ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL FIVE

INSTRUCTIONAL GUIDE

SECTION 1

EO C560.01 – EXAMINE ASPECTS OF FLIGHT SAFETY (FS)

Total Time: 90 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-805/PG-001, *Proficiency Level Five Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the self-study package within the section for which they are required.

Review the self-study package located at Attachment A and become familiar with the material prior to facilitating this lesson.

Self-study packages are intended to be completed by the cadet independently. More information about self-study packages can be found in the foreword and preface.

Photocopy the self-study package for each cadet.

Photocopy the answer key located at Attachment B but **do not** provide it to the cadets.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

A self study was chosen for this lesson as it allows the cadet to examine FS at their own learning pace. This encourages the cadet to become more self-reliant and independent by focusing on their own learning instead of learning directed by the instructor.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have examined aspects of FS.

IMPORTANCE

It is important for cadets to examine aspects of FS as each cadet, while participating in the Air Cadet Flying Program, must be aware of safety on the flight line. It is important that cadets understand the roles and

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responsibilities of the Flight Safety Officer (FSO) and how each individual can contribute to the safety of this program.

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SELF-STUDY PACKAGE INSTRUCTIONS

OBJECTIVE

The objective of this self-study package is to have the cadet examine aspects of FS.

RESOURCES

- Self-study package, and
- Pen / pencil.

ACTIVITIY LAYOUT

Provide the cadet with a classroom or training area suitable to complete the self-study package.

ACTIVITY INSTRUCTIONS

1. Provide the cadet with a copy of the self-study package located at Attachment A and a pen / pencil.
2. Allow the cadet 90 minutes to complete the self-study package.
3. Provide assistance as required to the cadet.
4. Collect the self-study package once the cadet has finished.
5. Correct the self-study package with the self-study package answer key located at Attachment B.
6. Provide feedback to the cadet and indicate whether or not they have completed the Enabling Objective (EO).
7. Return the completed self-study package to the cadet for their future reference.
8. Upon completion of the self-study package, record the result in the cadet's logbook and Cadet Training Record.

SAFETY

Nil.

END OF LESSON CONFIRMATION

The cadet's participation in examining aspects of flight safety will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

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CLOSING STATEMENT

The cadets' awareness on how the Air Cadet Program is an active participant in the FS Program and how the FSO plays a key role to ensure the safety of all individuals and resources, supports the understanding that FS is the concern for all participants in the Air Cadet Gliding and Powered Flight Programs.

INSTRUCTOR NOTES / REMARKS

Nil.

REFERENCES

A0-045 A-GA-135-01/AA-001 Directorate of Flight Safety. (2002). *Flight safety for the Canadian Forces*. Ottawa, ON: Department of National Defence.

A3-189 Directorate of Flight Safety. (2007). *The flight safety program*. Retrieved November 19, 2009, from http://www.airforce.forces.gc.ca/dfs-dsv/program-programme-eng.asp

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EXAMINE ASPECTS OF FLIGHT SAFETY (FS)

SECTION 1: THE ROLE OF THE FLIGHT SAFETY OFFICER (FSO) IN THE AIR CADET FLYING PROGRAM

SECTION 2: EDUCATION AND TRAINING

SECTION 3: THE REPORTING PROCESS

SECTION 4: INVESTIGATION PROCEDURES

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SECTION 1

THE ROLE OF THE FLIGHT SAFETY OFFICER (FSO) IN THE AIR CADET FLYING PROGRAM



Did you know?

The first known formal recognition of the need for a dedicated FS organization occurred in mid 1942 when the Royal Canadian Air Force (RCAF) Aircraft Accident Investigation Board (AIB) was formed. The Directorate of Flight Safety (DFS) was established in the early 1950s.

FS for the Air Cadet Flying Program is the responsibility of the Canadian Forces (CF). The Chief of Defence Staff (CDS) is tasked with operational command and control of the Air Cadet Flying Program, which includes:

- Air Cadet Gliding Program,
- Air Cadet Powered Flight Program, and
- familiarization flying funded by the Department of National Defence (DND) / CF and the FS Program.

The Chief of the Air Staff (CAS) has been designated as the Airworthiness Authority (AA) for the DND / CF and is responsible for FS policy.

Designated wings act as FS advisors to the Region Comd and assist the Air Cadet Glider Program activities with the program FSO to include:

- advising on FS matters;
- monitoring the safety aspects of flying operations;
- assisting in preparation and timely submission of initial and supplementary occurrence reports and recommending preventative measures (PMs);
- conducting biannual FS surveys of all designated gliding sites;
- assisting the Director of Flight Safety (DFS) and Regional Cadet Air Operations Officer (RCA Ops O) in the event of an accident;
- assisting the Region Comd in preparing comments for FS investigation reports; and
- reviewing Air Cadet Glider Program occurrence reports for quality assurance.



Regions and designated FSOs include:

REGION	REGION COMD	DESIGNATED FSO
Atlantic	Comd Maritime Forces Atlantic (MARLANT)	14 Wing Greenwood
Eastern	Comd Land Forces Quebec Area (LFQA)	3 Wing Bagotville
Central	Comd Land Forces Central Area (LFCA)	8 Wing Trenton
Prairie	Comd 1 Cdn Air Div	17 Wing Winnipeg
Pacific	Comd Maritime Pacific (MARPAC)	19 Wing Comox

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An occurrence is defined as an event involving the operation of an aircraft or support of flying that constitutes an accident or incident.

An occurrence category is an alphabetical designation assigning an overall seriousness classification including:

- aircraft damage level (ADL); or
- personnel casualty level (PCL).

An FSO is designated annually by the RCA Ops O for all regional gliding schools (RGS) and gliding centres. FS qualified personnel wear the FS Diamond Badge on their operational clothing.



The aim of the FS program is to prevent the accidental loss of aviation resources. What is an aviation resource? Basically, anything or anyone involved in or supporting aviation operations.

- planes,
- parts, and
- people.

That can even include such things as the fuellers for the aircraft along with the base kitchen who makes the aircrew's box lunch!

The FS Program is based on four fundamental principles:

- Cause factors are assigned to occurrences, only done to assist the development of effective PMs .
- Personnel involved in conducting and supporting flying operations are expected to freely and openly report all FS occurrences and concerns.
- Determine the cause of occurrences so appropriate, effective PMs can be developed and implemented, personnel involved in conducting and supporting flying operations are expected to voluntarily acknowledge their own errors and omissions.
- Facilitate free and open reporting and voluntary acknowledgement of errors and omissions, the FS Program does not assign blame. Personnel involved in a FS occurrence are not identified in the final reports and the reports cannot be used for legal, administrative, disciplinary or other proceedings.

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Did you know?

Before 1963, a Board of Inquiry (BOI) was required to assign blame and recommended punishment for those responsible for an accident. Between 1963 and 1965, this was changed so that information given to an aircraft accident investigation could not be used in disciplinary proceedings.

The FS Program is based on three pillars:

- education,
- analysis, and
- prevention.



Where have you seen an FSO? _____

How do you identify the FSO? _____

All flying aspects for the RGSs and gliding familiarization sites in the Air Cadet Program fall within the responsibilities of an FSO.



The duties and responsibilities of the FSO are outlined in A-GA-135-001/AA-001, *Flight Safety for the Canadian Forces*.

The FSO must be familiar with the unit's operations so that sound advice can be provided on accident prevention and hazardous conditions.



FSO responsibilities are:

- to advise the school / site comd on all aspects of FS,
- to report all accidents and incidents in accordance with A-GA-135-001/AA-001*Flight Safety for the Canadian Forces*,
- to aid school / site comd in the implementation of the unit FS Program, and
- to monitor all aspects of the operation and advise school / site comds of hazardous conditions.

FS personnel must immediately notify the site comd of any unsafe procedures / practices detected. The site comd immediately rectifies the situation and advises the RCA Ops O of the corrective action proposed / implemented.

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Activate Your Brain #1:

FS occurrence is defined as an event

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An accident / incident are defined as:

AIR ACCIDENT

An event involving an aircraft between the time the first power plant is attempted with intent for flight and the time the last power plant or rotor stops, (a glider from the time the hook-up is completed until the glider comes to rest after landing), in which one or more of the following occurs:

- someone is missing or receives fatal, very serious or serious injuries, as determined by a medical officer (MO), contributed by an aircraft or its equipment; or
- an aircraft is destroyed, missing or sustains very serious or serious damages.

AIR INCIDENT

An event involving an aircraft between the time the first power plant is attempted with intent for flight and the time the last power plant or rotor stops, (a glider from the time the hook-up is completed until the glider comes to rest after landing), in which one or more of the following occurs:

- someone receives minor injuries, as determined by a MO, contributed by an aircraft, its equipment, or its operation;
- an aircraft sustains very minor damages; or
- there is no injury or damage but accident potential did exist.

GROUND ACCIDENT

An event involving an aircraft when there is no intent for flight, or when there is intent for flight but no power plant start is attempted, or after the power plant and rotors have stopped, in which one or more of the following occurs:

- a person is missing or receives fatal, very serious or serious injury or illness as determined by a MO and where the aircraft equipment or its operation has contributed to the event; or
- an aircraft is destroyed, missing or has sustained very serious or serious damage.

GROUND INCIDENT

An event involving an aircraft when there is no intent for flight, or when there is intent for flight but no power plant start is attempted, or after the power plant and rotors have stopped, in which one or more of the following occurs:

- a person receives minor or no injuries as determined by a MO, or there is a risk of injury or illness and where the aircraft equipment or its operation has contributed to the event;
- an aircraft receives minor damage;
- there is no damage but accident potential existed;
- there is jettison or accidental release; or
- there is damage to civilian or military property.

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SECTION 2

EDUCATION AND TRAINING



Education and training not only is a fundamental element of the FS Program but also requires the FSO to be properly qualified.

Flight safety education is fundamental to accident / incident prevention. All personnel involved with flight operations should be aware of flight safety objectives. FS training and education are provided both through formal and informal means.



***Activate Your Brain #2*:**

Where have you seen FS education and training?

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

All personnel active in the FS Program shall continue to educate themselves by accessing informal information from both military and civilian organizations. Material and information is available from numerous sources, including:

- FS publications,
- bulletins,
- web-based material,
- magazines (eg. *Flight Comment*),
- posters,
- FS reports (Occurrence report / *Epilogue* [EPI]),
- FS briefings,
- conferences, and
- seminars.



A more experienced FSO can educate newer, less experienced personnel by passing on knowledge learned through experience or from other leaders.

To work as an FSO, formal qualifications are obtained by completion of the CF flight safety courses, including:

- Basic FS Course (BFSC), and
- Advanced FS Course (AFSC).

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The BFSC teaches candidates to:

- develop and implement an effective FS prevention and education program; and
- respond to FS occurrences, to include:
  - reporting;
  - investigating; and
  - implementing preventative measures.

The AFSC teaches candidates to:

- develop and implement an effective wing-level FS prevention and education program, and
- respond to FS occurrences, to include:
  - reporting;
  - investigating; and
  - implementing preventative measures.

The investigator's qualification is a requirement of the CF Airworthiness Program. Formal training includes:

- Basic Investigator (BI 2 and BI 3), and
- Investigator-In-Charge (IIC 1, IIC 2 AND IIC 3).

Training involves all personnel active in the Air Cadet Flying Program. To accomplish this, the FS Program uses:

- FSO formal / informal briefings,
- CF FS publications, and
- awards.



Have you attended a FS briefing? Has an FSO spoke to your group before the squadron started the familiarization (famil) flights at the gliding centre?



It is the responsibility of FS personnel at all levels to advise their comds when they have concerns with respect to FS issues. This advise can take many forms, including:

- formal / informal briefings,
- briefing notes,
- safety committee meetings, or
- informal discussions.

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Briefings

FSOs are to provide / conduct briefings on information relevant to the audience which are:

- informative,
- current, and
- interesting.



Did you know?

With young cadets waiting for their first famil flight in a glider, safety is not on their mind. A briefing provides information for these cadets on expected behaviour around the glider, runway and even what to do if they see something questionable.

FS Publications

Magazines and articles are produced and distributed within the CF. *Flight Comment* is the CF FS magazine. It provides relevant, interesting and timely FS information using posters, articles and other training methods.

Within the magazine, numerous articles are presented including:

- Dossiers,
- *Epilogue,*
- From the Investigator, and
- *Lessons Learned*.

Other publications produced by the DFS include:

- *On Target* (single subject of interest),
- *FS Newsletter*, and
- *FS Flash*.

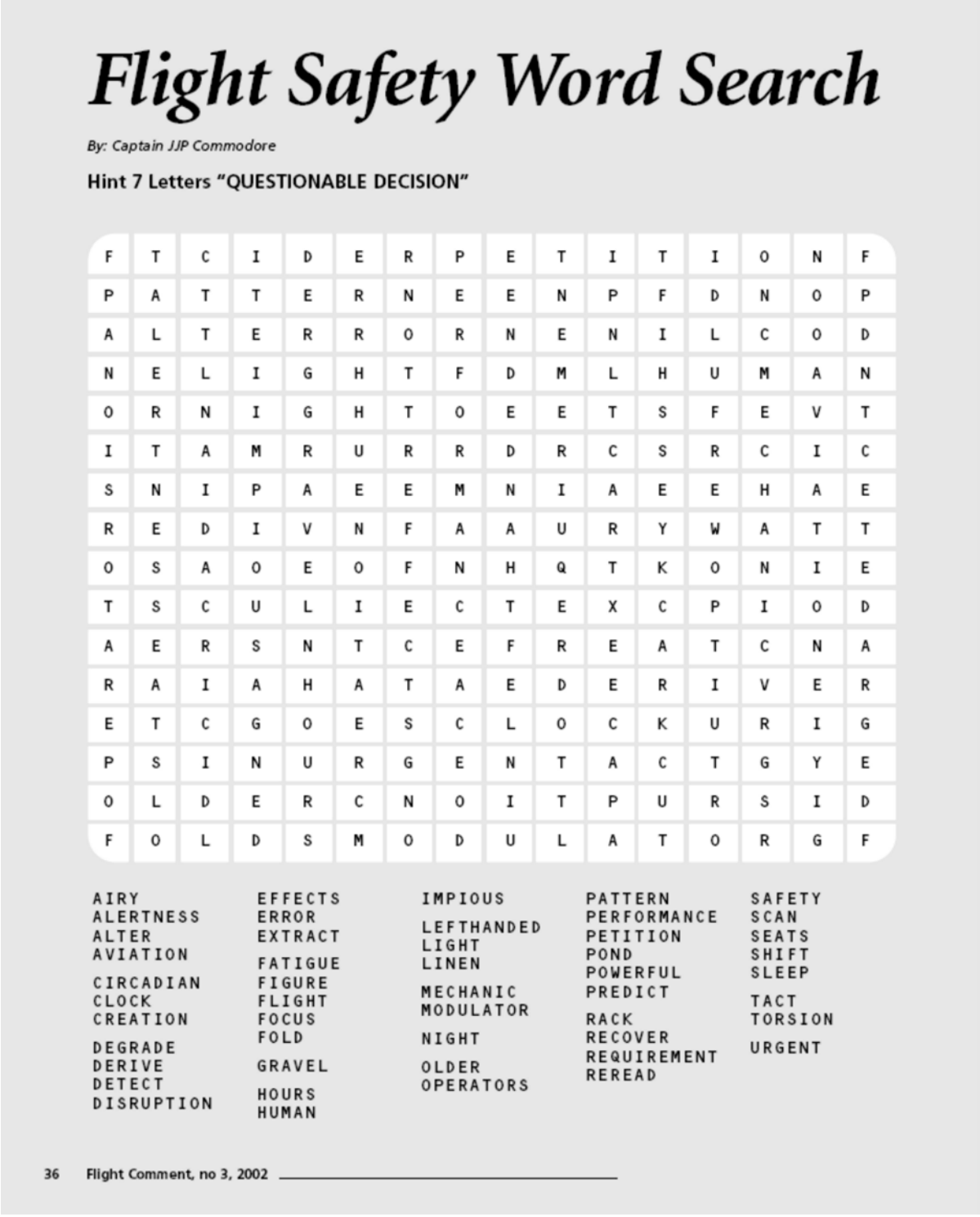


Did you know?

Within the cadet world, newsletters are published by the RGS FSO (RGS-C has an online newsletter called *Fly Right*).

Challenging activities such as crossword and word search puzzles are part of the magazine publications. To learn about FS issues and terminology, complete the following word search puzzle.

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Flight Safety Word Search

By: Captain JJP Commodore

Hint 7 Letters "QUESTIONABLE DECISION"

F	T	C	I	D	E	R	P	E	T	I	T	I	O	N	F
P	A	T	T	E	R	N	E	E	N	P	F	D	N	O	P
A	L	T	E	R	R	O	R	N	E	N	I	L	C	O	D
N	E	L	I	G	H	T	F	D	M	L	H	U	M	A	N
O	R	N	I	G	H	T	O	E	E	T	S	F	E	V	T
I	T	A	M	R	U	R	R	D	R	C	S	R	C	I	C
S	N	I	P	A	E	E	M	N	I	A	E	E	H	A	E
R	E	D	I	V	N	F	A	A	U	R	Y	W	A	T	T
O	S	A	O	E	O	F	N	H	Q	T	K	O	N	I	E
T	S	C	U	L	I	E	C	T	E	X	C	P	I	O	D
A	E	R	S	N	T	C	E	F	R	E	A	T	C	N	A
R	A	I	A	H	A	T	A	E	D	E	R	I	V	E	R
E	T	C	G	O	E	S	C	L	O	C	K	U	R	I	G
P	S	I	N	U	R	G	E	N	T	A	C	T	G	Y	E
O	L	D	E	R	C	N	O	I	T	P	U	R	S	I	D
F	O	L	D	S	M	O	D	U	L	A	T	O	R	G	F

AIRY
ALERTNESS
ALTER
AVIATION

CIRCADIAN
CLOCK
CREATION

DEGRADE
DERIVE
DETECT
DISRUPTION

EFFECTS
ERROR
EXTRACT

FATIGUE
FIGURE
FLIGHT
FOCUS
FOLD

GRAVEL

HOURS
HUMAN

IMPIOUS

LEFTHANDED
LIGHT
LINEN

MECHANIC
MODULATOR

NIGHT

OLDER
OPERATORS

PATTERN
PERFORMANCE
PETITION
POND
POWERFUL
PREDICT

RACK
RECOVER
REQUIREMENT
REREAD

SAFETY
SCAN
SEATS
SHIFT
SLEEP

TACT
TORSION

URGENT

36 Flight Comment, no 3, 2002

Note. From "Flight Comment", 2003, Flight Safety Word Search. Retrieved November 23, 2009, from http:/ www.airforce.forces.gc.ca/dfs/publications/fc/archive/2000-2004/archive-eng.asp

Figure A-1 Flight Safety Word Search

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***Activate Your Brain #3*:**

As part of FS informal education / training, list some of the information you think an FSO would present in a briefing?

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

Awards

Flight Comment magazine recognizes staff for accomplishments, including:

- Good Show Award for Excellence in FS, and
- For Professionalism Awards in FS.



Did you know?

Cadet Instructor Cadre (CIC) officers have been recognized in *Flight Comment*. Check out issues: Summer 2002, Summer 2005 and Issue 1 2009.



For more information and to read about some of these CIC officers, go online to http://www.airforce.forces.gc.ca/dfs/publications/fc/fc-pdv-eng.asp.

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SECTION 3

THE REPORTING PROCESS



FS reports refer to all reports, whether oral or written.

Specific forms must be used to support the FS Program. It is critical that all occurrences are reported as potential or actual compromise of FS. Reports allow the emerging trends to be identified and analyzed.



Did you know?

On February 1, 1968, the unification of the Canadian military brought the Navy, Army and Air Force together to be known as the CF. Occurrences were addressed to the DFS. In 1975, Air Command was formed and assignment of responsibility was divided between the Air Command FS staff and DFS.

In August 2011, the Government of Canada restored the historic naming of Canada's Air Force such that it is now known again as the Royal Canadian Air Force.

There are two categories of forms designed for the FS Program: FS specific and FS related forms.

FS specific forms include:

- CF 215 Flight Safety Occurrence and Birdstrike Report (www.airforce.forces.gc.ca/dfs/publications/docs/cf215.pdf)
- DND 2484 Flight Safety Hazard Report (www.airforce.forces.gc.ca/dfs/publications/docs/fshr-rvsd)

FS related forms include:

- Report on Injuries or Immediate Death Form (form used to report serious or very serious injuries and fatalities),
- Coroner's report, and
- Unsatisfactory Condition Report.



All forms and reports must be completed in a specific format.

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FS occurrences are reported if any of the following questions are answered with a yes.

(1) Was there an injury or illness to personnel engaged in or supporting air operations, damage to a CF-owned aircraft or aircraft operated by or on behalf of DND / CF or damage to CF equipment used to support air operations?

(2) Was there potential for injury or illness or damage to an aircraft?

(3) Could reporting the FS event generate a PM that may prevent a similar occurrence?

To report an immediate flight safety hazard or accident call 1-888-WARN-DFS (1-888-927-6337).



Did you know?

The unit of ownership is the unit having control and authority over the aircraft. For ground occurrences, the unit of ownership is the unit, wing or base to which the aircraft is assigned.

There are exceptions for aircraft that include:

- aircraft undergoing depot-level maintenance at a contractor's plant,
- new aircraft being produced for the CF, and
- other non-CF aircraft.

If an accident occurs, the unit of ownership is to be notified by the fastest possible means. The reporting individual briefs the duty officer and confirms details as known.



Did you know?

Damage is defined as physical harm to an aircraft that impairs the value or normal function of the aircraft or portion of the aircraft, which includes:

- loss,
- repair, or
- replacement.

Damage is a result of unusual forces including:

- collision,
- impact,
- explosion,
- fire,
- rupture, or
- overstress.

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You are pushing the glider off the runway and you notice a nut lying on the ground beside the glider. What do you do? To whom do you speak?



***Activate Your Brain #4*:**

What must personnel at all levels report?

_____

_____

_____

_____

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SECTION 4

INVESTIGATION PROCEDURES



Did you know?

Air Command FS staff manage the day-to-day FS Programs and DFS is responsible for accident collection and analysis.



If equipment has not been misused or subjected to unusual stress failures, it shall not be classed as damage, but as normal wear resulting from prolonged service use.

Occurrences are investigated quickly with the objective to prevent or reduce the risk of similar occurrences.



FS occurrences can result in or have the potential to cause a loss of resources.

FS Investigation (FSI)

A FSI refers to any investigation conducted under the terms of A-GA-135-001/AA-001, *Flight Safety for the Canadian Forces*.

DFS Investigator-In-Charge (IIC)

The IIC is appointed by the DFS and reports all aspects of the investigation and coordinates all activities of personnel on the team.

FS Investigation Report (FSIR)

The FSIR is produced to support Class I or most Class II FSI.



Did you know?

Class I to IV is based on the following criteria:

(1) the occurrence category,

(2) the safety of flight compromise level, and

(3) other factors which could impact on the reputation of the FS Program, CF and the department.

Initial Report (IR)

An IR describes the immediately available particulars of the occurrence and must be sent within 12 hours of the event.

Supplementary Report (SR)

An SR is the report normally produced by the wing or unit for aircraft incidents of category D and E. It shall be submitted within 30 calendar days of the occurrence.

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Occurrence categories are classified as:		
Aircraft Damage Level (ADL)	**Personnel Casualty Level (PCL)**	**Occurrence Category**
Destroyed or missing	Fatal injury 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

Combined Report (CR)

A CR is the combination of the IR and SR in a single report submitted for minor occurrences requiring a limited or a brief investigation and is provided within 48 hours of the occurrence. The report is the same as the SR.

Investigations are conducted by the following:

- DFS conducts Class I and II investigations,
- a specific FSO is tasked by DFS to conduct any Class III Enhanced Supplementary FSIR (ESR), and
- a unit FSO conducts all other FSIs and the report is released to the supporting wing FSO.

The purpose of FSIs is to prevent future accidents. Determining cause factors are a means to identify problems and assists in trend analysis.

Specific cause factors results in a more exhaustive analysis of the occurrence. In turn, measures are formulated that prevents a recurrence of the problem. Cause factors assist in understanding all of the reasons why an accident or incident occurred. Cause factors should lead to PMs.

Standard terminology is used in all reports. Cause factors are any event, condition or circumstance whose presence or absence, within reason, increases the likelihood of a FS occurrence. Cause factors are listed in the following six categories:

- personnel,
- material,
- environment,
- operational,
- unidentified foreign object damage (FOD), and
- undetermined.



Did you know?

On January 1, 2004, the CF adopted the Human Factors Analysis and Classification System (HFACS) to assess and document personnel cause factors (PCF). Active failures and latent conditions need to be identified for all occurrences so that effective PMs can be implemented to reduce future occurrences.



Active failures are either the error(s) or the conscious deviation(s) from an authorized procedure that directly contribute to a FS occurrence.

Latent conditions are situations or circumstances associated with the individual(s) or the system of management (supervision) of the individual(s) involved in the occurrence.

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FSIs investigate and classify failures associated with personnel to include:

- unsafe acts or conditions (active failure),
- preconditions for unsafe acts (latent - direct),
- supervision (latent - remote), and
- organizational influences (latent - remote).



Did you know?

Television shows such as The Discovery Channel show "Mayday", are created to show the FS investigation and reporting process.

Read the following FSIR to understand the format of and information within a report.

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CANADIAN FORCES
FLIGHT SAFETY INVESTIGATION (FSI) REPORT (FSIR)

SUPPLEMENTAL REPORT (SR)

FILE NUMBER: 1010-CGBZG (DFS 2-4-2)
DATE OF REPORT: 16 FEB 04

AIRCRAFT TYPE: Schweizer 2-33A
DATE/TIME: 27 1807Z/1503 Local Sep 03
LOCATION: Summerside, PEI
CATEGORY: "B" Category Accident

This report was produced under authority of the Minister of National Defence (MND) pursuant to Section 4.2 of the Aeronautics Act (AA), and in accordance with A-GA-135-001/AA-001, Flight Safety for the Canadian Forces.

With the exception of Part 1 – Factual Information and when provided for by law, the contents of this report shall only be used for the purpose of accident prevention and are to be seen only by those with a need-to-know in the exercise of their formal functions. In any event, this report shall not be released to the public in whole or in part except under the authority of the Director of Flight Safety, National Defence Headquarters.

Due to the nature of the accident, the Supplemental Report was chosen as the reporting format. As no clear format for this report is outlined within the A-GA-135-001/AA-001, DFS is in the process of aligning all SR reports to reflect ICAO Annex 12 standardization.

1. DESCRIPTION

The auto tow launch began normally and, after the "all out" signal was given, the glider was observed to accelerate slowly. The visiting cadet assigned to signal the tow driver of the glider's progress noticed that the ground run of the glider was unusually long. Using a signal bat, the signal cadet subsequently gave the "stop, stop, stop" signal to the tow driver. As the stop signal was given, the glider became airborne and climbed to approximately 50 feet AGL. Thinking that the glider could successfully take off, the signal cadet then brought the signal bat down but the tow vehicle had already initiated a launch abort. Seeing this, the signal cadet then raised the signal bat straight up again, re-affirming the take off abort signal.

The glider was observed to descend rapidly and land hard in a level attitude approximately 2000' from the runway threshold. Ground roll was minimal and both the pilot and passenger immediately exited the aircraft unassisted. The glider suffered "C" category damage to the main wheel axle and support tubing.

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2. INVESTIGATION NARRATIVE

The glider was being flown in support of the Air Cadet Fall Glider Familiarization Program from runway 24 at Summerside Airport, PEI. The accident flight was the 45th of the day. The Instructor Pilot (IP) was tasked to give a public relations flight to a civilian passenger; the IP was seated in the rear seat with the passenger in the front seat. The weather conditions at the time of accident were VFR with wind 180°/10 kts, visibility 15 SM, temperature 23°C, and sky clear.

The investigation revealed that the auto tow vehicle in use was not fully serviceable. The required rapid acceleration of the tow vehicle at the initial part of the auto tow launch would cause the vehicle to hesitate or sputter. To compensate for this and avoid stalling the vehicle, the auto tow driver would accelerate slowly. The tow driver thought this to be acceptable in the interest of keeping the operation going. The auto launch observer was reported as stating that the "truck was having problems all day." The site supervisor, pilot, and launch personnel were aware of this problem.

After having experienced similar slow accelerations during previous launches, the IP again noted the poor acceleration during the accident takeoff. After lift off, the IP observed the airspeed to be 50 MPH, but it soon decayed to 45 MPH at which point she released the towrope. The minimum allowable airspeed on auto tow is 50 MPH. The IP believed that she was "a little late" in reacting to the decaying airspeed. She attempted to lower the nose in order to regain a positive flying attitude and adequate airspeed for the round out but she was hesitant to use excessive forward stick pressure due to the close proximity to the ground. The glider descended rapidly and rounded out at approximately three to five feet without regaining the minimum approach speed of 50 MPH and with insufficient airspeed to arrest the descent during the flare.

At all Atlantic Region gliding sites, visiting cadets are encouraged to participate in the launching of the glider. They are given basic instruction and are closely monitored by the Air Cadet staff. The visiting cadet assigned to signals had little previous experience in his function. He stated that all of the launches that day were slow initially with long ground runs but that the accident flight ground run was longer by comparison. This caused him to doubt the safety of continuing the launch and, subsequently, he gave the stop signal. Upon seeing the glider go airborne, he doubted his decision and momentarily brought the signal bat down. As the glider then released the towrope and started to descend, the signal cadet then held the signal bat straight up again.

The Site Supervisor stated that operations at the launch site were being carried out as per normal with participating cadets being closely supervised by qualified personnel. The problem with the launch vehicle was brought to his attention early in the day at which point he suspended operations and personally investigated the issue. After finding the vehicle to be satisfactory as long as "full" throttle" was

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not used, the Site Supervisor allowed operations to continue. The Site Supervisor said that at no time during the day did he perceive a further problem with the truck until it was again brought to his attention after the accident.

3. CAUSE FACTORS

3.1 Personnel – Pilot – Technique, in that the pilot did not make a timely and correct reaction to the decaying or inadequate airspeed in the initial portion of the launch.

3.2 Personnel – Support Personnel – Training, in that the cadet assigned to provide launch signals did not have the required training and experience to adequately judge whether or not the safety of the launch had been jeopardized.

3.3 Personnel – Management (Regional HQ) – Training, in that the instituted policy of having cadets fill launch positions as part of their familiarization experience does not make provision for adequate training in all cases. While functions such as holding a glider's wing or tail are purely mechanical tasks, launch signalling may require a cadet to make a decision based on knowledge or experience that he or she may not possess.

3.4 Personnel – Supervision (Site Supervisor) – Judgement, in that the Site Supervisor decided to continue operations after a problem with the auto launch vehicle was brought to his attention. Although he judged the vehicle to be safe for towing, its performance reportedly continued to be less than ideal. In fact, whether or not there was a mechanical problem with the vehicle is irrelevant. The problem was at least perceived, and led to unconventional launch technique by both the auto tow driver and the pilot.

4. PREVENTATIVE MEASURES

4.1 Greater emphasis on auto tow launch aborts are to be provided within both the Atlantic Region's auto tow conversion course and Proficiency/Currency program. Completion date TBA.

4.2 A PIF has been issued in Atlantic Region suspending the use of cadets in the position of Auto Launch Signaller. Its permanency is pending a review of our training syllabus. Site Supervisors have been reminded of the importance of close supervision of all inexperienced personnel utilized on-field.

4.3 Results of the launch training syllabus review are to be forwarded to the National Air Ops O for consideration of application to all regions.

4.4 All supervisory staff in Atlantic Region will be briefed on the danger of accepting substandard equipment for use in an operational role, possibly during the Annual Program Training Conference in January 04.

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4.5 This accident and the accident involving C-GCLN at Miramichi NB, 1 Sep 02, is to be examined by the upcoming Standards Working Group meeting, at CFS in Dec 03, with the goal of evaluating if sufficient supervisory and decision-making training is provided to the 55 regional gliding site commanders and their staffs. This review should be conducted within the scope of discussions held during the recent Air Cadet Flying Training Conference at 19 Wing Comox, in Oct 03.

Note. From "Flight Comment", 2007, Canadian Forces Flight Safety Investigation (FSI) Report (FSIR). Retrieved November 20, 2009, from http:/ www.airforce.forces.gc.ca/dfs/reports-rapports/l/pdf/fsir/cgbzg.pdf

Figure A-2 FSIR



***Activate Your Brain #5*:**

Analyze the FSIR and comment on the report to include:

- cause factors,
- PMs, and
- who reviews the report?

Notes:

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CONCLUSION

Flight safety is the concern for all participants when participating in the Air Cadet Gliding and Power Flight Program. The FSO plays a key role to ensure the safety of all individuals and resources, not only when the flying is being conducted but also by preparing personnel through education and training to recognize dangers. The training and education required by an FSO better prepares these individuals to complete this role.

For you to understand the chain of command of the FS Program, the role and responsibilities of an FSO and the reporting mechanism, you need to understand how the ACFP is an active part of the FS Program.



Did you know?

If you have questions about the FS Program, speak with the FSO at the gliding centre and remember, each region has an FSO.



You can see the complete copy of A-GA-135-001/AA-001, *Flight Safety for the Canadian Forces* online at http://www.airforce.forces.gc.ca/dfs/publications.manual-manuel-eng.asp



Congratulations, you have completed your self-study package on EOC560.01 (Examine Aspects of Flight Safety). Hand the completed package to the Training Officer / Proficiency Level Officer who will record your completion in your Proficiency Level Five Logbook.

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ANSWER GUIDE



Where have you seen an FSO?

gliding centre,
CSTC - glider scholarship

How do you identify the FSO?

Wears the FS Diamond Badge on their operational clothing.



Activate Your Brain #1 answer:

FS occurrence is defined as an event

involving the operation of an aircraft or support of flying that constitutes an accident or incident.



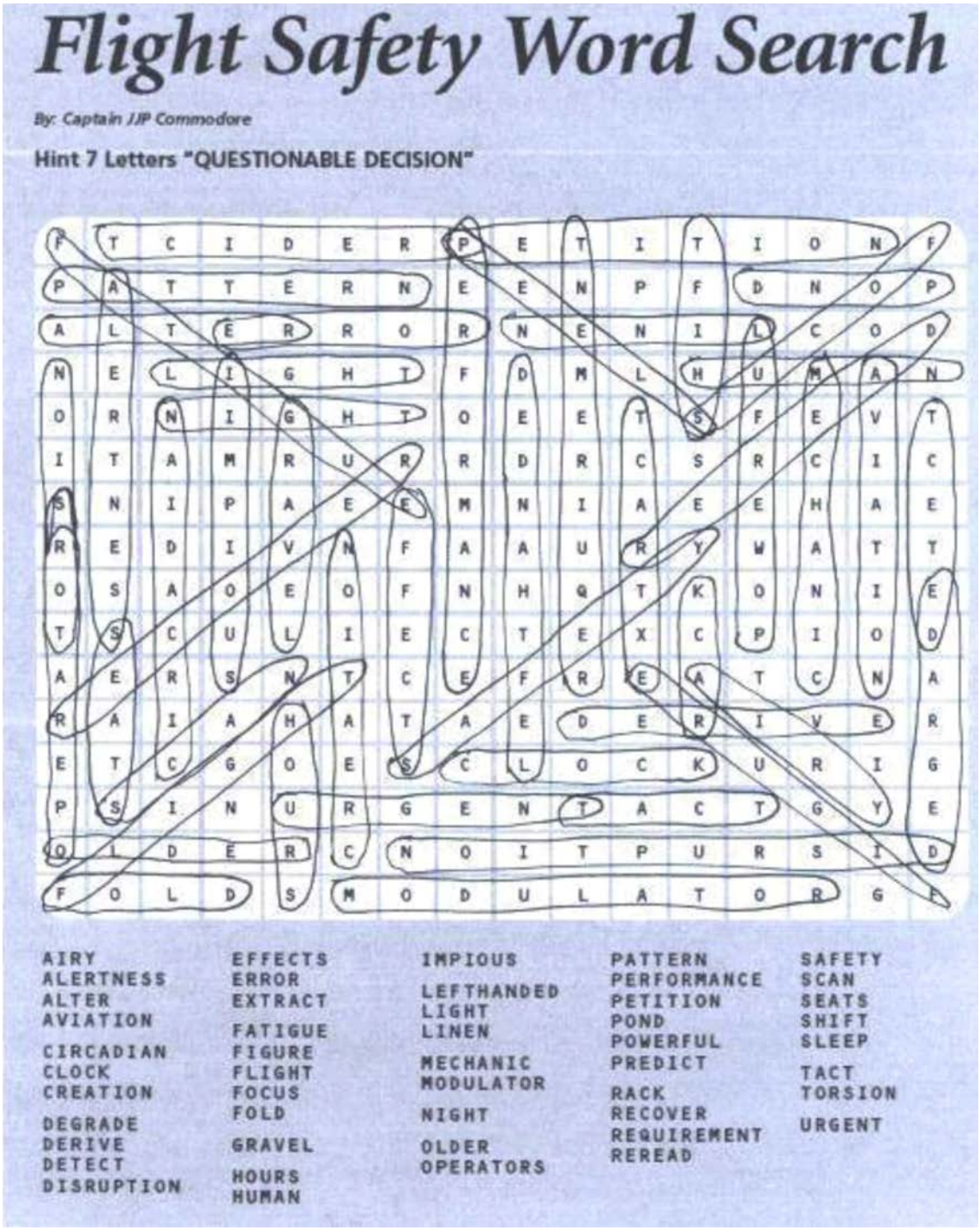
Activate Your Brain #2 answers:

Where have you seen FS informal education / training?

FS publications	magazines (*Flight Comment*)
bulletins	posters
web-based material	FS briefings - CSTC
conferences	seminars
FS reports (Occurrence report / Epilogue [EPI])	

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Word Search Answer



Note. From "Flight Comment", 2003, Flight Safety Word Search. Retrieved November 23, 2009, from http:/ www.airforce.forces.gc.ca/dfs/publications/fc/archive/2000-2004/archive-eng.asp

Figure B-1 Flight Safety Word Search Answer

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***Activate Your Brain #3 answer*:**

As part of FS informal education / training, list some of the information an FSO should present in a briefing?

Corrective action for pilots.	Behaviour on the airfield.
Where not to walk.	Behaviour around the aircraft.
Who to speak to if you find something dangerous on the ground.	Who to speak to if a problem is noticed.
Types of occurrences.	



***Activate Your Brain #4 answer*:**

What must personnel at all levels report?

- All FS occurrences
- Applicable cause factors
- PMs

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***Activate Your Brain #5*:**

Analyze the FSIR and comment on the report to include:

- cause factors,
- PMs, and
- who reviews the report?

Notes:

Cause factors	**Personnel** • **Pilot** - technique, in that the pilot did not make a timely and correct reaction to the decaying or inadequate airspeed in the initial portion of the launch. • **Support personnel** - training in that the cadet assigned to provide launch signals did not have the required training and experience to adequately judge whether or not the safety of the launch had been jeopardized. • **Management** (Regional Headquarter) - training in that the instituted policy of having cadets fill launch positions as part of their familiarization experience does not make provision for adequate training in all cases. • **Supervision** (site supervisor) - judgement, in that the site supervisor decided to continue operations after a problem with the auto launch vehicle was brought to his attention.
PMs	• Greater emphasise on auto tow launch aborts are to be provided within both the Atlantic Region's Auto Tow Conversion Course and Proficiency / Currency program. • A proficiency information folder (PIF) has been issued in Atlantic Region suspending the use of cadets in the position of Auto Launch Signaller. • Results of the launch syllabus review are to be forwarded to the National Air Ops O for consideration of application to all regions. • All supervisory staff in Atlantic Region will be briefed on the danger of accepting substandard equipment for use in an operational role.
Who reviews the report?	• Standards Working Group

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