical to the Flight Safety and the DND/CF Airworthiness Programs. Timely and accurate reporting are basic tenets of both programs. Consequently the overall health of these programs will suffer if the perception is created that reporting is being ignored. Therefore, the investigation program must focus the system's limited resources on those investigations that will yield effective PMs yet ensure that personnel continue to report all occurrences (even when they know that not all of these occurrences will be investigated).

12. The objectives of conducting airworthiness investigations are to:

a. focus valuable investigation resources on those occurrences that will identify useful, relevant and effective PMs;

b. identify PMs as quickly as possible and advise the chain of command of those PMs that require immediate attention;

c. complete investigations efficiently and, wherever possible, in accordance with the appropriate timelines; and

d. continue to foster a reporting culture.

CONCEPT OF OPERATIONS

13. The practise of reporting all aircraft occurrences will continue as well as the policy of urging all personnel to report all incidents and hazards. All incidents will continue to be entered into the Flight Safety Occurrence Management System (FSOMS) for critical trending and analysis purposes. However, not all aircraft occurrences will be investigated to the same degree so a means to determine the investigation level required must be initiated so that the appropriately qualified, certified and authorized individuals are assigned to the investigation. The first step to determine this is to classify the occurrence category based on:

a. aircraft damage level (ADL); or

b. personnel casualty level (PCL) as determined by a medical officer in accordance with CFAO 24-1.

AIRCRAFT DAMAGE LEVEL (ADL)	**PERSONNEL CASUALTY LEVEL (PCL)**	**OCCURRENCE CATEGORY**
Destroyed or Missing	Fatal or Missing	**A**
Very serious damage	Very serious injury/illness	**B**
Serious damage	Serious injury/illness	**C**
Minor damage	Minor injury/illness	**D**
Nil	Nil	**E**

Table 1 – Occurrence Category Table

14. Investigations will also be focused on selected occurrences that are deemed to provide the best potential for developing effective PMs. To accomplish this objective, the occurrence investigation classification system is utilized. Investigations are assigned to a classification based on three criteria:

a. the occurrence level;

b. the Safety of Flight Compromise Level (SFCL); and

c. other aggravating factors.

FACTORS			**INVESTIGATION**		
OCC CATEGORY	**SFCL**	**OTHER AGGRAVATING FACTORS**	**INV CLASS**	**AGENCY**	**REPORT TYPE**
A	–	–	I	DFS	FSIR
B, C	Extreme to	Extreme to	II	DFS	FSIR or A/FSIR

	High	High			or ESR
C, D	Medium to Low	Medium to Low	III	WFSO or UFSO	ESR or SR
D, E	Low to Nil	Low to Nil	IV	UFSO	SR or CR

Table 2 – Flight Safety Investigation Class Table

15. Table 2 serves as a guide only and DFS reserves the right to determine the Class of investigation to be done on any category of occurrence. DFS is the tasking authority for investigations requiring an FSIR, A/FSIR or ESR.

a. Occurrence category: The occurrence category is based on the combination of the ADL and PCL as per the Occurrence Category (Table 1 above).

b. Safety of Flight Compromise Level: The SFCL indicates the actual level of risk experienced by the crew and / or aircraft during an occurrence or the potential SFCL if it was assessed as nil for the flight.

c. Other Aggravating Factors: There are other factors that may elevate the level at which an occurrence is investigated. If a higher level of investigation might lead to a more effective reduction of risk to persons, property or the environment then this level should be assigned. Consideration shall also be given to maintaining the trust of CF personnel, the trust of the general public in the FS Program and in the CF by having occurrences investigated at the appropriate level.

16. Once an occurrence has been reported, unit and wing flight safety staffs will conduct an initial assessment as to determine the level of investigation. If the occurrence is categorized as either A, B or C, the matter shall be referred to DFS. For flight safety incidents that do not meet these criteria, unit or wing flight safety personnel will conduct a preliminary evaluation of the incident using the SFCL and Aggravating Factors discriminators. If this assessment indicates that a higher level of investigation may be required than indicated by the occurrence category, the flight safety staffs will collaborate at all levels to assess if a higher level investigation is required.

CHAPTER 4

AIRWORTHINESS INVESTIGATIVE STANDARDS

BACKGROUND

1. One of the basic tenets of the DND/CF Airworthiness Program is that airworthiness activities will be conducted by authorized individuals, to an accepted standard. As outlined in chapter 1 of this Manual, one of the specific tasks assigned to the AIA is to issue airworthiness investigative standards respecting the investigation of aviation-safety-related occurrences and issues that will meet the aviation safety requirements of the Aeronautics Act. This chapter of the AIM outlines the AIA investigative standards.

CERTIFICATION AND AUTHORIZATION

2. In order for the AIA to authorize individuals to conduct the various activities associated with airworthiness investigations, the individuals must be certified as being qualified to conduct the activities. Often the certification follows the successful completion of the appropriate training that may include formal courses, informal field training under the supervision of qualified individuals and/or supervised completion of investigations and associated reports. In the case of some team specialists the certification of their qualification comes from CF/DND training on a particular aircraft type or a qualification in a special area (arrestor gear or flight test for example). Once certified, individuals become "authorized" to conduct the airworthiness investigations through the AIA tasking message or through the duties associated with their FS positions as outlined in the FS Program (i.e. WFSO and UFSO).

SCOPE

3. The Airworthiness Program has made great effort to separate the responsibilities of the AIA, the TAA and the OAA; however, overlaps remain that are addressed by including appropriate procedures and direction within each authority's detailed program documentation. Also, the establishment of formal agreements to manage the interface between the various authorities is encouraged. In the case of the AIA these agreements include Letters of Understanding, various Memoranda's and Service Level Agreements between the AIA and the expert investigative support organizations (AETE, QETE, DRDC, NRC, the OAA and TAA etc) that establish the specific roles and responsibilities of the relationships associated with airworthiness investigations. As well, the A-GA 135-001/AA-001 serves as a detailed procedures and protocol tool for the administration and management of investigation processes within the Chain of Command and to a limited extent within the Airworthiness Program.

4. When the AIA becomes involved with investigations outside of the DND/CF scope of activities, such as with Transportations Safety Board, other Militaries (NATO, ASIC etc) or other Airworthiness Authorities (NTSB (USA), AAIB (UK) etc) the interface is conducted

through coordinated investigation protocols. Details on these instances are covered in Chapters 8 and 9 of this manual.

5. Within the DND/CF Airworthiness Program, there is one “investigator” role and that is fulfilled by the AIA. While both the OAA and TAA staffs gather information, analyse it and make recommendations based on these processes, these activities are done for Operational or Technical Airworthiness assessment purposes and are not formal Airworthiness Investigations. For example, technical assessments deal with issues associated with the design, manufacture, maintenance or materiel support of an aeronautical product. Airworthiness investigations are usually conducted as the result of an occurrence and/or to investigate matters of safety involving both an operational and a technical nexus. This manual is concerned only with Airworthiness Investigations.

GENERAL

6. DND/CF airworthiness investigations can be conducted by entities ranging from one person to large teams comprised of authorized accident investigators who are assisted by several specialists. These specialists can include:

a. operational specialists for the particular platform or system involved in the occurrence;

b. technical specialists for the particular platform or system involved in the occurrence;

c. medical experts, usually Flight Surgeon qualified;

d. Human Factors (HF) specialists;

e. escape system specialists;

f. Aviation Life Support Equipment (ALSE) specialists;

g. Cockpit Voice Recorder/Flight Data Recorder (CVR/FDR) or other recording medium specialists;

h. engineering specialists provided by Quality Engineering Test Establishment (QETE);

i. flight test specialists provided by Aerospace Engineering Test Establishment (AETE);

j. other experts as required (such as aerodynamics or explosives experts); and

k. observers.

AIRWORTHINESS INVESTIGATORS

7. Airworthiness Investigators receive special training on aircraft occurrence investigation. Proper occurrence investigation requires unique skills that must be developed through a combination of formal training and practical experience. The more complex an occurrence, the more developed the airworthiness investigator's skill sets must be to successfully and efficiently complete the assigned tasks. However, the variation in complexity of aircraft occurrences makes it impractical to expect all investigators to have the same skills and

therefore to implement a universal standard for investigators. Accordingly, a hierarchy of standards is utilized for airworthiness investigators, which is based on the occurrence classification system outlined in Chapter 3 of this manual with the details on the management and training file requirements of the various investigator levels being contained in Chapter 5.

8. Each occurrence to be investigated will have an assigned Investigator In Charge (IIC). The IIC may conduct the investigation by themselves or a team of specialists may support them. Regardless, the responsibilities of the IIC are:

a. conducting, on behalf of the AIA, a thorough and efficient investigation of the occurrence;

b. leading and effectively managing assigned members of the investigation team. In the case of major investigations, this may include exercising Operational Control over the assigned members of the investigation team and various support elements, employing appropriate procedures, briefings and resource management, thereby allowing these various support elements to be successful and safe in completing their assigned tasks. Further, IICs must ensure appropriate reports and other support documents are produced by all elements in both the field and the post field phases;

c. effectively conducting site management, site safety, identifying evidence to be shipped for further investigation, liaising with Recovery and Salvage teams, ensuring awareness of any hazards that are associated with evidence are positively identified and shipped IAW appropriate modes of transport (i.e. Transportation of Dangerous Goods)

d. gathering, preserving and cataloguing evidence along with supporting notes and logs so that investigations can be pursued by other investigators should transfer of the investigation responsibility be necessary. This may involve leading major recovery efforts in remote areas or under austere conditions, detailed photo and film documentation, innovative survey, preservation and catalogue methods and /or any other state of the art investigation protocols;

e. identifying effective preventive measures as quickly as possible and recommending them to the AIA (for onward transmission to the chain of command) in a timely manner and keeping the AIA informed of daily progress through Situation Reports (Sitreps);

f. dealing with Next of Kin (NOK), media and DND/CF personnel as per AIA guidelines (Chapter 7);

g. ensuring that the resources expended on the investigation are justified and that the costs are captured and reported in accordance with the *Financial Administration Act (FAA)*;

h. completing all required staff work as per AIA guidelines, including thorough, written reports in accordance with the published timelines; and,

i. effectively carrying out or managing any tasks associated with the investigation in the field and post field phase as required by the AIA.

9. The IIC may be assisted by a team of one or more trained accident investigator(s). Normally an accident investigator will receive formal training as determined by the AIA (DFS) before being authorized to participate in an occurrence investigation as a team member; however, the AIA (DFS) reserves the authority to appoint any team members with or without formal training based upon extant circumstances.

AIRWORTHINESS INVESTIGATOR TRAINING

10. Airworthiness Investigator training will be accomplished through formal courses and, for some investigation classifications (IIC2 & IIC1), with field training.

11. Formal courses will consist of both in-service courses such as the Basic and Advanced Flight Safety Courses as well as out-service courses conducted by accredited organizations and educational or other similar institutes (such as TSB (Canada), NTSB or FAA (USA), Cranfield University (UK), the Southern California Safety Institute (SCSI), Embry-Riddle Aeronautical University etc). Due to the wide variation in out-service courses available, the AIA's staff will usually develop a customized training package for investigators based on the current yet changing requirements within the AIA investigator staff.

12. Field training consists of following an On Job Training Syllabus (OJTS) that is accomplished through field investigation exposure and two other types of formalized field training that will be conducted for training IIC2s and IIC1s. This formalized field training consists of Shadow training and Acting IIC training:

a. Shadow training is the first step in achieving specified qualifications. In this phase, the trainee monitors a qualified individual as they conduct an investigation from initial planning of the field portion of an investigation to submission of the final report. The IIC will submit comments on the Shadow Trainees performance to the Senior Investigator for the training files. An example of these comments would include documentation of exposure to Team Safety Briefs, Site Cordon procedures, donning of Hazmat kits, ejection seat examination procedures, witness interview observations, NOK contact etc, etc. A trainee normally completes the Shadow phase of training prior to conducting the Acting IIC phase; and

b. Acting IIC training, where the trainee completes all IIC duties for the applicable classification of occurrence under the supervision of an appropriately qualified IIC. At the completion of the investigation, the supervising IIC submits a written progress report on the trainee to the Senior Investigator. The Senior Investigator will use these reports to form the basis for any recommendations for IIC advancement to the Chief investigator, who will in turn assess progress and make recommendations for IIC certification, when merited, to the AIA.

AIRWORTHINESS INVESTIGATOR CATEGORIES

13. Air accident investigators are divided into two categories: Basic Investigator (BI) and Investigators In Charge (IIC). These categories are subdivided into BI 3, BI 2, and BI 1 and IIC3, IIC 2 and IIC 1. The AIA is the issuing authority for all investigator categories although through letters of delegation and for reasons of efficiency and span of control, some of this

authority is delegated to various individuals. Investigators are issued formal identification cards indicating their authorized categories. This may be accomplished through endorsements to an existing identification card as higher categories are obtained. Tables summarizing the roles and requirements of these categories can be found at the end of this chapter.

14. Basic Investigator. The qualifications for the three sub categories of BI are summarized in Table 1. All BI qualifications are valid for a period of five years from the date of issue of the qualification. However, this period can be extended if the individual has been continuously employed in a Flight safety position (UFSO, UFS NCM, WFSO, WFS NCM, 1 Cdn Air Div Flight Safety Staff or Directorate of Flight Safety staff):

a. BI 3. A BI 3 is qualified to act as an airworthiness investigation team member of Class III & IV investigations. He is qualified to conduct Class IV investigations. To qualify as a BI 3, the individual must have successfully completed the Basic Flight Safety Course (BFSC). A BI 3 is typically required for a UFSO or a UFS NCM position;

b. BI 2. A BI 2 is qualified to act as an airworthiness investigation team member of Class I to IV investigations. He is qualified to conduct Class IV investigations. To qualify as a BI 2, the individual must have successfully completed the BFSC and the Advanced Flight Safety Course (AFSC). The AFSC may be waived for a period of up to 12 months by the AIA. A BI 2 qualification is normally required for individuals assigned to Wing FSO, WFS NCM or 1 Cdn Air Div Flight Safety Staff positions and for individuals whose duties will entail regular membership on Airworthiness Investigation teams; and

c. BI 1. A BI 1 is qualified to act as an airworthiness investigation team member of Class I to IV investigations. To qualify as a BI 1, the individual must have successfully completed the BFSC, the AFSC and a Basic Aviation Safety Investigator Course at an accredited or like institution. The AFSC can be waived for a period of up to 12 months by the AIA. A BI 1 qualification is normally required for individuals assigned to DFS as Airworthiness Investigators.

15. Investigator In Charge. There are three sub categories of IIC: IIC 3, IIC 2 and IIC 1. The qualifications for the categories of IICs are summarized in Table 2. All IIC qualifications are valid for a period of five years from initial certification. However, this period can be extended if the individual has been continuously employed in a Flight Safety position (WFSO, WFS NSM, 1 Cdn Air Div Flight Safety Staff or DFS staff). A brief description of each of these categories is:

a. IIC 3. An IIC 3 is qualified, certified and authorized to act as the IIC for investigations up to the Class III level. Normally in order to qualify as an IIC 3, the incumbent must be BI 2 qualified. The AFSC may be waived for a period of up to 12 months by the AIA. This will only be done in extenuating circumstances and only if the AIA is convinced thru recommendation of the DFSO that the individual concerned has sufficient experience to competently complete the tasks until formal training can be completed and that no other qualified IIC is available at the time of occurrence. An IIC 3 is normally a WFSO or WFS NCM;

b. IIC 2. An IIC 2 is qualified and certified to act as the IIC for investigations up to the Class II level. To qualify as an IIC 2, normally the individual must be BI 1 qualified. The AFSC may be waived for a period of up to 12 months by the AIA. In addition, an IIC 2 normally should complete OJTS IIC phase of field training but the AIA may waive this training if he/she is satisfied that the investigator has appropriate field experience. An IIC 2 is normally an individual assigned to DFS as an Airworthiness Investigator; and

c. IIC 1. An IIC 1 is qualified and certified to act as the IIC for all airworthiness investigations. To qualify as an IIC 1, the individual should initially have an IIC 2 qualification. The AFSC may be waived for a period of up to 12 months by the AIA. Normally the incumbent should have completed the Advance Aircraft Accident Investigation course (or equivalent level specialty course). In addition, an IIC 1 should have completed the IIC OJTS; however, the AIA may waive the Shadow and Acting IIC field training if he/she is satisfied that the investigator has appropriate field experience. A person awarded an IIC 1 category is always an individual assigned to DFS as an Airworthiness Investigator.

INVESTIGATION TEAM SPECIALISTS

16. Investigation team member specialists often hold qualifications awarded by various professional organizations. It is not the intent of this manual to establish the standards of these professional organizations; however, the personnel that are assigned to fill a position as a member in a specialist capacity of an airworthiness investigation team are usually certified by the Commanding Officer, Head of Department (etc) of the applicable specialist organization as holding the appropriate qualifications. The objective of this section is to outline the general qualifications that must be held by an individual in order to participate in an aircraft occurrence investigation as an “authorized” investigation team specialist. The Flight Safety Investigation (FSI) tasking message is the vehicle that the AIA uses to “authorize” investigation team members to conduct airworthiness investigations for each occurrence.

17. Operations Specialists Operations Specialists are included on airworthiness investigation teams to provide specialist knowledge with respect to the operation of the type of aircraft involved in the occurrence. These individuals are normally from the air operations MOSIDs. In order to act as an Operations Specialist, the individual should currently hold or have held (within the last 12 months, if possible) a qualification, as established by the applicable Standards and Evaluation Team, to operate the aircraft or one of its established crew positions. Ideally, this specialist should be a senior operator such as Formation Lead, Aircraft Captain, A-1 QFI, Instructor Pilots/ACSO/AEC, Standards Officer, Shift Supervisor, Wing Air Traffic Control Officer, etc. In addition, in order to enhance independence and credibility, all efforts must be made to find such specialists that are not directly or indirectly related to the occurrence unit. Although very beneficial, Operations Specialists do not need to have aircraft occurrence investigator training but it is crucial to the investigation that they possess a superior knowledge of their respective field of expertise.

18. Technical Specialists. Technical Specialists are included on airworthiness investigation teams to provide specialist knowledge with respect to the maintenance and/or engineering of the type of aircraft involved in the occurrence. These individuals are normally from the AERE or aircraft technician MOSIDs and must typically have sufficient rank and staff experience to

handle the investigation role and follow-on report writing responsibilities. For some fleets, due to the support and technical arrangements in existence, this individual may be a contractor employee. In order to qualify as a Technical Specialist, the individual must currently hold or have held (within the last 12 months) the appropriate technical qualification to the occurrence circumstances. Although it would be very beneficial, Technical Specialists do not need to have aircraft occurrence investigator training but it is crucial to the investigation that they possess a superior knowledge of their respective field of expertise.

19. Medical Experts. Normally, the investigating medical expert will be the DFS Flight Surgeon. Should the DFS Flight Surgeon not be available, a Flight Surgeon will be appointed from another unit after appropriate consultation with medical authorities. Flight Surgeons are included on airworthiness investigation teams to provide specialist medical knowledge, evaluate the physical, medical and physiological factors that may have had input into the occurrence, and be the team's representative for medical processes such as autopsies and bodily fluids and tissue sampling. They will also be concerned with supplying expertise on survivability including crash dynamics-injury patterns and life support equipment, and the broad spectrum of human factors and human performance aspects of the investigation. As well, the Flight Surgeon is usually the primary contact for NOK interviews. Normally, investigating Flight Surgeons will have achieved PG training in Aerospace Medicine and ideally will have achieved or will be working to achieve PG training in Public/Occupational Health or another Health related field.

20. Human Factors Specialists. Human Factors Specialist (HFS) member of the investigation team explore and recommend solutions to the many human factors related problems in aviation. The HFS is a person with a strong working knowledge of the various realms of human factors. At the site, the primary task of the HFS will be to collect and process all human factors information associated with the occurrence. The HFS can also act as a conduit between DFS and human factors researchers employed both in academia and in government, thus providing the CF with the benefit of direct access to leading edge human factors research. An HFS should have their basic MOC training and achieved or are working towards achieving a Master's Degree in Human Factors or a related discipline. These specialists must be certified by DRDC prior to becoming an "authorized" specialist airworthiness investigation team member.

21. Crew Systems Specialists. In order to qualify as a Crew Systems Specialist, the individual must have a combination of formal training and experience working with the restraint and ejection seat systems currently used by DND and the CF. The Flight Test Authority (FTA) will establish these qualifications and beyond the specific crew systems training, will normally include FS training (BI 2 qualification). These specialists must be certified by the FTA prior to becoming an AIA "authorized" specialist airworthiness investigation team member. Crew Systems Specialists are included in airworthiness investigations to safety, inspect and confirm the crew systems equipment functioned as designed.

22. Aviation Life Support Equipment (ALSE) Specialists. An ALSE Specialist (ALSES) is included on airworthiness investigation teams to inspect ALSE following an occurrence to determine how well the equipment functioned and to suggest improvements, if deemed necessary. The ALSES is an individual that possesses extensive knowledge and experience in working with ALSE equipment from both a design and evaluation perspective. The ALSES

should have their basic MOSID training and extensive operational experience as an Aviation Technician (AVN Tech), preferably working with safety systems. These specialists must be certified by DRDC prior to becoming an AIA "authorized" specialist airworthiness investigation team member.

23. Aeromedical Specialists. Due to the operational intensity associated with many incidents or accidents, the DFS Flight Surgeon will, at times, require assistance in the form of properly trained medical personnel to achieve his / her goals during an investigation. The CF possesses such qualified personnel in the form of Aeromedical Technicians (AMT). An Aeromedical Technician Specialists (AMTS) is included on airworthiness investigation teams to assist the investigating Flight Surgeon when/as required. An AMTS should have their MOC basic training and extensive experience as an Aeromedical Technician. These specialists must be certified by DRDC prior to becoming an AIA "authorized" specialist airworthiness investigation team member.

24. Cockpit Voice Recorder/Flight Data Recorder (CVR/FDR) Specialists. In order to qualify as a CVR/FDR Specialist, the individual must have a combination of formal training and experience working with the CVR/FDRs currently used by DND and the CF and any other medium employed for similar purposes. These qualifications will be established by the National Research Council, Flight Recorder Playback Centre (FRPC) Manager and will normally include BI 2/3 qualification. CVR/FDR Specialists must be certified by the NRC prior to acting as an AIA "authorized" specialist airworthiness investigation team member.

25. Engineering Specialists. In order to qualify as an Engineering Specialist, the individual must have a combination of formal training and experience in aircraft accident investigations, along with engineering training or other special training or skills to offer expert advice to airworthiness investigations. These qualifications will be established by the Superintendent of the Quality Engineering and Test Establishment (QETE) and will normally include FS training (BI 2 qualification), specialist courses and other accident investigation training as determined by QETE. Further, an OJT program will be set up for new engineers so that experienced Engineering Specialists can mentor and monitor personnel as they become qualified. Engineering Specialists must be certified by the Superintendent of QETE prior to acting as an AIA "authorized" engineering specialist airworthiness investigation team member.

26. Flight Test Specialists. Flight Test Aircrew, Engineers or Technologists must be certified by the FTA in order to participate in an aircraft occurrence investigation as an AIA "authorized" Flight Test Specialist investigation team member.

27. Other Experts (as required). Sometimes due to the circumstances of an occurrence, special expertise is needed to properly investigate all aspects of the event. These personnel will be added to an investigation team as the circumstances dictate and are added to the team based on their special knowledge areas. Past examples include arrestor gear experts, aerodynamicists and explosive experts. These personnel will not likely have FS or accident investigation training.

BRIEFINGS

28. The IIC, or their designate shall provide briefings on the behaviours expected of investigation team members (information confidentiality, NOK contacts, releasing authority for information etc) and the hazards and necessary protocols to mitigate them during the investigation. These briefings must be conducted at the appropriate time, particularly for team members that are not FS qualified. During the investigation, similar briefings for all new team members should be part of the team joining protocols.

OBSERVERS

29. Under particular circumstances, observers may be appointed to airworthiness investigation teams. There are three general sets of circumstances under which an individual will be granted observer status. These are:

a. an individual has been designated as an observer by a Minister of the Crown whose department has a direct interest in the investigation. This would normally only happen in the event of a civil-military occurrence;

b. an individual is an accredited representative pursuant to an international agreement or convention (such as STANAG 3531, ASIC Air Standard 85/2A or ICAO Annex 13); and

c. an individual is invited to attend as an observer if, in the opinion of the AIA, the person is likely to contribute to achieving the objective of the investigation. An example of this case would be a representative of the Original Equipment Manufacturer (OEM) of the aircraft or engine involved in the occurrence.

30. The AIA will determine the conditions and limitations placed on the activities of observers involved in an investigation. Notwithstanding any of these conditions, observers will not have the right to participate in the formal (recorded) interviews of witnesses and will not have the right to have access to privileged information. However, the IIC has the authority to allow an observer access to these information sources if in the opinion of the IIC such access would further the investigation and no other means to accomplish such furtherance are apparent. Observers will be required to sign a document stating that any information, privileged or otherwise, related to the on-going Airworthiness Investigation will not be discussed or disclosed to any person not assigned to the investigation without prior approval by the AIA. Failure to sign the non-disclosure agreement or unauthorized disclosure of information related to the on-going Airworthiness Investigation will result in the removal of observer status for the individual concerned.

Investigator Category	Training Required	Duties	Valid Period
Basic Investigator 3	BFSC	Investigation team member for Class III & IV investigations at Wing/Unit	5 yrs from date of issue Extended if continuously employed in a FS position
Basic Investigator 2	As above plus AFSC	As Above plus Investigation Team member for Class I or Class II investigations	5 yrs from date of issue Extended if continuously employed in a FS position
Basic Investigator 1	As Above plus Basic Aviation Investigator course	As Above plus Commence Upgrade for IIC of Class I & II	5 yrs from date of issue Extended if continuously employed in a FS position

Table 1 - Basic Investigator Requirements and Roles

IIC Category	Training Required	Experience Required	Duties	Valid Period
IIC 3	BFSC AFSC	A/R	Act as IIC of Class III & IV investigations at Wing/Unit	5 yrs from date of issue Extended if continuously employed in a FS position
IIC 2	As Above plus Basic Aviation Safety Investigator courses (as determined by AIA/DFS), DFS OJTS	Participated in 2 investigations as a BI1 Recommended by Senior and Chief Investigator	Act as IIC of a Class II, III or IV investigation	5 yrs from date of issue Extended if continuously employed in a FS investigator position
IIC 1	As Above plus IIC 2 qualified Advance Aircraft Investigation course (or equivalent) DFS OJTS	Participated in 2 Class I investigations Completed 2 Class II investigations as IIC Recommended by Senior and Chief Investigator	Act as IIC of a Class I, II, III or IV investigation	5 yrs from date of issue Extended if continuously employed in a FS investigator position

Table 2 – Investigator-in-Charge Requirements and Roles

CHAPTER 5

AIRWORTHINESS INVESTIGATOR CERTIFICATION AND AUTHORIZATION

INTRODUCTION

1. One of the tenets of the DND/CF Airworthiness Program is that the work is done by authorized individuals. As outlined in Chapter 1 of this manual, one of the tasks assigned to the AIA is to "assign investigative authority to organizations and individuals involved in the investigation of aviation-safety-related occurrences and issues."

2. As explained in Chapter 4, in order to be "authorized", individuals must be certified as being qualified to conduct airworthiness investigation activities and then they may become "authorized" to conduct airworthiness investigation activities on behalf of the AIA. While the AIA is the authority from which this authorization flows, for reasons of efficiency and appropriate span of control some of this certification/authorization is performed by designated individuals that conduct airworthiness activities on the AIA's behalf.

3. AIA authorization to conduct airworthiness investigation flows to qualified/certified individuals in two ways, through the FSI tasking message that so lists those individuals or through the duties inherent as a designated FS Officer/NCM and conducting activities for the FS program. The objective of this Chapter is to outline the process by which airworthiness investigators will be certified and authorized to conduct specific types of airworthiness investigations.

4. An important point of note is that the authority to conduct investigations is provided to individuals and is limited to an airworthiness context and "is not intended to interfere with the organizational command and control, management and resource authorities provided by other means such as the *NDA, the FAA"* (as stated in the A-GA-005, Section 2, para 17) and other such authorities.

CERTIFICATION OF QUALIFICATION AUTHORITIES

5. There are four individuals involved in the issuance of airworthiness investigation credentials. These are the AIA, the 1 Canadian Air Division Flight Safety Officer (Div FSO), the DFS Chief Investigator (CI) and the DFS Senior Investigator (SI).

6. AIA. The AIA is normally the officer holding the position of DFS and the AIA's authority, role and responsibilities are outlined in a CDS Order issued on behalf of the MND. The associated authorities and responsibilities are detailed in the DAOD 2015 and A-GA-005 and are summarized in Chapter 1 of this publication. All airworthiness investigation authorizations flow from the AIA to properly qualified and certified individuals.

7. Div FSO. The Div FSO is the officer assigned to the position of 1 Cdn Air Div Flight Safety Officer. The Div FSO normally has a combination of flight safety and operational experience as well as the Basic Flight Safety Course (BFSC) and the Advanced Flight Safety Course (AFSC).

For appropriate span of control and efficiency reasons, the AIA through a letter of delegation, has designated the Div FSO to conduct certain investigator training courses and is the issuing authority for specific investigator categories and airworthiness authorizations on behalf of the AIA and as outlined below.

8. Chief Investigator. The CI is normally the officer appointed to the position of DFS 2. The AIA has designated the CI as having the responsibility for establishing and managing a training program for a sector of the airworthiness investigators as outlined below. This officer is also responsible for ensuring that there are a sufficient number of qualified personnel to complete Class II and Class I investigations. The CI will recommend appropriately skilled individuals for certification of their qualification by the AIA.

9. Senior Investigator. The SI is an IIC 1 on the DFS 2 staff. This individual is responsible for maintaining DFS investigator training files, for monitoring the quality of DFS investigator activities and through these activities, recommending IIC Category upgrades to the CI.

AIRWORTHINESS CERTIFICATION FORMS

10. All investigators and IICs that hold a valid category will be awarded a Certification Form in the format shown at Annex A. In addition, airworthiness investigators will be given a laminated, wallet size card that identifies them as a certified airworthiness investigator or IIC. As an individual upgrades their investigator status, the airworthiness investigator card will be appropriately endorsed.

TRAINING RECORDS

11. A training file will be kept for each individual who has either a BI or an IIC Category. This training file can be maintained as either an electronic or paper file. Training files for Division, Wing and Unit FS personnel holding a BI 2&3 and IIC 3 Category will be maintained by the DFSO. Training files for all other BIs (such as investigation team members) or IICs and for all DFS staff will be maintained by DFS. This training file will contain the following applicable information as a minimum:

a. BFSC Course Report;

b. AFSC Course Report;

c. copies of all formal training certificates of completion or course reports (for in-service and out-service courses);

d. copies of other training certificates or records of training conducted such as media contact training, salvage and recovery courses, Biohazard and Blood borne Pathogen familiarization etc;

e. tracking of all air accident investigation activities and the role assumed in the investigation (group involvement, planning, transfer of responsibility at various stages etc);

f. copies of all formal field training (Shadow and Acting IIC) reports; and

g. copies of all BI and IIC certification forms.

CERTIFICATION OF QUALIFICATION PROCESS

12. The Div FSO and the CI must assure themselves that the individual who is being recommended for an investigator or IIC category has met the appropriate standard (as indicated below). Note, training waived by the AIA will permit awarding of an “acting” category to these listed requirements but the requirements should be completed as quickly as possible.

13. As per direction issued in the A-GA-005 (Part 1, Section 2, paras 14 & 15), the AIA may issue exemptions to airworthiness (training) requirements that “cannot be achieved without considerable or unacceptable impact on (AIA) operations.” Normally it must be demonstrated that such exemptions would “not degrade safe operations, that they are justified and that it is in the interests of DND/CF and the public.” Safe operations for the AIA means the conduct of safe and effective airworthiness investigations.

14. <u>Basic Investigator 3</u>. Prior to receiving a BI 3 Category, the individual must successfully complete the Basic Flight Safety Course (BFSC) Confirmation Exercise.

15. <u>Basic Investigator 2</u>. Prior to receiving a BI 2 Category, the individual must be a BI 3 and successfully complete Advanced Flight Safety Course (AFSC).

16. <u>Basic Investigator 1</u>. The individual must be a BI 2 and have completed a Basic Aviation Safety Investigator Course (such as at the Southern California Safety Institute (SCSI), Cranfield University, the NTSB Training Facility or a similar course at a similar institution);

17. <u>IIC 3</u>. Prior to receiving an IIC 3 Category, the individual must successfully complete the BFSC and the AFSC;

18. <u>IIC 2</u>. Prior to receiving an IIC 2 Category, the individual must have a BI 1 category. In addition, the investigator should have completed the DFS OJTS and Acting IIC phase of training as outlined in Chapter 4. The AIA can, in consideration of exemptions to airworthiness regulations as indicated above, waive this training. The IIC of the investigation in which Shadow training is conducted must complete a brief report for the SI that includes the investigation aspects covered, the skills demonstrated and development levels noted of the trainee. The IIC of the investigation in which the Acting IIC Phase of training is conducted must complete a brief written progress report for the Senior Investigator on the trainee that assesses:

a. investigation skills;

b. organizational skills;

c. personnel management skills;

d. writing skills;

e. other skills (salvage and recovery, dealing with the media, NOK etc); and

f. a recommendation for employment as an IIC 2 or recommendations for further training.

19. Individuals upgrading to an IIC 2 category must also successfully complete an in-house training module dealing with the legal aspects of investigations. This module involves a self study package developed by CFLA and a closed book multiple choice examination on that study module. The passing standard for this examination is 85%.

20. The Senior Investigator will conduct a thorough review of the training file of the individual being recommended for IIC 2 Category. If the Senior Investigator is satisfied that the individual has met all standards, then they will forward a recommendation to the CI for the upgrade to IIC 2 Category. The CI will then review the individuals training file and, if satisfied, nominate the individual to the AIA for consideration and approval of IIC 2 certification.

21. IIC 1. A very similar process occurs for the granting of IIC 1 status. Prior to receiving an IIC 1 Category, the individual must have held an IIC 2 Category (or completed the equivalent training as determined by the Senior and CIs). In addition, the investigator should have completed the DFS OJTS and Acting IIC phases of training as outlined in Chapter 4. The AIA may, in consideration of exemptions to airworthiness regulations as indicated above, waive some or all of this training. The Senior Investigator will conduct the Acting IIC phase of training and will complete a brief written progress report for the Chief Investigator on the individual that assesses the areas listed above (para 15).

22. The CI will conduct a thorough review the training file of the individual being recommended for IIC 1 category. If the CI is satisfied that the individual has met all standards, then he will forward a written recommendation to the AIA. If some of the pre-requisites for an IIC have not been met, then the CI must indicate the rationale for waiving these requirements or awarding an acting Category with restrictions.

23. The AIA will review the recommendations put forward by the CI and, if satisfied, award an IIC 1 category or A/IIC 1 category.

24. A summary of certification authorities is outlined in Table 1 below.

Airworthiness Investigation Category	**Recommending Authority**	**Certification Authority**
Basic Investigator 3 (BI 3)	BFSC Course Officer	Div FSO
Basic Investigator 2 (BI 2)	AFSC Course Officer	Div FSO
Basic Investigator 1 (BI 1)	SI and CI	AIA
Investigator In Charge 3 (IIC 3)	AFSC Course Officer	Div FSO
Investigator In Charge 2 (IIC 2)	SI and CI	AIA
Investigator In Charge 1 (IIC 1)	SI and CI	AIA

Table 1 Certification Authorities

This is to certify that

____

is an authorized/qualified

____

The individual named above is authorized to conduct investigations into aircraft occurrences within the limitations outlined in the Airworthiness Investigation Manual. These investigations are conducted under the authority of the Airworthiness Investigative Authority and in accordance with section 4.2(n) of the *Aeronautics Act*

____
G.R. Doiron
Colonel
Airworthiness Investigative Authority
Dated __________________

CHAPTER 6

AIRWORTHINESS INVESTIGATOR AUTHORITIES

INTRODUCTION

1. The Airworthiness Program is supported by a well-defined documentation hierarchy that contains the necessary rules, regulations and standards to ensure an acceptable level of aviation safety. One of the main tasks of the Airworthiness Investigative Authority is to "assign investigative authority to organizations and individuals involved in the investigation of aviation-safety-related occurrences and issues." Although this has been done effectively for the past several decades within the Flight Safety Program, the process for doing so was not formalized.

2. The Airworthiness Program dictates that "the scope and depth of airworthiness authority within an organization must be based on the capability of the organization...and the authority assigned to individuals within the organization is based on their demonstrated skills, knowledge, experience and competence...nominated individuals must accept the responsibilities and authorities for which they have been nominated." In keeping with the airworthiness principle that work is only done by authorized individuals, a process for assigning airworthiness investigative authorities was developed.

3. Of note, the authority placed upon the AIA by the MND through the *Aeronautics Act* and other Acts is quite broad and in some cases far reaching in its empowerment. Because of the nature of some of these powers, the AIA's full authority is not delegated to all investigators at all times. The aim of this chapter is to outline how these airworthiness investigative authorities are assigned to individuals and organizations through time and circumstances associated with investigations.

BACKGROUND

4. The Royal Canadian Air Force and the Canadian Forces (CF) have been conducting Flight Safety Investigations since 1942. The process that evolved over the years was to adopt a non-confrontational approach to investigations, in keeping with the principles of the CF Flight Safety Program. However, when necessary, the powers of the *National Defence Act (NDA)* were employed.

SUPPORTING DOCUMENTS

5. Airworthiness investigative authorities are derived from the *Aeronautics Act* and the *CTAISB Act* in addition to the *NDA*. In order to exercise these authorities properly, BIs and IICs must have the appropriate training and the appropriate experience. Moreover, some authorities will require specialized training and, due to the nature of these authorities, can only be used in exceptional circumstances. These latter authorities will be retained by the AIA and only delegated to a specific individual for specific investigations and for a specified period of time.

6. Another complicating factor is that the DND/CF utilizes contractors and Public Servants to provide a variety of services. These services include (but are not limited to) the dry lease of

aircraft that are flown by CF personnel, a variety of aircraft maintenance work and contracted air training services. The civilian personnel engaged in conducting or supporting DND/CF flying operations are not subject to the NDA, so to ensure contractors and Public Servants involved with military aviation conform to the Airworthiness Program, contract law is invoked (A-GA-005, Part 1, Section2, para 6). In practice this requires that contracts include an obligation to comply with the requirements of the Airworthiness Program; however, this is just that, a contractual obligation rather than a personal legal obligation. Consequently, if these individuals are involved in an occurrence, airworthiness investigators do not have any legal means of compelling contractor personnel to participate in an investigation other than to ask them to do so voluntarily. Refusal on the part of person may bear a contractual penalty but not a personal legal consequence.

7. The AIA also could decide to utilize his delegated power to convene a Board of Inquiry under section 6.3 of the *Aeronautics Act*. In this circumstance, investigators have additional powers allocated under the *Inquiries Act,* one of which may compel testimony from witnesses regardless of their desires. This would be an exceptional circumstance and one that the AIA would pursue only if left no other route to achieve the AIA investigation mandate.

TYPES OF AUTHORITIES

8. AIA Authorized DND/CF accident investigators will have two types of authorities available to undertake airworthiness investigations: standing authorities and retained authorities. Standing authorities will be those that are assigned with a particular airworthiness investigator qualification. Retained authorities are those authorities that will only be delegated by the AIA in specific circumstances and for a specific period of time.

GROUPS OF AIRWORTHINESS AUTHORITIES

9. Airworthiness Investigation Authorities are grouped into six general areas:

a. authority to conduct interviews;

b. authority to search, seize and test items (to destruction if necessary);

c. authority to restrict access to investigation sites;

d. authority to approve airworthiness investigation reports;

e. authority to obtain medical information; and

f. authority to gather and release information.

10. <u>Interviews</u>. Flight safety investigation interviews are traditionally done in a non-confrontational manner. In addition, witness statements provided to a flight safety investigator are treated as "privileged" in that these statements cannot be used for legal, administrative, disciplinary or other purposes. The *Aeronautics Act* and the *CTAISB Act* require that witness statements must be treated as privileged. If witnesses are reluctant or refuse to provide information to an investigator, the NDA can be invoked if the witness is subject to the code of

service discipline. However, if the witness is not subject to the NDA (i.e. a civilian contractor or Public Servant), then that person cannot be compelled to submit to an interview or answer the airworthiness investigator's questions, despite the contractual obligation “to conform to the airworthiness instruments of the Airworthiness Program.” In other words, personnel who are not subject to the code of service discipline can only be interviewed if they voluntarily agree to participate. However, failure to undertake an interview by an airworthiness investigator is likely a breach of the contract with DND/CF. In cases such as this, the IIC should consult with the AIA to consider what further action, if any, should be taken. Again, and as a last resort for pursuit of the AIA’s investigation mandate, a BOI under section 6.3 of the *Aeronautics Act* may be convened to get witness testimony and cooperation; however, that route would only be pursued by the AIA under exceptional circumstances.

11. Search and Seizure of Items. Searches for items related to an occurrence can only be done on DND property unless the owner of the property agrees to allow investigators to search the property. In addition, only items that are the property of DND/CF can be seized during these searches, unless the owner of the property or item agrees to permit DND/CF to take possession of the property or item for purposes of the investigation.

12. Articles that have been seized after a flight safety occurrence are either impounded or quarantined. Impounding of articles refers to safeguarding the material to prevent their loss or alteration. Articles such as records, documents, films, tapes, and forms that may be required for the investigation are impounded. Quarantining refers to the withholding and safeguarding of physical evidence or hazardous items. Such items may include complete aircraft components, equipment, stores, and production lots or batches. Procedures to be followed for impounding and quarantining of materiel are outlined in the A-GA-135-001/AA-001, Chapter 8.

13. Restricting Access to Investigation Sites. Limiting access to investigation sites is required for the safety of personnel (both military and civilian), the protection of evidence and the protection of information. The military has the authority to restrict access to an occurrence site on DND land only. Military personnel have no authority to restrict access to an occurrence site on Crown Land under the control of either another Federal Government Department or a Provincial Government. In addition, military personnel have no authority to restrict access to privately owned property. If an investigation site is on Crown Land or on private property, then the cooperation of the applicable Crown Authority, land owner and/or the assistance of the local authorities (police) must be sought. Police enforcement of a restriction cordon for public safety, to preserve evidence or to appease local property owners has been forthcoming in past occurrences but this cooperation was not a legal requirement.

14. Approval of Investigation Reports. Once a flight safety report has been drafted, it must be finalized and approved. Although ultimate approval authority rests with the AIA, some report approval authority is assigned for efficiency purposes to WFSOs/IIC 3s for IRs, SRs and CRs. Once a report has been approved, it cannot be altered unless the investigation is reopened by the AIA.

15. Personal Health Information. Consistent with the *Privacy Act* and with bylaws and guidelines of provincial medical licensing authorities, personal health information will not be disclosed without the consent of the individual to whom it relates. There are exceptions to the

general rule of protection of personal information in accordance with the permitted disclosures that are outlined in subsection 8(2) of *the Privacy Act*.

16. Personal health information collected during a flight safety investigation will be safe guarded appropriately to prevent improper disclosure; however, some such relevant information may be shared by the appropriate investigation team members for due consideration in the investigation process. The investigating Flight Surgeon will furnish a sanitized medical report to the IIC for inclusion into the main flight safety report. As such, detailed personal health information will not be included in this sanitized version. If deemed necessary after discussion with the IIC, the investigating Flight Surgeon will also create a Separate Medical Report (Protected B). Detailed personal health information will be included only in the medical member's Separate Medical Report (Protected B). Distribution of this report (for possible revision and consideration) will be restricted to the AMA, the 1 Cdn Air Div Surgeon and the CO CFEME.

17. <u>Release of Information</u>. There are four types of releasable airworthiness investigation information, which may be combined in forms such as in a "statistical release" and "reports" or singular categories such as "only factual information". They are:

a. factual information;

b. analysis;

c. findings and cause factors; and

d. recommendations.

18. In addition to the four types of releasable information listed above, the concept of "privilege" as defined in the *CTAISB Act* must be superimposed. The forms of communication/information to which "privilege" applies have particular legal protections that are outlined in the *CTAISB Act*. Privilege is applied to:

a. on board recordings which includes:

(i) a recording of voice communications originating from an aircraft or received on or in the flight deck of an aircraft; or

(ii) a video recording of the activities of the operating personnel of an aircraft;

b. statements which includes:

(i) an oral, written or recorded statement relating to a military aircraft occurrence which is given to an airworthiness investigator; or

(ii) a transcript or a summary of a statement referred to in subpara (i) above;

c. a communication record which means the whole or part of any record, recording, copy, transcript or substantial summary of any type of communications respecting air traffic control or related matters.

19. Also, there may be orders, intra-departmental protocols and AIA processes that effect the information gathered during an AIA airworthiness investigation and that must be considered when releasing such information. An example of such consideration is the manner that the CF/DND handles FDR data. While not under any specific statutory or regulatory protection, there are Air Command Orders (ACOs) that must be respected when dealing with release of this specific type of information.

20. Other types of information that must be considered differently for release are comments received from Persons of Direct Interest (PDI) or third parties (such as OEMs) and special reports prepared for investigations by experts or special organizations. First, personal comments (which PDI returns and OEM remarks fall under) must be tightly controlled and *CTAISB Act* privilege, rules of Privacy and Access to Information considered. The AIA may decide that safety is an overriding factor and choose to release such information from that perspective but will take every precaution to safeguard the identity and source of such released information. Similarly, reports prepared by specialist advisers or expert team members that are prepared exclusively for the AIA and the airworthiness investigation for which they are composed are generally not released in whole but may be quoted in released information or form part of the final report of an investigation. In general, these reports are considered property of the AIA and he/she must be consulted by the specialist advisers or expert organization should release of an expert report be sought by other organizations or for other purposes that the specific airworthiness investigation.

21. There are six entities to which airworthiness investigation information can be released. These are:

a. the chain of command;

b. the DND/CF general population (the internal audience);

c. next of kin (in several different categories - see Chapter 7);

d. the media;

e. the general public (the external audience); and

f. other investigating agencies, civil or military (in several different categories).

22. The protocols for release of information to other investigating agencies are outlined in Chapter 8 & 9.

23. A factor that must be considered with respect to the release of information is whether or not the investigation is completed. The premature release of information prior to the completion of an airworthiness investigation can sometimes compromise the investigation. Therefore, the distinction will be made between ongoing and completed investigations. Information concerning ongoing investigations must be very tightly controlled particularly since onward release of ongoing investigations is not illegal and therefore parties with such information could decide to further distribute the information, which could be incomplete or inaccurate. Also, the

publication of information prior to the appropriate time could prejudice safety measures or prevent the implementation of timely, voluntary preventive measures.

DELEGATION OF AIA AUTHORITY TO INDIVIDUALS

24. Standing Authorities. Standing authorities are exercised by the individuals holding a current qualification of the type specified in Annex A. These standing authorities are continuously active unless specifically revoked by the AIA. For the sake of clarity, the Standing Authorities for each category of investigator are listed in Annex B.

25. Retained Authorities. A list of retained authorities that may be delegated by the AIA is outlined in Annex C. These authorities will normally only be delegated to a particular individual and for a specified period of time and will be delegated by the AIA via message or e-mail. For the sake of brevity, the authorities to be delegated will refer to the serial number listed in Annex C. A sample message outlining the delegation of Retained Authorities is attached as Annex D.

ANNEX A - STANDING AUTHORITIES

SERIAL	AUTHORITY	AUTHORITY DELEGATED TO
SA 1.	Conduct Interviews	
SA 1.a.	Conduct interviews concerning Class IV Investigations with personnel subject to the code of service discipline	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1
SA 1.b.	Conduct interviews concerning Class III Investigations with personnel subject to the code of service discipline	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1
SA 1.c.	Conduct interviews concerning Class II Investigations with personnel subject to the code of service discipline	IIC 3, IIC2, IIC 1, BI 2, BI 1
SA 1.d.	Conduct interviews concerning Class I Investigations with personnel subject to the code of service discipline	IIC 3, IIC 2, IIC 1, BI 2, BI 1
SA 1.e.	Conduct interviews concerning Class IV Investigations with civilian personnel who voluntarily agree to be interviewed	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1
SA 1.f.	Conduct interviews concerning Class III Investigations with civilian personnel who voluntarily agree to be interviewed	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1
SA 1.g.	Conduct interviews concerning Class II Investigations with civilian personnel who voluntarily agree to be interviewed	IIC 3, IIC 2, IIC 1, BI 2, BI 1
SA 1.h.	Conduct interviews concerning Class I Investigations with civilian personnel who voluntarily agree to be interviewed	IIC 3, IIC 2, IIC 1, BI 2, BI 1
SA 1.i.	Conduct interviews with civilian personnel who will not voluntarily agree to be interviewed	Retained (see Note 1)
SA 2.	Search, Seize and Test to Destruction	
SA 2.a.	Search military facilities for items related to an aircraft occurrence	IIC 3, IIC 2, IIC 1

SA 2.b.	Impound military items required for an aircraft occurrence investigation	BI 3, BI 2, BI 1, IIC 3, IIC 2, IIC 1
SA 2.c.	Quarantine military items required for an aircraft occurrence investigation	BI 3, BI 2, BI 1, IIC 3, IIC 2, IIC 1
SA 2.d.	Order that a military item be tested (possibly to destruction)	IIC 2, IIC 1
SA 2.e.	Search civilian facilities/property for items related to an aircraft occurrence with the owner's permission	IIC 3, IIC 2, IIC 1
SA 2.f	Search civilian facilities for items related to an aircraft occurrence without the owner's permission	Retained (see Note 1)
SA 2.g.	Impound civilian items required for an aircraft occurrence investigation with the owner's permission	IIC 3, IIC 2, IIC 1
SA 2.h	Impound civilian items required for an aircraft occurrence investigation without the owner's permission	Retained (see Note 1)
SA 2.i.	Quarantine civilian items required for an aircraft occurrence investigation with the owner's permission	IIC 3, IIC 2, IIC 1
SA 2.j	Quarantine civilian items required for an aircraft occurrence investigation without the owner's permission	Retained (see Note 1)
SA 2.k.	Order that a civilian item be tested (possibly to destruction) with the owner's permission	IIC 3, IIC 2, IIC 1
SA 2.l.	Order that a civilian item be tested to destruction without the owner's permission	Retained (see Note 1)
SA 3.	<u>Restrict Access to an Investigation Site</u>	
SA 3.a.	Restrict access to an investigation site on DND controlled land/water	IIC 3, IIC 2, IIC 1
SA 3.b.	Restrict access to an investigation site on Crown Land/Water controlled land by another Federal Government Department	See Note 2

SA 3.c.	Restrict access to an investigation site on Crown Land/Water controlled by a Province	See Note 2
SA 3.d.	Restrict access to an investigation site on privately owned land/water	Retained (see Note 1)
SA 4.	<u>Approve Investigation Reports</u>	
SA 4.a.	Approve a Supplementary Report (SR)	IIC 3
SA 4.b.	Approve a Combined Report (CR)	IIC 3
SA 4.c.	Approve submission of Initial Report (IR)	BI 3, BI 2, BI 1, IIC 3, IIC 2, IIC 1
SA 4.d.	Approve an Enhanced SR (E/SR)	Retained
SA 4.e.	Approve an Abbreviated Flight Safety Investigation Report (A/FSIR)	Retained
SA 4.f.	Approve a Flight Safety Investigation Report (FSIR)	Retained
SA 5.	<u>Medical Information (See Note 3)</u>	
SA 5.a.	Gather and Quarantine Personal Health Information	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1
SA 5.b.	Share appropriate Personal Health information with selected and appropriate investigation team members	IIC 1, IIC 2
SA 5.c.	Create Separate Medical Report	Medical Member
SA 6.	<u>Gather and/or Release Information (See Note 4)</u>	
SA 6.a.	<u>Ongoing Investigations</u>	
SA 6.a.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to Commanders	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1 (see Note 5)
SA 6.a.(2).	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to Commanders	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1 (see Note 5)
SA 6.a.(3).	Release of factual information concerning an ongoing Class II investigation to Commanders	IIC of the investigation (see Note 5)

SA 6.a.(4)	Release of factual information concerning an ongoing Class I investigation to Commanders	IIC of the investigation (see Note 5)
SA 6.a.(5)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to DND/CF personnel	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1 (see Note 5)
SA 6.a.(6)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to DND/CF personnel	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1 (see Note 5)
SA 6.a.(7)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class II investigation to DND/CF personnel	Retained
SA 6.a.(8)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class I investigation to DND/CF personnel	Retained
SA 6.a.(9)	Release of factual information concerning an ongoing investigation to NOK	Retained (see Note 6)
SA 6.a.(10)	Release of factual information concerning an ongoing Class I, Class II, Class III or Class IV investigation to the media	Retained (see Note 6)
SA 6.b.	<u>Completed Investigations</u>	
SA 6.b.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to Commanders.	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1
SA 6.b.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to DND/CF personnel.	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1
SA 6.b.(3)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to the media.	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1

SA 6.b.(4)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to the public through ATI	IIC 3, IIC 2, IIC 1, BI 3, BI 2, BI 1
SA 6.b.(5)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class I & II investigation to Commanders, DND/CF personnel, NOK, the media or the public through ATI	Retained (see Note 6)

Note 1: Retained authority for these functions rests with the AIA and the power to conduct a Board of Inquiry under section 6.3 or the A*eronautics Act*, as per the MND delegation indicated the AIA's CDS Delegation Order (see Annex C).

Note 2: Restriction of access to the occurrence site must be coordinated with the appropriate authorities.

Note 3: Personal Health Information will not be disclosed without the consent of the individual to whom it relates, subject to provisions outlined in subsection 8(2) of the *Privacy Act*. A sanitized medical report will be produced for inclusion in the main flight safety investigation report. A Separate Medical Report (Protected B) may be produced with detailed personal health information included that will only be viewed by Medical Member of Investigation Team, AMA, 1 Cdn Air Div Flt Surg and/or the CO CFEME. Medical information and aspects germane to the investigation may be shared with certain investigation team members depending upon the function of the investigation member and a requirement for the information to complete the investigation.

Note 4: All information released by an airworthiness investigator to any individual must be "de-identified". Names or individual call signs are not to be used and, to the extent possible, the identity of individuals must be protected.

Note 5: Information released under this authority must only be released to further remedial action or for Preventive Measures purposes.

Note 6: The information released in these events is governed by AIA policy. For example, the information released to media or NOK for an on-going investigation is limited to the information released in the FTI and the explanations of such facts. Similarly, the means and release of completed Class I & II investigations is governed by AIA administrative procedures and could be released by assigned individuals through AIA tasking.

ANNEX B - SUMMARY OF STANDING AUTHORITIES BY QUALIFICATION

Serial	Authority
	Basic Investigator 3 (BI 3)
SA 1.a.	Conduct interviews concerning Class IV Investigations with personnel subject to the code of service discipline
SA 1.b.	Conduct interviews concerning Class III Investigations with personnel subject to the code of service discipline
SA 1.e.	Conduct interviews concerning Class IV Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.f.	Conduct interviews concerning Class III Investigations with civilian personnel who voluntarily agree to be interviewed
SA 2.b.	Impound military items required for an aircraft occurrence investigation
SA 2.c.	Quarantine military items required for an aircraft occurrence investigation
SA 4.c.	Approve submission of Initial Report (IR)
SA 5.a.	Gather and Quarantine Personal Health Information (See Note 1)
SA 6.a.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to commanders (see Notes 2, 3 & 4)
SA 6.a.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to commanders (see Notes 2, 3 & 4)
SA 6.b.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to commanders.
SA 6.b.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to DND/CF personnel.
SA 6.b.(3)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to the media.

SA 6.b.(4)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to the public through ATI
Basic Investigator 2 (BI 2)	
SA 1.a.	Conduct interviews concerning Class IV Investigations with personnel subject to the code of service discipline
SA 1.b.	Conduct interviews concerning Class III Investigations with personnel subject to the code of service discipline
SA 1.c.	Conduct interviews concerning Class II Investigations with personnel subject to the code of service discipline
SA 1.d.	Conduct interviews concerning Class I Investigations with personnel subject to the code of service discipline
SA 1.e.	Conduct interviews concerning Class IV Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.f.	Conduct interviews concerning Class III Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.g.	Conduct interviews concerning Class II Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.h.	Conduct interviews concerning Class I Investigations with civilian personnel who voluntarily agree to be interviewed
SA 2.b.	Impound military items required for an aircraft occurrence investigation
SA 2.c.	Quarantine military items required for an aircraft occurrence investigation
SA 4.c.	Approve submission of Initial Report (IR)
SA 5.a.	Gather and Quarantine Personal Health Information (see Note 1)
SA 6.a.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to commanders (see Notes 2, 3 & 4)
SA 6.a.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to commanders (see Notes 2, 3 & 4)
SA 6.b.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to commanders.

SA 6.b.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to DND/CF personnel.
SA 6.b.(3)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to the media.
SA 6.b.(4)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to the public through ATI
Basic Investigator 1 (BI 1)	
SA 1.a.	Conduct interviews concerning Class IV Investigations with personnel subject to the code of service discipline
SA 1.b.	Conduct interviews concerning Class III Investigations with personnel subject to the code of service discipline
SA 1.c.	Conduct interviews concerning Class II Investigations with personnel subject to the code of service discipline
SA 1.d.	Conduct interviews concerning Class I Investigations with personnel subject to the code of service discipline
SA 1.e.	Conduct interviews concerning Class IV Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.f.	Conduct interviews concerning Class III Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.g.	Conduct interviews concerning Class II Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.h.	Conduct interviews concerning Class I Investigations with civilian personnel who voluntarily agree to be interviewed
SA 2.b.	Impound military items required for an aircraft occurrence investigation
SA 2.c.	Quarantine military items required for an aircraft occurrence investigation
SA 4.c.	Approve submission of Initial Report (IR)
SA 5.a.	Gather and Quarantine Personal Health Information (see Note 1)
SA 6.a.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to commanders (see Notes 2, 3 & 4)

SA 6.a.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to commanders (see Notes 2, 3 & 4)
SA 6.b.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to commanders.
SA 6.b.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to DND/CF personnel.
SA 6.b.(3)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to the media.
SA 6.b.(4)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III& IV investigation to the public through ATI
Investigator In Charge 3 (IIC 3)	
SA 1.a.	Conduct interviews concerning Class IV Investigations with personnel subject to the code of service discipline
SA 1.b.	Conduct interviews concerning Class III Investigations with personnel subject to the code of service discipline
SA 1.c.	Conduct interviews concerning Class II Investigations with personnel subject to the code of service discipline
SA 1.d.	Conduct interviews concerning Class I Investigations with personnel subject to the code of service discipline
SA 1.e.	Conduct interviews concerning Class IV Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.f.	Conduct interviews concerning Class III Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.g.	Conduct interviews concerning Class II Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.h.	Conduct interviews concerning Class I Investigations with civilian personnel who voluntarily agree to be interviewed
SA 2.a.	Search military facilities for items related to an aircraft occurrence
SA 2.b.	Impound military items required for an aircraft occurrence investigation

SA 2.c.	Quarantine military items required for an aircraft occurrence investigation
SA 2.e.	Search civilian facilities for items related to an aircraft occurrence with the owner's permission
SA 2.g.	Impound civilian items required for an aircraft occurrence investigation with the owner's permission
SA 2.i.	Quarantine civilian items required for an aircraft occurrence investigation with the owner's permission
SA 2.k.	Order that a civilian item be tested (possibly to destruction) with the owner's permission
SA 3.a.	Restrict access to an investigation site on DND controlled land
SA 4. a.	Approve a Supplementary Report (SR)
SA 4. b.	Approve a Combined Report (CR)
SA 4. c.	Approve submission of Initial Report (IR)
SA 5. a.	Gather and Quarantine Personal Health Information (see Note 1)
SA 6.a.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to commanders (see Notes 2, 3 & 4)
SA 6.a.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to commanders (see Notes 2, 3 & 4)
SA 6.a.(5)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to DND/CF personnel (see Notes 2, 3 & 4)
SA 6.a.(6)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to DND/CF personnel (see Notes 2, 3 & 4)
SA 6.b.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to commanders.
SA 6.b.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to DND/CF personnel.

SA 6.b.(3)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to the media.
SA 6.b.(4)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to the public through ATI
Investigator In Charge 2 (IIC 2)	
SA 1.a.	Conduct interviews concerning Class IV Investigations with personnel subject to the code of service discipline
SA 1.b.	Conduct interviews concerning Class III Investigations with personnel subject to the code of service discipline
SA 1.c.	Conduct interviews concerning Class II Investigations with personnel subject to the code of service discipline
SA 1.d.	Conduct interviews concerning Class I Investigations with personnel subject to the code of service discipline
SA 1.e.	Conduct interviews concerning Class IV Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.f.	Conduct interviews concerning Class III Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.g.	Conduct interviews concerning Class II Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.h.	Conduct interviews concerning Class I Investigations with civilian personnel who voluntarily agree to be interviewed
SA 2.a.	Search military facilities for items related to an aircraft occurrence
SA 2.b.	Impound military items required for an aircraft occurrence investigation
SA 2.c.	Quarantine military items required for an aircraft occurrence investigation
SA 2.d.	Order that a military item be tested (possibly to destruction)
SA 2.e.	Search civilian facilities for items related to an aircraft occurrence with the owner's permission
SA 2.g.	Impound civilian items required for an aircraft occurrence investigation with the owner's permission
SA 2.i.	Quarantine civilian items required for an aircraft occurrence investigation with the owner's permission

SA 2.k.	Order that a civilian item be tested (possibly to destruction) with the owner's permission
SA 3.a.	Restrict access to an investigation site on DND controlled land
SA 4.c.	Approve submission of Initial Report (IR)
SA 5.a.	Gather and Quarantine Personal Health Information (see Note 1)
SA 5.b.	Share appropriate Personal Health information with selected and appropriate investigation team members (see Note 1)
SA 6.a.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to commanders (see Notes 2, 3 & 4)
SA 6.a.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to commanders (see Notes 2, 3 & 4)
SA 6.a.(3).	Release of factual information concerning an ongoing Class II investigation (for which the individual is the IIC) to commanders (see Notes 2, 3 & 4)
SA 6.a.(5).	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to DND/CF personnel (see Notes 2, 3 & 4)
SA 6.a.(6).	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to DND/CF personnel (see Notes 2, 3 & 4)
SA 6.a.(9)	Release of factual information concerning an ongoing investigation (for which the individual is the IIC) to NOK (see Note 4)
SA 6.b.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to commanders.
SA 6.b.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to DND/CF personnel.
SA 6.b.(3)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to the media.
SA 6.b.(4)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to the public through ATI

Investigator In Charge 1 (IIC 1)	
SA 1.a.	Conduct interviews concerning Class IV Investigations with personnel subject to the code of service discipline
SA 1.b.	Conduct interviews concerning Class III Investigations with personnel subject to the code of service discipline
SA 1.c.	Conduct interviews concerning Class II Investigations with personnel subject to the code of service discipline
SA 1.d.	Conduct interviews concerning Class I Investigations with personnel subject to the code of service discipline
SA 1.e.	Conduct interviews concerning Class IV Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.f.	Conduct interviews concerning Class III Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.g.	Conduct interviews concerning Class II Investigations with civilian personnel who voluntarily agree to be interviewed
SA 1.h.	Conduct interviews concerning Class I Investigations with civilian personnel who voluntarily agree to be interviewed
SA 2.a.	Search military facilities for items related to an aircraft occurrence
SA 2.b.	Impound military items required for an aircraft occurrence investigation
SA 2.c.	Quarantine military items required for an aircraft occurrence investigation
SA 2.d.	Order that a military item be tested (possibly to destruction)
SA 2.e.	Search civilian facilities for items related to an aircraft occurrence with the owner's permission
SA 2.g.	Impound civilian items required for an aircraft occurrence investigation with the owner's permission
SA 2.i.	Quarantine civilian items required for an aircraft occurrence investigation with the owner's permission
SA 2.k.	Order that a civilian item be tested to destruction with the owner's permission
SA 3.a.	Restrict access to an investigation site on DND controlled land
SA 4.c.	Approve submission of Initial Report (IR)
SA 5.a.	Gather and Quarantine Personal Health Information (see Note 1)

SA 5.b.	Share appropriate Personal Health information with selected and appropriate investigation team members (see Note 1)
SA 6.a.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to commanders (see Notes 2, 3 & 4)
SA 6.a.(2).	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to commanders (see Notes 2, 3 & 4)
SA 6.a.(3).	Release of factual information concerning an ongoing Class II investigation (for which the individual is the IIC) to commanders (see Notes 2, 3 & 4)
SA 6.a.(4).	Release of factual information concerning an ongoing Class I investigation (for which the individual is the IIC) to commanders (see Notes 2, 3 & 4)
SA 6.a.(5)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class IV investigation to DND/CF personnel (see Notes 2, 3 & 4)
SA 6.a.(6)	Release of factual information, analysis, findings and cause factors and recommendations concerning an ongoing Class III investigation to DND/CF personnel (see Notes 2, 3 & 4)
SA 6.a.(9)	Release of factual information concerning an ongoing investigation (for which the individual is the IIC) to NOK (see Note 4)
SA 6.b.(1)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to commanders
SA 6.b.(2)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to DND/CF personnel.
SA 6.b.(3)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to the media.
SA 6.b.(4)	Release of factual information, analysis, findings and cause factors and recommendations concerning a completed Class III & IV investigation to the public through ATI

Note 1: Personal Health Information will not be disclosed without the consent of the individual to whom it relates, subject to provisions outlined in subsection 8(2) of the *Privacy Act*. A sanitized medical report will be produced for inclusion in the main flight safety

investigation report. A Separate Medical Report (Protected B) may be produced with detailed personal health information included that will only be viewed by Medical Member of Investigation Team, AMA, 1 Cdn Air Div Flt Surg and/or the CO CFEME. Medical information and aspects germane to the investigation may be shared with certain investigation team members depending upon the function of the investigation member and a requirement for the information to complete the investigation.

Note 2: All information released by an airworthiness investigator to any individual must be "de-identified". Names or individual call signs are not to be used and, to the extent possible, the identity of individuals must be protected.

Note 3: Information released under this authority must only be released to further remedial action or for Preventive Measures purposes.

Note 4: The information released in these events is governed by AIA policy. For example, the information released to media or NOK for an on-going investigation is limited to the information released in the FTI and the explanations of such facts. Similarly, the means and release of completed Class I & II investigations is governed by AIA administrative procedures and could be released by assigned individuals through AIA tasking.

ANNEX C - RETAINED AUTHORITIES

(Authorities retained by the AIA until Delegated)

Serial	Authority
RA 1	Conduct Interviews
RA 1.a.	Conduct interviews with persons summoned by Board of Inquiry under section 6.3 or the A*eronautics Act*, (as per the MND delegation indicated in the AIA's CDS Delegation Order).
RA 2	Seize, Search and Test to Destruction
RA 2.a.	Seize, Search and Test (possibly to destruction) articles belonging to civilians and who will not give their permission to do so (see Note 1).
RA 2.b.	Release items from impound (see Note 2).
RA 2.c.	Release items from quarantine (see Note 2).
RA 3	Restrict Access to an Investigation Site
RA 3.a.	Restrict Access to an Investigation Site that is not on DND land or water (see Note 3).
RA 4	Approve Investigation Reports
RA 4.a.	Approve an Enhanced Supplementary Report
RA 4.b.	Approve an Abbreviated Flight Safety Investigation Report
RA 4.c.	Approve a Flight Safety Investigation Report
RA 5	Medical Information
RA 5.a.	Analyse and distribute Personal Health information (see Note 4).
RA 5.b.	Compose Separate Medical Report (see Note 4).
RA 5.c.	Compose sanitized medical information for investigation report.
RA 6	Release of Information
RA 6.a.	Ongoing Investigations
RA 6.a.(1)	Release of analysis, findings and cause factors and recommendations concerning an ongoing Class II investigation to Commanders

RA 6.a.(2)	Release of analysis, findings and cause factors and recommendations concerning an ongoing Class I investigation to Commanders
RA 6.a.(3)	Release of analysis, findings and cause factors and recommendations concerning an ongoing Class II investigation to DND/CF personnel
RA 6.a.(4)	Release of analysis, findings and cause factors and recommendations concerning an ongoing Class I investigation to DND/CF personnel
RA 6.a.(5)	Release of analysis, findings and cause factors and recommendations concerning an ongoing investigation to Next of Kin
RA 6.a.(6)	Release of analysis, findings and cause factors and recommendations concerning an ongoing Class IV, III, II or I investigation to the media
RA 6.a.(7)	Release of analysis, findings and cause factors and recommendations concerning an ongoing Class IV, III, II or I investigation to the public through ATI.
RA 6.a.(8)	Release of analysis, findings and cause factors and recommendations concerning an ongoing investigation to another investigating agency (coroner, police, NIS, summary investigation or Board of Inquiry)
RA 6.b.	<u>Completed Investigations</u>
RA 6.b.(1)	Release of analysis, findings and cause factors and recommendations concerning a completed Class II investigation to Commanders
RA 6.b.(2)	Release of analysis, findings and cause factors and recommendations concerning a completed Class I investigation to Commanders
RA 6.b.(3)	Release of analysis, findings and cause factors and recommendations concerning a completed Class II investigation to DND/CF personnel
RA 6.b.(4)	Release of analysis, findings and cause factors and recommendations concerning a completed Class I investigation to DND/CF personnel
RA 6.b.(5)	Release of analysis, findings and cause factors and recommendations concerning a completed investigation to the next of Kin
RA 6.b.(6)	Release of analysis, findings and cause factors and recommendations concerning a completed Class II investigation to the media
RA 6.b.(7)	Release of analysis, findings and cause factors and recommendations concerning a completed Class I investigation to the media
RA 6.b.(8)	Release of analysis, findings and cause factors and recommendations concerning a completed Class II investigation to the public through ATI

RA 6.b.(9)	Release of analysis, findings and cause factors and recommendations concerning a completed Class I investigation to the public through ATI
RA 6.b.(10)	Release of analysis, findings and cause factors and recommendations concerning a completed investigation to another investigating agency (coroner, police, NIS, summary investigation or Board of Inquiry)

Note 1: Seize, search and test protocols are dependant upon the origin of the articles in question and may need to be treated differently or uniquely depending on that situation. The AIA retains this authority for all situations where civilian personnel are involved and do not give their permission for the requested process (search, impounding, quarantine or test) so that appropriate protocols are used in consultation with TAA, OAA and other Authorities (such as TC, TSB Canada, FAA or NTSB (USA) etc). As well, the powers delegated to the AIA to conduct a Board of Inquiry under section 6.3 of the *Aeronautics Act* may become the source of authority for such activities.

Note 2: Processes to be followed and delegated authorities are detailed in the A-GA-135-001/AA-001 (Chapter 8).

Note 3: No person acting within the AIA's role may restrict access to non-DND sites. However "due diligence" requires that warning of known hazardous conditions are made to the public or any other person wishing to access an investigation site. Failure to heed such warnings should be recorded and the persons observed (under close escort). Also, aid to enforce access restriction should be sought from authorities that have the power to so restrict access (see detailed processes in the A-GA-135-001/AA-001 (Chapter 8) and A-GA-135-002/AA-001).

Note 4: Personal Health Information will not be disclosed without the consent of the individual to whom it relates, subject to provisions outlined in subsection 8(2) of the *Privacy Act*. A sanitized medical report will be produced for inclusion in the main flight safety investigation report. A Separate Medical Report (Protected B) may be produced with detailed personal health information included that will only be viewed by Medical Member of Investigation Team, AMA, 1 Cdn Air Div Flt Surg and/or the CO CFEME. Medical information and aspects germane to the investigation may be shared with certain investigation team members depending upon the function of the investigation member and a requirement for the information to complete the investigation.

CHAPTER 7

NEXT OF KIN

INTRODUCTION

1. When personnel are fatally injured in occurrences the Next of Kin (NOK) of these personnel expect appropriate treatment and release of information concerning their loved ones. To aid in this DFS has adopted a process whereby the NOK will be provided with a series of briefings on the accident investigation process and once available, the contents of some DFS investigation documents, prior to the public release of the documents.

2. There are two slightly different categories of NOK;

   a. those that are immediately related to crew members or personnel directly employed in the operations of the aviation asset (such as aircrew, maintenance personnel or SAR spotters); and,

   b. those related to personnel that were killed collaterally or that were killed in the occurrence but were not directly connected to the operation of the aviation asset (such as persons on the ground, non-crew parachutists or passengers).

3. The first group of NOK have a vital role in the successful investigation of an occurrence, particularly from a Human Factors perspective since they may be the sole source of information that could help determine cause of an accident. The first group is usually interviewed by the Medical Member and the Human Factor specialists during the initial information gathering stage of the investigation. Also, they may be consulted during the analysis portion of the investigation. Both groups of NOKs have the requirement for just treatment and the expectation that a professional and thorough investigation will be conducted and appropriate information will be forthcoming when it is available. Beyond the information that is part of the initial briefing, all NOK should be given a Point of Contact (POC) for the AIA investigation so that they may make inquiries with respect to the investigation as they require.

NOK BRIEFING INTENT

4. There will be two official briefings presented by DFS to both groups of NOK, which will be presented in as sensitive a manner as possible. The briefings must be tailored to the audience particularly when discussing complex aviation systems or situations. It is important that the audience understands the material so information should be presented in a manner that they can understand or question areas that may not be clear to them.

5. The first briefing, the Initial Briefing, will take place prior to the public release of the FTI. The intent of conducting the initial briefings is to provide the NOK with an explanation of the investigation process and provide them with a copy of the FTI so they can get ready to address the press prior to DFS public release. This briefing will also include the AIA POC for the investigation and explain the difference in roles of the investigation team versus the role of the Assisting Officer. The NOK will be briefed that the purpose of the POC will be to keep them

updated regarding the stages of the investigation or to explain any delays encountered in the normal investigation timelines. Investigation details will not be passed to NOK prior to the Final Brief. For NOK directly related to the aircrew and operators, an explanation of the consultation for Human Factors aspects will be included.

6. The second NOK briefing, the Final Briefing, will take place prior to the public release of the final FSIR and Epilogue. It is to provide them a detailed explanation of the results of the accident investigation prior to making the final FSIR and the Epilogue public. Surviving crewmembers may also be briefed; whether this occurs in conjunction with NOK briefings should be decided upon on a case-by-case basis. Coordination with Wing and Unit commanders and their advisors is essential to meeting the aim of the briefings while minimizing stress on the NOK and survivors.

INITIAL BRIEFING

7. The purpose of the initial briefing with the NOK will be to describe in detail the FSIR process and to provide them with an advance copy of the FTI information prior to its official release on the DFS Website. This briefing will take place after the CDS and the MND have been informed or briefed on the FTI.

8. DFS, DFS 2, or his designate will provide this briefing in person. The briefing will describe the role of investigation team in general, explaining the various specialists or groups involved.

9. Briefings will be coordinated with the affected Wing, particularly with respect to administration and attendance. Normally, the designated assisting officer and the padre would be present as the Wing's representatives, but this may vary according to the wishes of the NOK. After describing the FSIR process and associated documents, details of the actual FTI will be presented. Other information about the investigation shall not be released. The NOK should be left with a copy of the FTI and a copy of the investigation process summary, which upon request of the NOK, may be forwarded under DFS cover letter, to the other family members.

10. The administrative details for this briefing should bear the considerations as described in DFS Standard Operating Procedures (SOPs).

FINAL BRIEFING

11. The purpose of this briefing is to provide the NOK and survivors with a briefing on the <u>results</u> of the aircraft accident investigation. In circumstances where the results of the investigation might be controversial it is recommended that NOK and surviving crewmembers be briefed independently, unless requested differently by the personnel involved. This briefing will contain:

c. a summary of the factual data;

d. a summary of the analysis;

e. the findings and causes as determined by the investigation team; and

f. a summary of the recommendations made by the investigation team.

12. In preparing and presenting the briefing, the briefer must bear in mind that the NOK may not be familiar with aeronautical terms or acronyms. Therefore, the briefing must be presented in easily understood, layman's terms. The briefer must also bear in mind that the objective of the briefing is to explain the findings of the investigation, not to defend the findings.

13. The main briefer shall normally be the IIC. In addition, a suitably qualified individual (such as an IIC 1, the SI, DFS 2, or DFS) shall be in attendance to address any questions related to the FSIR process, policy or legislative aspects of the *CTAISB* and/or *Aeronautics Act*.

14. This is a very emotional event for the NOK. They should therefore be asked if they would like to have either a military or civilian padre present at the debriefing. Normally, the designated Assisting Officer and a padre would be present on behalf of the Wing during the NOK briefing. Nonetheless, the wishes of the NOK as to the presence of supporting personnel, relatives or friends need to be considered, and where possible, respected.

15. The NOK should be left with a hard copy of the FSIR and a hard copy of the briefing. Soft copies <u>shall not</u> be distributed until after the public release of the FSIR and then only if specifically requested.

16. Following the briefing, the NOK should be advised when the FSIR will be made public. Normally two weeks should be allowed between NOK debrief and release of the FSIR to the public. However, NOK requests for delay of the FSIR publication will be considered by DFS.

17. Administrative and financial details for these briefings are contained in DFS SOPs. In general, a relaxed atmosphere, a free and open question format should be sought and sufficient time must be allotted for the briefs. As well, the briefing will not contain detailed medical information; pictures of the deceased or autopsy photographs (i.e. no shocking pictures or information will be presented).

CHAPTER 8

COLLATERAL INVESTIGATIONS

INTRODUCTION

1. Serious aircraft related occurrences often result in the initiation of not only airworthiness investigations, but one or more other investigations. Usually, one or more of these investigations are conducted concurrently. All of these investigations have different objectives and processes and are subject to different laws and regulations. Moreover, each investigation has an important role to fulfill and airworthiness investigators must respect this fact.

2. There are several problems associated with this situation. First of all, there is only one set of physical evidence associated with an occurrence. Therefore, ways must be found to ensure that the examination and analysis of this evidence is conducted properly and safely by qualified individuals. Furthermore, much of the information that can be derived from this physical evidence is time sensitive and therefore the examinations must take place in a timely manner. Finally, there is only one group of individuals involved in the occurrence as either witnesses or participants. The *Aeronautics Act* and the *Canadian Transportation Accident Investigation and Safety Board (CTAISB) Act* specifically preclude the sharing of "privileged" information such as witness statements and on board recordings with other investigations except under very specific guidelines. As can be seen, there are several challenges associated with the passage of appropriate information between investigations.

3. The objective of this chapter is to outline how airworthiness investigations will deal with collateral investigations.

TYPES OF INVESTIGATIONS

4. There are seven basic types of investigation with which an airworthiness investigation may be asked to share information. These are:

a. a Royal Commission convened under the *National Inquiries Act*;

b. a Coroner's Inquiry;

c. a police investigation;

d. a Board of Inquiry or a Summary Investigation;

e. a foreign government investigation (due to the location of the occurrence);

f. another airworthiness authority (such as TSB, NTSB, TC or another military aviation safety organization); or

g. an airworthiness technical assessment.

5. Royal Commission. A Royal Commission convened under the *National Inquiries Act* is relatively rare and is usually an investigation that has precedence and extraordinary investigation powers and access to evidence. Normally, this type of investigation takes a while to initiate and so time should not be a factor. Therefore, if such an investigation is convened, the AIA will normally seek legal advice from the Canadian Forces Legal Adviser as to what information can be passed to this investigation.

6. Coroner's Inquiry. A Coroner's Inquiry has very broad legal powers. For example, a Coroner's Inquiry must be provided "privileged" information if it is requested. All information provided to a Coroner's Inquiry will be released through the AIA. When this situation arises, the AIA will seek legal advice as well, so that privileged information is only released as required by law and its use will be known or followed by AIA staff.

7. Police Investigations. A police investigation is normally conducted for serious aircraft occurrences such as category “A” occurrences or associated with acts of malfeasance such as sabotage or vandalism. These investigations can be conducted by local or provincial police forces, the RCMP or the Canadian Forces National Investigation Service. The main focus of these investigations is to determine if there was any wrongdoing that could result in criminal charges. Given the different objective of this type of investigation from an airworthiness investigation, there is seldom any interaction between the two investigations. However, it is important to note that the CVR or other types of recordings are afforded privilege and their release is prescribed under the CTAISB Act. Also, there’s privilege associated with statements and interviews given to a safety officer so these things must be respected when interfacing with a police investigation. Finally, it is a good idea to monitor such investigations by FS personnel and qualified technical personnel so that shared evidence is preserved and aircraft or other aviation resources damage is minimized.

8. Board of Inquiry or Summary Investigation. A Board of Inquiry (BOI) or a Summary Investigation (SI) is the most common type of collateral investigation with which an airworthiness investigation interacts. The terms of reference for a BOI or an SI can task these investigations with objectives that closely mirror the objectives of an airworthiness investigation. However, a BOI or an SI is dramatically different from an airworthiness investigation. The most significant differences in the two types of investigation are that:

a. a BOI and an SI are convened under the *NDA* whereas an airworthiness investigation is convened under the *Aeronautics Act* and the *CTAISB Act;*

b. a BOI or an SI is convened by the Chain of Command (CoC) and is responsive to CoC objectives, timelines and review whereas an airworthiness investigation is convened by the AIA, an entity that operates independently from the CoC; and

c. a BOI or an SI have a plethora of objectives whereas the sole purpose of an airworthiness investigation is to quickly (as possible) identify effective Preventive Measures (PMs) that will either prevent or reduce the risk of a similar occurrence.

9. In dealing with BOIs and SIs, the following principles will be used:

a. the investigations will be kept separate to the extent possible;

b. if possible, the AIA and the appropriate IIC will attempt to contact the Chairperson of the BOI or SI prior to the commencement of the latter investigation. The intent of this meeting will be to outline to the chairperson, the information that can and cannot be passed by the AIA to the BOI or the SI;

c. the airworthiness investigation will normally provide the BOI or the SI with factual information and a statement of cause (if known) only. If possible, Part 1 of the Preliminary Report will be provided to the BOI or SI;

d. all information provided to the BOI or SI shall only be released by the AIA or his designate; and

e. the AIA will identify, to the best of their knowledge, any legislation, Orders or policy that should be brought to the recipients attention concerning the information's use and privilege that may effect further distribution or preclude disclosure (such as *CTAISB*, *Privacy* or other *ATI Act* provisions, ACOs etc).

10. Factual information includes the following information:

a. general information such as the aircraft type, aircraft role, unit of ownership and number of crew;

b. history of the flight including the type of mission, aerodrome of departure and location of the occurrence;

c. a summary of injuries to personnel including the number of fatalities, critically injured and major injuries to crew, passengers and others. Names are not to be used and crew members will be referred to by their crew position (e.g. pilot, co-pilot, flight engineer etc);

d. damage to the aircraft;

e. aircraft salvage and any environmental damage;

f. a summary of the personal information of individuals involved in the occurrence including crew position, rank, qualifications, medical expiry date, total flying time, total flying time on type, flying hours in the last 30 days, duty hours during the last 24 hours, flying hours during the last 24 hours and flying hours on the day of occurrence. Names are not to be used and crew members will be referred to by their crew position (e.g. pilot, co-pilot, flight engineer etc);

g. aircraft information including any significant aircraft maintenance information;

h. meteorological information;

i. pertinent information with respect to aids to navigation

j. pertinent information with respect to communications equipment;

k. aerodrome or alighting area information;

l. general information regarding flight recorders such as the type of recorders (CVR/FDR). In no case will specific information on cockpit voice recorders or video recordings of crew reactions be included;

m. wreckage and impact information;

n. general medical information;

o. fire, explosive devices and munitions information that is not classified;

p. survival aspects of the occurrence;

q. test and research activities but excluding any analysis from these activities;

r. organization and management information pertinent to the occurrence;

s. flight data recorder data;

t. pictures of the occurrence (still and video); and

u. pictures of the occurrence site other than those depicting human remains and/or injuries to personnel.

11. Should a DND/CF aircraft crash in a foreign country, usually a STANAG or similar agreement will take effect and the AIA will investigate the accident as per normal procedures but within the laws of the foreign government. However, not all situations will be covered by such agreements and in cases where no agreement exists, the AIA through the CF CoC will attempt to get concordance with the government in question to try and proceed in the normal manner. Should that not be possible due to the laws of the foreign government, the AIA will attempt to gain DND/CF presence in the investigation and will attempt to get the protections that would be present if the accident happened in Canada or a negotiated STANAG location. The next DND/CF perspective will be to try and behave as if ICAO agreement applied to the accident. Regardless, the laws of a foreign government will be fully respected and cooperation to the extent possible will be offered.

12. Sharing information with another airworthiness authority or aviation safety investigation of a foreign military is covered in Chapter 9 of this manual.

INVESTIGATION PRECEDENCE

13. At an occurrence site there is an order of precedence for the authorities charged with duties associated with the occurrence. Normally if there's been a death, the Coroner has precedence over all other investigations. Because of this precedence and from the due diligence perspective, AIA representatives (WFSOs, FS personnel on scene, IICs and Investigation Team Members etc) shall make all data regarding hazards associated with aircraft crashes known to the Coroner or their representatives. This will include but not be limited to, aircraft component

hazard data sheets, cargo hazard lists, WHIMIS data and any other information sources available. Occasionally the Coroner may wish to have an inquiry based upon “Public Safety” issues but these typically arise at times well after the accident and the field phase of the AIA investigation may have been completed. Once the coroner has released the site for investigation or with no death involved, a crash site is usually considered a “crime scene” due to the value associated with the loss of an aircraft or damage on the ground. This makes the police investigation next in the order of precedence. This usually suits the AIA’s objectives because the police use their powers and resources to cordon the scene and restrict access, even from property owners. However, police rarely follow up the crime scene activity with other investigation files or inquires and if there is no evidence of criminal activity, the airworthiness investigation is often allowed the next order of precedence after the Coroner.

CHAPTER 9

AIA/TSB AND OTHER COORDINATED INVESTIGATIONS

INTRODUCTION

1. The *CTAISB Act* contains provision for coordinated AIA/TSB occurrence investigations when both a “Military Conveyance” and some sort of Canadian civilian facility or aviation resource is involved. There is a detailed working agreement in place to explain the way that such investigation should take place but this chapter outlines the general principles for such circumstances. This AIA/TSB agreement parallels the ICAO Annex 13 investigation standards and cooperation principles.

2. In general, the principles of this cooperation will be extended in like circumstances for situations where joint investigation is called for but no formal agreement has been reached. This refers to investigations when other military safety investigation bodies are involved with a DND/CF aviation resource but neither a STANAG nor other agreement has been signed. Similarly, for situations where a DND/CF aviation resource is involved in a foreign country and that country is required or wishes to investigate an occurrence, the principles of cooperation in this chapter will guide the actions of DND/CF airworthiness investigators.

3. When the AIA is involved with investigations with other NATO nations involved, STANAG 3531 will be invoked as the guide for the interface and process of investigation. Similarly, other agreements have been reached with other allied forces such as the Air and Space Interoperability Council (ASIC) Air Standard 85/2A for Can/US/UK/Aus/NZ situations and these agreements outline the procedures that will be followed.

NOTIFICATION FOR COORDINATED INVESTIGATIONS

4. Recognising that prompt and efficient notification of occurrences is a key element in effective investigations, the Participants will notify each other immediately when they become aware of an aviation occurrence that could result in coordinated investigations. Participants may inform each other regarding occurrences that have the potential of advancing flight safety, even though they may not fall under the provisions of Section 18 of the *CTAISB Act*. Participants will pass information on reported occurrences on a routine basis.

PURPOSE OF INVESTIGATIONS

5. Coordinated investigations are not for the purpose of assigning fault or for determining civil or criminal responsibility, but for the purpose of advancing aviation safety. These principles, well established in Canadian aviation safety organizations, will be used as the guiding purposes of coordinated investigations where no agreement is in place. Use of these principles is also found in ICAO guidelines for aviation safety investigations, which may be useful in setting up general guidelines in cases when none exist.

6. Some coordinated investigation situations with other Airworthiness Authorities (such as TC) could lead to enforcement action by the Authority and in cases such as this, the sharing of information can be quite complicated. To guard the investigation principle of not "assigning fault" in AIA/TSB investigations the factual information may be shared with enforcement agencies; however, no portion of the investigation that used privileged information (such as analysis) can be shared with enforcement type authorities without specific AIA permission and concurrence (see paras 11-14 below).

PROCEDURES

7. The TSB (Inv (Air)) investigation of an aviation occurrence will be conducted in accordance with the *CTAISB Act*, the TSB Manual of Investigations (Air) (MOI (Air) 2-4) and the TSB (Air) Major Occurrence Investigation Checklist. The DFS investigation of an aviation occurrence will be conducted in accordance with the Canadian *Aeronautics Act*, the A-GA-135-001 - Flight Safety For the Canadian Forces and this Airworthiness Investigation Manual.

8. In cases where no coordinated investigation agreement exists, the lead organization will likely wish to use their procedures manual as the basis for the investigation. DND/CF investigators should try to assess the procedures manual in question to determine if there is some procedure in place that is contrary to AIA procedures, particularly for privileged information (CVR, witness statements or submissions to the investigation), release of information and the use of final investigation information or recommendations. Should this assessment produce diametrically opposed purposes to DND/CF norms or should the possibility of compromise for the position or reputation of the CF Flight Safety system exist, the AIA must be notified and a means plotted to avert such circumstance.

COORDINATION

9. Normally there will be one team, consisting of TSB and DND/CF personnel, conducting a coordinated investigation. The team lead, referred to as investigator-in-charge (IIC), will be from Inv (Air) or DFS in accordance with agreed protocols. The agency with the member status will appoint a main point of contact (POC) for its personnel. A similar arrangement will be arrived upon when an investigation is required and no agreement exists.

NATIONAL SECURITY COMPRIMISE

10. In cases where elements of the investigation of an aviation occurrence could, in the opinion of DND/CF (as per Chapter 3, para 2), compromise national security, and the required security clearance is not held by the assigned TSB investigators, DFS will conduct an investigation of those elements and will advise Inv (Air), in writing, of the specific reasons for this classification. To the extent that there is no threat to national security, DND/CF will inform TSB of any findings and causes, including safety deficiencies identified in its investigation of security sensitive elements contributing to the aviation occurrence.

SHARING OF COORDINATED INVESTIGATION INFORMATION

11. Investigation information, including privileged information, obtained by one of the Participants will be made available to the other Participant's investigators without undue delay. Except as required by law, no information obtained from DND/CF or TSB will be released without the mutual consent of DND/CF and TSB.

12. Release of statement information will be in accordance with the *CTAISB Act* article 30. On-board recordings, flight data recordings, event recordings, and communication records from coordinated investigations will be made available to the other participant, subject to protection of privileged information as per *CTAISB Act* article 28 and 29 and the requirements of national security in relation to the Minister of National Defence as per *CTAISB Act* article 24 (7).

13. If a coordinated investigation takes place with an agency where no agreement exists, the DND/CF investigators will attempt to determine if shared information can be offered the protection that applies in Canadian law. Should such protection be evident, then information will be shared in the above manner. If that is not the case, then the AIA will seek legal counsel regarding sharing of information, with the view to having a legally binding agreement signed by the foreign party, which will ensure information protection and privilege.

14. When the investigation is conducted under foreign law and that law does not recognize the privileges associated with this information, the AIA (through the DND/CF lead investigator, legal counsel and foreign liaison) will make that fact known and seek such privilege. Again, if this is not forthcoming, the AIA will make a decision regarding AIA participation in the investigation with respect to harm possibly done to the CF Flight Safety system should such privilege not be offered.

LEGAL ORDER FOR SUBMISSION OF PRIVILEGED INFORMATION

15. Where one Participant is served with a legal order for production of privileged information or where it otherwise intends to release it as required by law, the other Participant will immediately be notified so that it may, prior to any surrender of that information, have a reasonable opportunity to make representations to the appropriate court or other authority.

SUPPORT

16. Cost sharing, transportation sharing and mutual training details are contained in the AIA/TSB working agreement. Essentially, extra costs brought on as a result of the other parties needs must be borne by that party. Similarly, while transportation is shared, incremental costs are borne by the party that incurs such costs. Finally, each party agrees that should training opportunities arise, the parties agree to allow each other to benefit from the situation. These principles will be used to guide situations when DND/CF investigators are involved in multi-party investigations where no agreement exists.

NOTIFICATION OF SAFETY DEFICIENCIES REQUIRING IMMEDIATE CORRECTIVE ACTION

17. Should a safety concern requiring prompt corrective action be identified by either Participant, the other Participant will be notified immediately. The Participant responsible for recommending corrective actions will advise the other Participant of the recommendations made and of the corrective action taken, or planned to be taken, by the agency responsible. This principle allows each party to retain its independence to take safety measures in an expeditious manner while respecting other Participants need to be aware because there's no requirement to negotiate a broad based safety action with all Participants that could entail lengthier response times.

EVIDENCE DISPOSAL

18. If required, wreckage, things and other releasable information will be returned to the owner once the Participants have mutually determined that there no longer is a requirement for retention of the item(s).

REPORTS

19. The AIA/TSB working agreement contains details on review of reports, both at the Draft and Final levels. The agreement calls for circulation, return of comments and appropriate amendments of reports prior to final release to the public. Of note, the agreement calls for notification of safety recommendations that are directed to Other Government Departments (OGDs) such as TC or in the case of TSB lead investigations to the MND. This notification is aimed at providing advance notice of these safety recommendations for OGDs as provided for in the *CTAISB Act* (Subsection 24(6)).

ACCESS TO OCCURRENCE SITES AND OTHER EVIDENCE

20. The Participants recognize each other's investigators' authority in controlling access to occurrence sites, evidence and documentation in accordance with the legislation governing both participants' activities respectively. Generally, this means that the Local Police Authority (RCMP, Provincial Police or City Police etc.) will have the task of providing security to occurrence sites not identified as military transportation facilities. For occurrence sites at military facilities, the Canadian Forces (CF) Military Police or designated military personnel would have the task of providing site security.

AVIATION OCCURRENCES INVOLVING A TSB EMPLOYEE

21. A detailed process is provided for situations where a TSB employee is a person involved in an aviation occurrence. The TSB may, to avoid potential conflict of interest, delegate DFS to conduct the investigation of the transportation occurrence on its behalf. The agreement calls on DFS to use its procedures and a slightly modified review process where TSB releases the final investigation to the public but the report can only be altered by DND/CF authorities. TSB assumes all costs for such investigations.

EXCHANGE OF TECHNICAL INFORMATION

22. The Participants will, on a regular basis, exchange information on current and new investigative technology and procedures, which may be implemented by either Participant. Both Participants will provide information from each other’s safety databases for aviation safety investigation purposes.

PRESS RELEASE

23. Public release of accident investigation information will be coordinated, in advance, by the lead Participant with the other Participant. The final authority for release of public information will rest with the lead Participant.

AGREEMENT MODIFICATION AND REVIEW

24. Any dispute regarding the interpretation or implementation of the Working Arrangement will be settled only by consultation between the Participants and will not be referred to a national tribunal or any other third party for settlement.

25. At least once a year, preferably in the first quarter of the calendar year, the appropriate staff of both Participants will meet to discuss their working relationship, investigations in progress and the need to amend this Working Arrangement or its attached Annexes.

26. Either Participant may make proposals for changes to the Working Arrangement at any time, and appropriate amendments made as may be consented to, in writing.

TERMINATION

27. Either Participant may terminate the Working Arrangement on three months written notice to the other Participant. The Working Arrangement may be terminated at any time with the mutual written consent of the Participants.

CHAPTER 10

HAZARD CONTROL PROCEDURES AND EQUIPMENT

INTRODUCTION

1. This Chapter is designed to be utilized by the IIC and all AIA representatives and Investigation Team Members in conjunction with the A-GA-135-002/AA-001, Occurrence Investigation Techniques for the Canadian Forces, and in particular with Chapter 11 of that manual. Although the A-GA-135-002/AA-001 is not on wide distribution, it is readily available through DFS (the AIA) or local WFSOs and is a very detailed technical manual that deals with the techniques and procedures used by DND/CF investigators. Of note, much of the content of Chapter 11 of the manual has been obtained from a similar document published by the Canadian Transport Safety Board (TSB).

2. Occurrence scenes are dangerous not only due to the presence of Biological Hazards but often armament, ejection seats, caustic or otherwise dangerous liquids (such as hydrazine, otto-fuel, liquids carried as cargo, aviation fuel and lubricants etc), fires, smoke, LOX, pressurized containers, damaged and inflated tires, jagged metals, carbon fibres, radiation hazards on particular aircraft instrumentation or within aircraft and numerous other possible problematic substances that could cause harm to personnel. The personal protective equipment (PPE) supplied to post occurrence personnel and AIA investigators is primarily designed to offer protection from some of these hazards (airborne particulates, biological agents and some puncture protection) but in no way is protection against all hazards. With this fact in focus, it is essential that constant awareness of hazard possibilities be undertaken by site managers and prudent action to avoid harm be taken on a constant basis. When unknown hazards are encountered, expert advice shall always be sought to avoid further damage to property or exposure to personnel on the scene.

3. Chapter 11 of the manual contains the detailed Biological Hazards Exposure Control Plan and should be available and consulted as required whenever human remains are present at an occurrence site due to the possible presence of blood borne pathogens. In addition to the bodies of deceased persons, an accident site may contain liquid, semi liquid and dried blood, other bodily fluids, and fragmented and otherwise unrecognizable bone, tissue and internal organs. Any of these substances could present pathogen dangers and proper precautions are essential.

4. Many of the techniques and principles discussed in Chapter 11 and in the following paragraphs of the AIM can be applied to other hazards encountered on an occurrence site. For example, the “control of access” precautions utilized to minimize exposure to personnel for a Biological Hazard can be similarly used to avoid exposure to a hazardous liquid or an unsafe ejection seat on the scene. Therefore, the principles within the Biohazard Exposure plan should also be utilized to minimize exposure to all hazards on the occurrence scene.

UNIVERSAL PRECAUTIONS

5. Vaccinations have long proven to be effective in combating infections; however, at an accident site, additional measures must be taken to further reduce the likelihood of infection or the spread of the pathogens. The medical profession and health care agencies, in their approach to precaution against infection, have adopted a concept termed ‘Universal Precautions’. This concept, which has been widely adopted by other investigative agencies, has been accepted by DFS (the AIA) as one of the cornerstones of its biohazard exposure control plan.

6. Universal Precautions is simply an approach to infection control and can be used for exposure to other hazard types as well. When applied to aviation accident investigations, this approach requires that investigators treat all human blood and body fluids as if they contained blood borne pathogens. In addition, since it is not possible to readily identify blood and other co mingled contaminated bodily fluids at an accident site, it is prudent to take Universal Precautions while working around and inside the wreckage and while handling the wreckage at the site or while performing offsite examinations. Similar protocols will be effective in the reduction of exposure risks for other type hazards too.

7. Universal Precautions require investigators to take measures to protect themselves by preplanning prior to undertaking investigation tasks. Once involved in investigative activities, Universal Precautions require that investigators apply engineering controls that isolate or remove the blood borne pathogen hazard (and other hazard types). Finally, Universal Precautions require that investigators adopt work practices that reduce the likelihood of exposure by altering the manner in which investigative tasks are performed. Due to the unique nature of each accident site, Universal Precautions must, of necessity, be tailored by the investigator to meet the individual circumstances.

8. As part of the investigator’s preplanning process, Universal Precautions, as a minimum, includes the following:

a. appropriate inoculations;

b. training on biological hazards (and other hazard types) associated with on-site and off-site examinations of evidence;

c. using procedures on the identification and control of a biologically hazardous (or other hazard type) site;

d. selection, use and donning of personal PPE;

e. proper removal and disposal of contaminated PPE;

f. understand work practices designed to minimize exposure;

g. using procedures for decontaminating investigative equipment and evidence;

h. using the procedures for shipment of contaminated evidence to off-site examination facilities; and,

i. using appropriate procedures for an exposure incident.

IMPLEMENTATION AND MANAGEMENT

9. The details on implementing these necessary universal precaution items during an investigation are contained in the A-GA-135-002; however, it is essential that the investigation team lead by example at occurrence sites. This means that the IIC shall brief all personnel that could be exposed to such hazards, determine who is appropriately trained to handle the hazards and constantly be vigilant regarding the hazard potential for any personnel associated with the occurrence investigation. By necessity there will be several and perhaps many personnel involved in the investigation of an occurrence that will have absolutely no training or knowledge regarding these types of hazards. Under such circumstances, it is very important for the AIA members of the investigation team to demonstrate the correct behaviours around all of the hazards at an occurrence site so that untrained personnel can emulate from the correct behaviour they observed in the professional investigators.

10. In a similar vein, the IIC and investigation team members should be alert for concerns raised by the untrained personnel on the scene or observations from other experts that may be present such as salvage officers, armament technicians, environmental officers or OSCAR personnel etc. Any of these personnel may have valid and actionable information that could improve the hazard exposure risks and so all points should be considered as the site plan is put in place and amended on a daily basis.

11. Record keeping regarding exposure to occurrence scene hazards is required, even if proper procedures are followed throughout the investigation. This will protect individuals from the consequences of being exposed to unknown hazards and any possible associated health problem at a later date, in that the record will be traceable and might help with diagnosis and treatment. Also, the record may be of value from a pension implications perspective.

EQUIPMENT

12. AIA investigators generally should arrive at an accident scene with appropriate PPE for the first few days. This typically will be one “A” kit and two “B” kits with supplemental equipment such as heavy duty and usage particulate masks and filters. The IIC should attempt to determine the extent of the hazards at the occurrence site and then request supplemental supply through local suppliers or if necessary through DFS in NDHQ. Also, there are health protection kits prepositioned at various locations in Canada. Requests for these kits to be made available should be processed as soon as the possibility of use is anticipated. Full details on practices, procedures and kit contents can be found in the A-GA-135-002 manual, which should be continually consulted during any situation where hazards are encountered. Of note, it is easy to become complacent about such hazards since their affect on personnel is usually long term; therefore, the warnings and briefings must become part of the daily routine with appropriate updates made as hazards change. Also, climate can be a real challenge in these situations, where heat makes use of the PPE onerous and cold makes decontamination extremely difficult. The investigation team must deal with these challenges in a professional manner and seek advice when unexpected problem arise.

CHAPTER 11

DND/CF AIRWORTHINESS PROGRAM MONITORING

INTRODUCTION

1. One of the primary responsibilities of the AIA is to monitor airworthiness activities and functions to ensure they comply with established regulations, standards and orders and to identify any deficiencies in the DND/CF Airworthiness Program. The AIA is responsible to report this information to the AA.

2. One of the means that the AIA employs to accomplish part of this task is the process of monitoring and annual review of the information that is compiled in support of the Airworthiness Review Board (ARB) and the Airworthiness Advisory Board (AAB). Both of these review actions require that the AIA and the support staff review various aspects of DND/CF air operations and compile inputs in the annual reports that are produced for these boards.

3. Of note, the production of these reports does not limit the AIA in the means chosen to monitor the DND/CF Airworthiness program; it merely documents this particular monitoring action. AIA actions such as audits, FS surveys, occurrence investigation, participation in the airworthiness clearances and monitoring the Risk Management process are but a few of the other means by which the AIA monitors the airworthiness program.

ANNUAL AIRWORTHINESS BOARDS

4. An integral part of the oversight requirement is accomplished through the AAB chaired by the AA and the ARB chaired jointly by the Operational Airworthiness Authority (OAA) and the Technical Airworthiness Authority (TAA). The AAB provides a forum at which the AA receives updates on the Airworthiness Program and addresses issues of concern raised by the members. The discussions that take place in the AAB form the basis for the annual report from the AA to the CDS and MND concerning the Airworthiness Program. The ARB is established to manage the interface between operational and technical airworthiness of each aircraft type and confirm the airworthiness status of each fleet on the DND register (and civilian aircraft performing military missions for the DND/CF) on an annual basis. The AIA is a member of both the AAB and the ARB and prepares inputs from the AIA perspective on the Airworthiness Program for both boards.

ARB ANNUAL AIRWORTHINESS REPORT

5. The TAA, the OAA and the AIA prepare Annual Airworthiness Reports (AAR) in support of the ARB process. The purpose of the AAR is to outline airworthiness activities that have occurred during the year as well as airworthiness concerns and the associated mitigation measures on each fleet of aircraft in DND/CF. During the ARB, each fleet will be reviewed by exception (i.e., only significant, contentious, or unresolved airworthiness issues will be discussed), while ensuring that an adequate level of consideration is conducted before a decision

is made regarding the renewal of the Certificate of Military Aircraft Type Certification (CMATC)) or Airworthiness Clearance (AC).

6. The objective of the AARs prepared by the AIA is to provide a summary of the significant flight safety issues that have to be considered for the renewal of the CMATC or AC. AARs (Technical) prepared by the WSMs/AEOs and AARs (Operational) prepared by 1 Cdn Air Div A3 staff normally address the flight safety issues raised in the AIA AARs. They are forwarded to the AIA for review prior to ARB.

AAB ANNUAL AIRWORTHINESS REPORT

7. The Airworthiness Advisory Board meets at least once per year to advice the AA on the state of the Airworthiness Program and to brief the future plans, accomplishments and milestones achieved in the previous year. In support of this activity, all of the Airworthiness Authorities (OAA, TAA and AIA), the AA support staff and the airworthiness advisors (FTA and AMA) present annual reports and brief the AAB on updates for outstanding airworthiness issues. The AAB is monitored by JAG and other staffs as determined by the AA.

8. The general concept for the AAB is that each airworthiness authority will produce an annual airworthiness report. The chosen structure for the AAR follows the items of delegation stipulated in the Letter of Delegation to the AA. Under the leadership of the AA, the Airworthiness Coordination Cell (ACC) will collect these reports and, combined with the discussions at the AAB, will produce an executive summary and cover letter for submission to the MND.

RELEASE TO SERVICE AND TEMPORARY AUTHORITY TO OPERATE

9. The Release to Service process is described in the A-GA-005-000 as “the backbone of the Airworthiness Program” and is described in detail in Air Command Order (ACO) 8001-2. It is the formal means by which all operational, investigative and technical issues are reviewed, addressed and documented prior to any operational use of a new or modified aeronautical product.

10. The AIA/DFS requirements that must be met during the Release to Service process are that any operator, company or unit under consideration for carrying out duties for the DND/CF must:

a. understand their Flight Safety obligations as listed in the A-GA-135 (which includes FS program, reporting and investigation sectors);
b. be able to fulfill those obligations and have the personnel, structure and appropriate culture in their organization to meet these obligations;
c. have access to the CF FS system so that appropriate reports can be made and they can feed/draw information to support the FS program; and,
d. support investigations as required so that the AIA is prepared to carry out the independent investigator obligations of the Airworthiness program as per processes listed in the A-GA 135, at any level, should the circumstances so dictate.

11. When the AIA is satisfied these requirements are met an Investigative Airworthiness Clearance (IAC) will be signed and become part of the Release to Service documentation. A similar process will be carried out by Flight Safety and AIA personnel for Temporary Authority to Operate (TAO) processes. The information that is gathered to support these AIA/DFS requirements do not necessarily have to originate with AIA/DFS audits, surveys or visits but can be gleaned from the activities of OAA/1Cnd Air Div and/or TAA/DGAEPM/DTAES and/or other experts involved in the processes.

12. Also, the AIA will monitor on the macro level these Release to Service and TAO processes as they occur with the view to making observations and recommendations based upon safety and airworthiness investigation issues and ensuring appropriate considerations are undertaken during the processes.

RISK MANAGEMENT

13. The Airworthiness program employs a risk management process to provide a logical and systematic framework to ensure that operational effectiveness is not compromised when situations arise where it may not be possible to maintain pre-established levels of safety. The objective of this process is to enhance military aviation capability through avoiding or mitigating injuries, damage or losses and to ensure that the risk is accepted at the proper level within the command structure.

14. The process is invoked when the level of safety accepted during the airworthiness clearance of an aviation product cannot be maintained. The OAA and/or TAA initiate the process and the AIA is to be kept apprised of all risks identified as being in excess of an “Acceptable Level of Safety” (ALOS). Risk that cannot be reduced to the acceptable level must be assumed/accepted at the appropriate level in the CoC.). Risks that cannot be reduced to within ALOS must be assumed/accepted by the appropriate airworthiness authority within both the technical and operational chains. If the unmitigated risk is determined to be "Extremely High", then the associated Record of Airworthiness Management (RARM), which documents the risk, will be staffed to the AA for acceptance. . The AIA auditing and raising observations during the consistent information flow associated with the risk assessment process in practice is considered to be an important portion of the AIA’s monitoring role in the Airworthiness Program. Consequently, AIA staffs give high priority to completion of this activity within the safety organization.

15. A RARM is a key airworthiness document in the process of managing airworthiness risk. As the AIA does not have any authority to accept risk, it would be inappropriate for the AIA to sign-off on RARMs in the manner of the OAA and TAA; however, the AIA has an obligation to monitor and audit the RARM process. To this end, the TAA and OAA have developed processes to ensure that the AIA has the opportunity to exercise the monitoring function consistently by being made aware that a RARM is being raised. The monitoring done includes, but is not limited to, the review of the hazard identification, risk assessment, risk control plan, and acceptance. It should be noted that involvement of the Div FSO in the development of a RARM does not fulfill the AIA monitoring requirement. While DFS and the Div FSO communicate regularly on the subject of RARMs, the Div FSO is an advisor to the OAA and is not included within the CDS

Delegation letter as having a monitoring/audit role, nor has the AIA delegated such authority to the DFSO.

OTHER AIA PROGRAM MONITORING ROLES

16. Several other activities that the AIA and support staffs undertake play important roles in the Airworthiness Program and will continue to grow in importance as the support and operational relationships for DND/CF grow within the private sector. These include but are not limited to FS Surveys of Contractors, monitoring of Technical Assistance visit reports by TAA staff, monitoring of DND/CF contracts and aviation projects, AIA visits to private sector contractors and investigation of matters of safety brought to the AIA's attention.

CHAPTER 12

AIA ADMINISTRATION PROCEDURES AND ETHOS

INTRODUCTION

1. For the most part the detailed AIA Administration Procedures are contained in DFS/AIA Standard Operating Procedures (SOPs) and amended as necessary through internal staffing within the various levels in the FS System. The purpose of this chapter is to lay out expected behaviours, general procedures and internal review protocols for airworthiness investigation team members, for the FS System staff at all levels and for the associated staffing of airworthiness investigation team reports.

2. The general principles and obligations of the Defence Ethics Program are laid out in the Defence Ethics Statement. This statement rank orders the principles of behaviour expected of DND/CF personnel as: first, respect the dignity of all persons (humanity); then, serve Canada before self (society) and; last, obey lawful authority (law). Furthermore, there are six obligations of equal weight: integrity, loyalty, courage, honesty, fairness and responsibility that govern general actions. This ethics statement has been used in combination with the guidelines for TSB investigators from their operations manual and the Code of Ethics and Conduct from the International Society of Air Safety Investigators (ISASI) to craft the Airworthiness/FS Ethos.

AIRWORTHINESS/FLIGHT SAFETY ETHOS

3. The perceived behaviour of Airworthiness/FS personnel is every bit as important as actual behaviour. With this in view, all persons having contact with the Airworthiness/FS system and its personnel expect the highest standards of professionalism and integrity as well as just treatment in an open and no blame atmosphere to foster the self-reporting and admission of errors for the betterment of the whole that allows the system to be successful. To accomplish this behaviour and these characteristics in AIA/FS staff, the following principles will be the norms the AIA expects from all investigators and associated staffs as they conduct investigations in an independent, non-partisan and responsive manner:

a. RESPECT. We are committed to respecting the dignity of all with whom we deal and always in a considerate and courteous manner.

b. PROFESSIONALISM. As a core responsibility, we will maintain a highly competent, skilled and knowledgeable AIA staff through appropriate continuous personal education and the development, review and amendment of the DND/CF airworthiness and FS system.

c. INTEGRITY. We are guided by honesty and propriety in conducting all of our affairs and do so for the betterment of the whole system.

d. OPENNESS. We accept and share information freely and openly, while respecting the identity of the information providers and the uses for which the information may be employed, to the full extent of the law.

e. FAIRNESS. We treat all individuals and organizations equitably.

INVESTIGATOR CODE OF ETHICS

4. All investigators associated with AIA investigations will carry out their duties in a professional, equitable, expeditious, and open manner. In addition, investigations will be conducted in accordance with the *Aeronautics Act*, the *CTAISB Act*, the *Access to Information* and *Privacy Acts*, and applicable Orders in Council, conventions and agreements as well as within the policies, standards and processes listed in this manual and the A-GA-135 series of publications. Investigators are required to perform their duties with the highest personal integrity. In particular, AIA investigators shall:

a. Ensure that all evidence obtained in an investigation is given the significance it deserves relative to other evidence;

b. Ensure that all items presented as fact have been checked for validity, including judgements that are based on personal experiences;

c. Follow all avenues of fact determination which have reasonable probability of achieving appropriate Preventive Measure recommendations;

d. Use the best available expertise, methods, and equipment in determining the validity of information;

e. Keep an open mind to the introduction of new evidence or relevant opinions, and be willing to revise one's own findings accordingly;

f. Ensure that investigations are conducted in an unbiased and objective manner, without prejudgments which might be perceived as being partial to any party:

g. Employ the highest ideals of courtesy and fairness in dealings with involved individuals, NOK, interested parties, industry and the public at large;

h. Investigators authorized to speak to the media, (generally IICs, WFSOs and Public Affairs Officers), will release only confirmed, factual information that they are authorized to release to those external to the investigation and must bear in mind the privacy rights of individuals and NOK at all times. All investigators will represent the AIA and DND/CF in a professional manner;

i. Ensure that their investigator status is not used to effect personal gain or favour. In addition, disclose to the AIA or his representative, any potential for criticism of personal association, e.g. personal friendship with a key witness, previous work experience for a "party of interest", etc.;

j. Promote the Flight Safety Program and occurrence investigation as fundamental elements in DND/CF accident prevention; and

k. Contribute to the development of the profession by sharing knowledge and experience and by striving for the highest level of proficiency and effectiveness in their own service.

INVESTIGATION TEAM MANAGEMENT PRINCIPLES

5. The following protocols and staffing responsibilities will apply to occurrence investigations where diverse team support from personnel or units are called for and those investigations requiring inter-agency support (such as QETE, NRC, DRDC or AETE). The latter support situation is detailed in separate Service Level Agreements (SLAs) between the AIA/DFS and those agencies but the principles of team support, staffing and cooperation will be discussed in this section. These principles will also be applied to situations where support from individuals or special units (Aircrew members, Technical members, Recovery and Salvage, Fleet Diving Unit etc) is required for the investigation.

6. For each occurrence there is only one AIA investigation and one investigation team; however, the team composition may be adjusted as the investigation proceeds and more information becomes available that requires team membership adjustment. The AIA is the authority that convenes occurrence investigation and in that convening process, appoints an Investigator-in-Charge (IIC) who is accountable for the overall conduct of the investigation. The AIA may change the IIC as required for any reason but all investigation team members will be informed of such changes. Such changes are usually for staffing, changes in priority or transfer reasons and should not be construed as having any other meaning. IIC changes will entail detailed transfer protocols within the AIA staff, specified in DFS SOPs. Investigation team members (inter-agency members) may be changed for similar reasons but the AIA may request details on supporting agencies decisions under such circumstances and the AIA retains the right to request reconsideration of such decisions.

7. During the field phase, the IIC is "in operational control"; he/she will allocate investigation tasks and supervise personnel at the site, and, where necessary, coordinate activities with the appropriate managers/supervisors. Specialist personnel will conduct work in accordance with standards and procedures established by their respective agencies and the SLAs; however, in the interest of team cooperation or management, the IIC has the right to assign tasks as required that may be outside of the anticipated standard work areas for any team member.

INFORMATION PASSAGE PROTOCOLS

8. During the investigation the AIA, and through his delegated authority (see chapter 6 of this manual) the IIC, is the sole authority for information release. Other than as specified in the MOUs for inter-agency support, all information gathered for or by the investigation team must be released or approved for release by the AIA or his representative (e.g., the IIC) IAW standing or delegated authoritiy, even to internal DND/CF audiences. Consultation by investigation team members or specialist members outside of the MOU protocols may occur but the IIC must be aware of the consultation, its purpose and then will limit the information passed

for the consultation purpose. The purpose of this procedure is to stop the spread of incomplete information or speculation regarding information shared in the consultation process. Personnel that are consulted in such circumstances must agree to retain the privilege associated with this information.

9. Throughout the investigation, team members and supporting agencies are responsible for maintaining the privilege of information entrusted to them as part of the investigation. During consultation, any information passed to a consultant must be tracked, accounted for and eventually retained by the member or destroyed by the member or agency conducting the consultation. Again, this protocol is to stop speculation or the release of incomplete information and to protect the privilege associated with some information sources.

10. Intra-team reports are to be treated in a similar manner as other investigation information. The reports are prepared for the investigation and are not to be shared otherwise (except as specified in the applicable SLAs), without explicit permission of the AIA or his representative and then only for consultation purposes. Also, during the report composition phase or during intra-team review and consultation, similar protocols will be observed by all investigation team members.

INVESTIGATION SITE MANAGEMENT ANOMALIES

11. <u>Accident Site Access for Insurance Representatives</u>: Occasionally Insurance Representatives or Underwriters may request accident site access. After the requester's identity has been verified, the request has been validated and the site is appropriately safe, the IIC will grant site access to such persons in a closely supervised manner. This is to protect evidence on the site and the well being of individuals conducting such surveys. In no circumstances shall site access be granted when wide spread hazards to persons are present and access to cordoned hazardous areas will not be permitted.

12. <u>Accident Site Access for Private Property Owners</u>: Should the location of an accident be on private property, the AIA Investigation Team is not permitted to stop owner access to the site. However, the IIC or Site Manager will make it known to such persons the dangers associated with access to the site. Normally, DND/CF will not issue PPE for such persons seeking access and the dangers of access must be impressed upon the property owner. Should assistance of a transient nature be required by a property owner on an accident scene (such as turning power on or off or like activity), the investigation team or a representative (salvage team or OSCAR member) may assist the owner. Should site access be demanded, the owner should be accompanied by a qualified person with their appropriate PPE donned, to point out dangers on the site.

13. <u>Accident Site Access for Accredited Observers</u>: The IIC will determine this question depending on circumstances present and the nature, qualifications and status of the observer. For access to be granted the observer must be a trusted agent that has agreed to their role in the investigation. Normally, the observer should be fully trained in hazards and accident site protocols. PPE will be issued for circumstances when access is granted to observers and investigation team members shall accompany observers during such access.

14. Accident Site Access for Others: Many other individuals may seek accident site access for various reasons, such as media, CASARA agents, police, coroners, NOK, DND/CF personnel etc. Each case must be examined on an individual needs basis and the IIC or the appointed site manager must make decisions based upon the circumstances at hand. In no case will casual access be granted. When it is decided to grant access for whatever reason, team members must don the appropriate PPE and a qualified team member will accompany the site visitor. Depending on circumstances, DND/CF PPE may be issued to the visitor; however, this is not a normal circumstance (for example, NOK, police or coroner may be issued particulate masks for a site visit). A record of such accident site access shall be maintained.

POST FIELD PHASE EXPECTATIONS

15. After the field phase, personnel from other agencies or Units return to their normal workplace and are accountable to their own supervisors. However, the AIA investigation continues and the investigation team members have responsibilities to the AIA until the investigation is concluded. Supervisors of these personnel must be made aware of these responsibilities and allocate sufficient time for personnel to discharge such responsibilities.

16. After the field phase is complete, the IIC will, in consultation with team members and supporting agencies, prepare an investigation work schedule which will outline the scope of work to be completed, significant investigation tasks and milestones, and associated target/due dates. For most investigations, this will be a standard timetable in order for the AIA to meet the standard investigation milestones. However, in complex investigation scenarios, this could involve protracted work plans that may require investigation team members to notify supervisors of this commitment. Should the work plan not be possible due to workload, the IIC and the AIA are to be notified in writing with the reasons. The IIC may request periodic updates to ensure that work is proceeding in an effective and efficient manner. Should undue progress be noted in work scheduled, the AIA may request milestone commitments from supervisors of team members so that investigation timetables can be maintained.

17. Upon return from the field phase, a “Hot Wash” will be conducted at DFS where the lessons learned of both the field party and rear party will be shared with other DFS staff. This debrief should include all available investigators and any other staff that had a part in the conduct of this phase of the investigation. Sometimes the production of records of these lessons may be tasked to the investigation team should DFS or DFS 2 decide that they would be of value for future training or SOP amendment.

18. After the debriefing of the field phase, the IIC will brief the CI and SI on the work plan schedule that is anticipated with the next phases of the investigation. Depending on workload and personnel availability, a modification to the investigation team make up could be formulated at this stage to manage any anticipated complications or undue time delays in report production.