National Defence / Défense nationale

Flight Comment

ISSUE 3, 2025

LESSONS LEARNED

Don't Rush Me

DOSSIER

FOM – The Sequel

FROM THE FLIGHT SURGEON

Aeromedical Considerations in Combat Aviation

SCAN TO VIEW ONLINE

Canada

Cover – The new CT-102B Astra II arrives at 15 Wing Moose Jaw, September 15, 2025.

Photo: Cpl Brock Curtis

Photo: Cpl Dhagat

Photo: MCpl Picard

Flight Comment

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Views on Flight Safety

by LGen Jamie Speiser-Blanchet, CMM, CD
Commander Royal Canadian Air Force

In July 2025, I had the privilege of assuming command of the Royal Canadian Air Force (RCAF). Our Air Force is undergoing a profound transformation—driven by technological advances, fleet modernization, and significant investment. New aircraft are being delivered, major projects are underway across our Wings, and our personnel are training and integrating alongside allies. This transformation reflects a shifting security landscape and a world that is increasingly uncertain.

Amid this change, the Flight Safety Program (FSP) remains essential. Its purpose is clear: to prevent the accidental loss of aerospace resources, preserve combat effectiveness, and enable mission success. The lessons built over the FSP's eighty-three years have been hard-won, often born of tragedy. We owe it to those who came before us to ensure those lessons are not forgotten but integrated into the way we operate our modern fleets.

Leadership is central to this effort. Command teams at every level must set the tone and expectations. The Flight Safety mantra—"See something, say something"—is more important than ever during times of transformation. As recently highlighted in the Flight Comment magazine: "We need to take full ownership of our work and the work of others. Tasks, operations, and Flight Safety are team efforts. It is the 'not my job' attitude that opens the door to incidents and accidents." A culture where personnel can openly report hazards and occurrences, free of fear, is not just a best practice—it is the foundation of combat effectiveness.

Technology is rapidly advancing, but the human element endures. Fatigue, pressure, and distraction will continue to influence safety outcomes. Supervisors and all personnel must recognize that human factors account for more than 80 percent of accidents. While new systems may reduce error, they cannot eliminate it. Looking out for one another, and raising concerns early, remains the surest safeguard.

The capabilities on the horizon—automation, advanced health-monitoring systems, autonomous aircraft—will revolutionize how we fly. These advancements will enhance our ability to defend Arctic sovereignty, support NORAD operations, meet NATO and international commitments, and stand ready for Canadians in times of need.

This century will demand more of the RCAF. The path ahead is one of opportunity, challenge, and promise. By carrying forward the lessons of the past, fostering a Just Culture, and embracing both innovation and accountability, we will continue to deliver airpower safely and effectively for Canada.

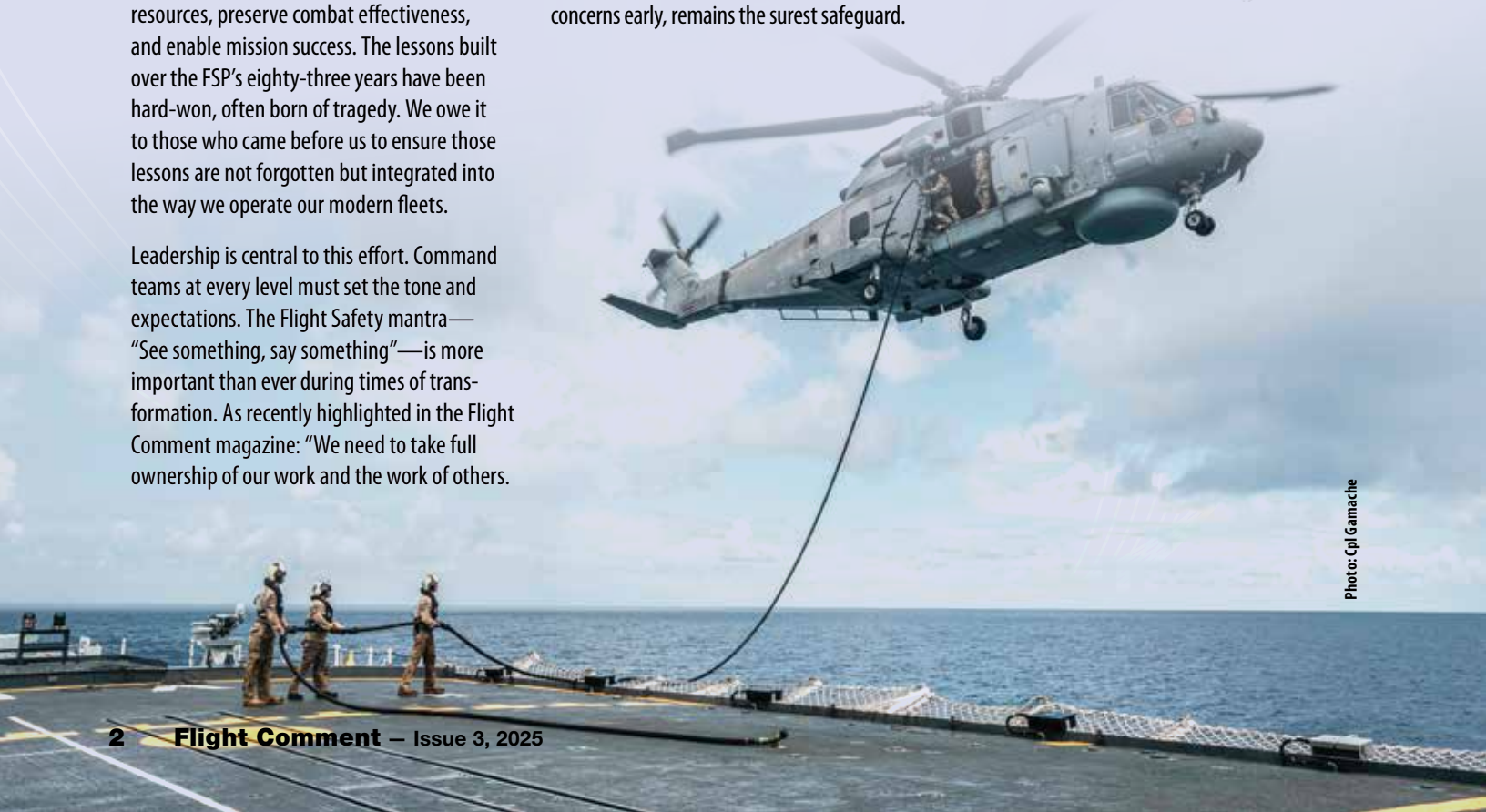


Photo: Cpl Gamache

The Editor's Corner

by Major Courtney Douglass, DFS 3-3

It is an exciting time for our Air Force. Investment, modernization and technological advances are transforming how we operate and adding advanced capabilities to our fleets. As a Flight Safety team this new equipment will incorporate technology that is intended to improve safety of flight. While undoubtably beneficial, we must be aware of the potential for new hazards, in particular hazards related to how humans interact with this new technology.

As LGen Speiser-Blanchet notes in the latest *Views on Flight Safety*, "Technology is rapidly advancing, but the human element endures. Fatigue, pressure, and distraction will continue to influence safety outcomes." The DFS Flight Surgeon explores these issues in this month's, *From the Flight Surgeon* article, emphasizing that "the most sophisticated aircraft is rendered ineffective if its operator is cognitively compromised by exhaustion."

Similarly, the Instrument Check Pilot (ICP) School has submitted an article on aircraft navigation databases. They stress that no matter how sophisticated the system, the integrity of the data depends on the vigilance of the pilot. Failing to understand the data input or neglecting to ensure that databases are current can lead to critical errors. This reinforces that technology should be viewed as a partner to enhance capabilities, but not a substitute for human judgment and skill.

This edition highlights the importance of personnel speaking up when they notice something unsafe or wrong. With new aircraft, procedures, and technology there is always a chance that something can be overlooked or forgotten. That is why the Flight Safety mantra to "See something, say something" is even more important during times of change. In this issue you will find two articles related to this theme: a lessons-learned piece from our United States Air Force counterpart and a historical article from 1944 where the RCAF Chief Inspector of Accidents called on the public to speak up.

Maintaining our Flight Safety culture remains a top priority. This edition features two articles related to this theme. Our former Flight Comment editor, Major James Feagan, discusses the importance of flight safety promotional items, while I reintroduce the Flight Safety Awards Program. Both initiatives play a key role in fostering our flight safety culture. We encourage everyone to get involved by submitting suggestions for next year's promotional items and nominating deserving individuals for awards.

As we continue to embrace new technologies and evolve our capabilities the commitment of every individual to uphold the flight safety culture remains essential. By staying vigilant, speaking up, and supporting our safety programs we strengthen the culture that keeps our Air Force operating safely and effectively.

Photo: CAF

Chief of the Defence Staff Commendation

The Chief of the Defence Staff (CDS) Commendation is awarded by the Chief of the Defence Staff to recognize deeds or activities beyond the demand of normal duty.

Photo: Sgt Alonso

Warrant Officer Phillip Clinton Pearce, CD (Retired)

On 20 June 2023, following the crash of the Royal Canadian Air Force Chinook helicopter, Warrant Officer Pearce accepted the role of site manager to supervise the fuselage recovery which was especially complicated due to the location of the wreckage deep below the surface. His leadership and attention to detail were instrumental in developing and supervising the safe and successful aircraft recovery under complex conditions. Warrant Officer Pearce's actions during this high-profile recovery brought great credit to the Canadian Armed Forces.

Chief of the Defence Staff Commendation

The Chief of the Defence Staff (CDS) Commendation is awarded by the Chief of the Defence Staff to recognize deeds or activities beyond the demand of normal duty.

Photo: Sgt Alonso

Captain Richard Liam McWatt, CD

On 20 June 2023, following the crash of the Royal Canadian Air Force Chinook helicopter, Captain McWatt, was employed as a liaison officer for the 4th Canadian Division Support Group during the recovery of the wreckage. He established a combined, joint and inter-agency command post at the crash site and operated from that location for the duration of the recovery. Captain McWatt's leadership and initiative were critical to the joint inter-agency team's success which brought credit to the Canadian Armed Forces.

From the Flight Surgeon

Part 2 of 2

Aeromedical Considerations of Physiology in Combat Aviation

by Major Phillipe Stewart, CD, MD, Dip AvMed
DFS Flight Surgeon

In my previous article on this topic (Issue 1, 2025) we explored the forces driving the Royal Canadian Air Force (RCAF) toward a posture of renewed combat readiness—one that this generation of aviators has not previously faced. We examined the physiological challenges emerging from this shift and the modernization effort that is bringing technological advancements at an unprecedented scale. While these physical demands are substantial, there is no denying that it is often the psychological dimension of combat flight—how we prepare for, endure, and recover from stress—that often dictates whether performance remains optimal under pressure.

Fatigue management is not about enforcing limits; it's about preserving judgment.

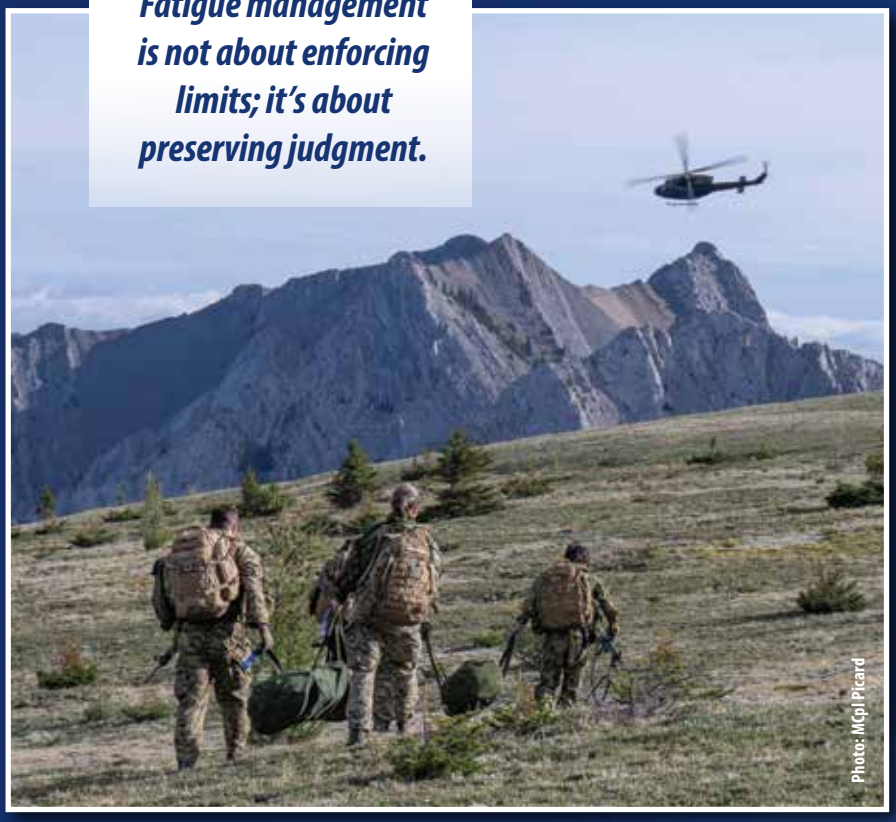


Photo: MCpl Picard

Psychology: How can we help maintain resiliency and mitigate risk?

The modern military aviator operates in an environment defined by complexity and in our new fighter platforms, acceleration. Layered atop this are cultural and technological advancements bringing in ever increasing complexity with integrated multi-domain command systems, global deployments and an expanding operational tempo. Each of these factors introduces cognitive and emotional demands that challenge even the most resilient individuals.

In this second installment I aim to explore the psychological and cognitive aspects of combat aviation through three interrelated domains—each essential to maintaining readiness, safety, and long-term aircrew well-being.

The next generation of airpower will be defined not solely by aircraft performance, but by human adaptability.


Photo: Cpl Gamache

1. Combat Stress

When the "fight-or-flight" response is triggered the body releases stress hormones, namely cortisol and catecholamines. These potent chemical effectors of human physiology drive up blood glucose for immediate energy availability and maximize blood flow for oxygen delivery to the muscles. To conserve energy, they suppress non-essential functions like digestion, salivation and bowel movements and cause an increased activation of the parts of the brain responsible for focus and vigilance to enable rapid decision-making.

Evolutionarily, this response is highly effective if you need to fight for your life or run away from a saber-tooth tiger. However, sustained activation leads to measurable declines in cognitive flexibility, situational awareness, and emotional control.[1]

Research from Biological Psychiatry[2] and work from the United States Air Force School of Aerospace Medicine (USAFSAM) has shown that prolonged operational stress without sufficient recovery can reduce working memory accuracy by up to 25%. Studies from Defence Research and Development Canada (DRDC) and others have also demonstrated significant impairments in visual scanning and threat discrimination[3] after repeated high-intensity sorties—even among seasoned pilots.

Unlike conventional mental health conditions, combat stress is a performance variable—situated at the intersection of physiology and psychology. Left unchecked, it contributes to task fixation, communication breakdown and poor decision-making under threat. From an aeromedical perspective, proactive stress management is as vital as cardiovascular fitness.

Building resilience involves stress inoculation and cognitive readiness training—structured exposure to stress in controlled environments to enhance tolerance and adaptability.

Incorporating tools such as biofeedback, heart-rate variability (HRV) monitoring, and mindfulness-based attention control have shown measurable improvements in reaction time and post-stress recovery.

Equally critical is leadership culture. Units where commanders openly discuss mental readiness and trust aeromedical advice demonstrate significantly lower rates of operational burnout and unreported distress. In this regard, psychological resilience must be viewed as a collective capability, not a personal failing.

Continued on next page

1. Fink, G. (Ed.). (2016). *Stress: Concepts, cognition, emotion, and behavior*. Elsevier Academic Press
2. Morgan CA 3rd, Doran A, Steffian G, Hazlett G, Southwick SM. Stress-induced deficits in working memory and visuo-constructive abilities in Special Operations soldiers. Biol Psychiatry. 2006 Oct 1;60(7):722-9. doi: 10.1016/j.biopsych.2006.04.021. Epub 2006 Aug 24. PMID: 16934776
3. Tait JL, Aisbett B, Corrigan SL, Drain JR, Main LC. Recovery of Cognitive Performance Following Multi-Stressor Military Training. Hum Factors. 2024 Feb;66(2):389-403. doi: 10.1177/00187208221086686. Epub 2022 May 12. PMID: 35549578


Photo: Avr Philpott

The most sophisticated aircraft is rendered ineffective if its operator is cognitively compromised by exhaustion.

2. Fatigue and Performance

Fatigue remains one of the most pervasive and underestimated threats in aviation. Decades of research confirm its direct correlation with cognitive slowing, impaired judgment and increased risk tolerance. Studies have shown that 17 hours of wakefulness degrades cognitive performance to a level equivalent to a blood alcohol concentration (BAC) of 0.05%. After 24 hours, it approximates 0.10%—a level at which civil aviation authorities universally prohibit flight.

Combat and expeditionary aviation often demand sustained operations across shifting time zones, with unpredictable sleep opportunities and continuous readiness requirements. Even modest sleep restriction (5–6 hours per night) over a week can reduce alertness and reaction time to levels equivalent to one full night without sleep. Fatigue in combat is both inevitable and cumulative.

The RCAF was among the first global forces in advancing toward a Fatigue Risk Management System (FRMS). While scientific understanding of sleep and fatigue have since outpaced our current model, efforts are underway to integrate more effective and more efficient tools such as physiological monitoring, predictive scheduling algorithms and self-report systems. Wearable biometrics like wrist actigraphy and HRV sensors may soon be used systemically to provide early warnings of fatigue accumulation and recovery deficits.

However, technology must support—not replace—culture. Operational communities must recognize rest as a mission enabler, not a luxury. Flight surgeons and commanders share responsibility for balancing operational imperatives with human limitations. Structured crew-rest policies, circadian-aware mission planning and fatigue education can all reduce performance risk. Holistic performance programs—encompassing nutrition, hydration, and exercise—ensure fatigue is addressed as part of a broader readiness continuum.

Ultimately, fatigue management is not about enforcing limits; it's about preserving judgment. The most sophisticated aircraft is rendered ineffective if its operator is cognitively compromised by exhaustion.

3. Cognitive Decline and Aging

As the RCAF works to retain experienced aircrew amidst global shortages, the question of cognitive sustainability becomes increasingly relevant. While age brings valuable experience and decision-making maturity, studies in gerontology and aging adults show that subtle neurocognitive and sensory changes can emerge as early as the mid-40s. Processing speed and divided attention tend to decline most significantly after age 40, while executive function and visuospatial accuracy show more gradual reductions.[4]

That said, these changes are neither universal nor irreversible. Targeted cognitive training—including working memory exercises, complex

4. Harada CN, Natelson Love MC, Triebel KL. Normal cognitive aging. Clin Geriatr Med. 2013 Nov;29(4):737-52. doi: 10.1016/j.cger.2013.07.002. PMID: 24094294; PMCID: PMC4015335

simulator scenarios and adaptive visual tracking—has been shown to stabilize or even improve age-related declines. Researchers at DRDC are actively exploring this underexamined area to identify opportunities for performance enhancement.

Moreover, physiologic age and cognitive resilience do not always align with chronological age. Sleep quality, cardiovascular fitness and stress load all play modulatory roles. While many of those variables necessitate strict age cutoffs—the preferred approach as always is individualized monitoring where applicable and appropriate.

The goal is not to limit careers, but to extend safe operational longevity through informed surveillance, proactive adaptation and respect for the evolving human-machine interface.

Conclusion

Three themes have remained top of mind as I wrote this article:

First Canada's contributions to aeromedical science over the past century is beyond impressive. We have been global leaders in this field and while recent years have seen a decline in our organizational output, we have the tools and talent to lead again—by investing in research, supporting our institutes and maximizing collaboration with allied nations.

Second, there is a growing gap between human adaptability and the complexity of modern aircraft. Bridging this gap requires real-time in-cockpit physiological and performance data collection—supported by a culture that encourages timely reporting and robust investigation by human factors and physiology teams. With thousands of variables monitored in new aircraft, it is only logical that the human at the center of it all should be equally supported.

Lastly its a simple, unfettered reminder that the Canadian Armed Forces' (CAFs) team of flight surgeons and aerospace medicine specialists—though occasionally tasked with the difficult responsibility of grounding aircrew—are deeply committed to keeping you flying, keeping you safe and enhancing your performance in every way possible.

The future of the RCAF is certainly going to be busy and challenging but also exhilarating. The next generation of airpower will be defined not solely by aircraft performance, but by human adaptability. As combat aviation becomes more cognitively and psychologically demanding, the RCAF's success will depend on our ability to maintain resilience, manage fatigue and preserve cognitive function across an aviator's entire career.

Photo: MCpl Morin

At its core, aerospace medicine exists to protect the most complex system on any aircraft—the human mind. By ensuring that system remains strong, flexible, and resilient, we preserve not only safety and readiness—but the very spirit of military aviation.

Part 1 of this article is available at the Flight Comment website. https://flightcomment.ca/

Photo: CAF

Frank Stafford Wilkins

Second World War RCAF Chief Inspector of Accidents

by Anne Gafiuk

Photo: Library and Archives Canada

Group Captain Frank Stafford Wilkins (C13895) was born on January 26, 1890, at Portsmouth, England. He studied at Portsmouth schools, St. Augustine College, Canterbury, studying Arts and Engineering. At the outbreak of World War I, he enlisted in the British Army where he served from November 1914 until May 1916, after which he transferred to the Royal Air Force (RAF).

He served with the RAF as a pilot until the cessation of hostilities. In 1919 on leaving the RAF, he was employed by the Air Ministry as Inspector of Accidents, a position he held until 1942. During his service with the Air Ministry in England he traveled through practically every country in Europe and the east coast of Africa, investigating accidents to civil transport and RAF equipment.

His travels with the investigation branch brought many interesting experiences and Frank Wilkins piled up an impressive number of flying hours. On one occasion in 1938 on a trip from England to Iraq, he was flying in a German transport plane, which crashed in the middle of the night, just outside of Vienna. There were three Germans and two Englishmen in the party. The aircraft broke into flames immediately when it struck the ground. Two of the occupants were killed. Wilkins escaped with slight burns.

When Britain went to war against Germany in 1939, Frank Wilkins was attached to the RAF Investigation Branch. In 1940 he was active in the Dunkirk Raid, acting on the headquarters staff of the Commander-in-Chief, Air Marshal Sir Arthur S. Barratt. Wilkins was in command of the evacuation camp and active in the removal of the troops from the beaches. He came back on one of the last boatloads, leaving Cherbourg late at night and crossing the channel with no escort to arrive in England before morning. They sailed in a very small tramp steamer, which was packed with 1500 men and 265 officers.

On July 1, 1942, the RAF loaned Wilkins to the RCAF to setup their accident investigation branch in Canada. On request of the RCAF, he remained as Chief Inspector of accidents. Wilkins retired on 17 August 1947, returning to the UK with his family.

Terminally ill in the fall of 1970, F. S. Wilkins and his wife left England, traveling by ship to join their son and his family in Zimbabwe (formerly Rhodesia). Landing in East London, South Africa,

F. S. Wilkins passed away at the age of 80 in Makhanda (formerly Grahamstown), South Africa on November 20.

Group Captain F. S. Wilkins signed innumerable RCAF aviation accident investigations and Court of Inquiries during the Second World War. In October 2018, one former Director of Flight Safety in the RCAF wrote, "...Group Capt. Wilkins as head of the Accident Investigation Branch commented on every report forwarded to the Chief of the Air Staff. He certainly appears to have been a straight-shooter and the RCAF benefited hugely from his RAF experience."

Anne Gafiuk, a former elementary school teacher, transitioned to freelance writing while raising her family. Her research into WWII RCAF pilots sparked a profound interest in vintage aircraft, the individuals associated with them, and their historical significance, taking her on a new flight of discovery. Anne is the author of five books and creator of three websites. For more information, please visit www.whatsinastory.ca

Ask Public To Inform Upon Stunt Fliers

Re-printed with permission and thanks to The Canadian Press, Jan 13, 1944


Ask Public To Inform Upon Stunt Fliers

OTTAWA, Jan 13—(CP)—Group Capt. F.S. Wilkens, R.C.A.F. Chief Inspector of Accidents, appealed to the general public today to regard stunting and low-flying pilots as "dangerous drivers" rather than "smart young dare-devils," and asked: "Report them; don't wave to them."

Group Capt. Wilkins, who has been investigating air crashes since the start of the war, said in a statement that "too often" the accident findings show fault to lie in "show-off tactics" of unexperienced pilots or bored instructors.

"Sadly, the culprit usauly drags others to their deaths in his own flaming finish," he added, "Those lucky enough to survive the fruits of their carelessness get rigid disciplinary treatment. Discharge from the service or reduction to the ranks and detention have become the rule in low-flying convictions."

A Hard Game

"Operational flying is a hard game—there will be deaths. There will also be casualties in the small number of unpreventable training accidents. But those who kill themselves and others in satisfying their personal desire for a thrill have contributed nothing but a blot to Canada's war effort."

Strict rules govern the practise of aerobatics. They must never be performed over populated areas and always at high altitudes. Definite areas are laid out for necessary training in low flying. These never include cities, towns, or villages.

"Civilians who watch, heart in throat, an aircraft stunting just over the roof, can easily be the means of saving a life by noting and reporting the number of the machine," he said. "If that number can be read from the ground, then that pilot is courting death."

Fast Teamwork Saves Five Lives In Coastal Air Crash

Re-printed with permission and thanks to The Canadian Press, Oct 20, 1943

OTTAWA, Oct. 20—(CP)—Fast teamwork in a falling aircraft saved the lives of five R.A.F. members of an Anson bomber crew when their plane "hit the deck" in the Pacific 60 miles off the coast of British Columbia, the R.C.A.F. reported today in a press release.

The release said that to make the story of their escape "even more remarkable," their plane was on a training trip as a sort of "flying schoolhouse," with a student navigator and two student wireless air gunners in the crew along with an instructor and an experienced pilot.

Group Capt. F.S. Wilkins, R.C.A.F. Chief Inspector of Accidents, said the accident was an example of "everybody doing the right thing at the right moment."

"There's no such thing as a "happy accident,"" said Group Capt. Wilkins. "But this unusual story shows how cool-headed co-operation gives everybody a chance to come out of a crash without serious injury.

This incident also gives us an opportunity to give credit to those fast-moving chaps in the air-sea rescue service. They've been doing wonderful work, saving lives in every Canadian operational flying area."

Here is the story of the "model accident"—pieced together from interviews with the crew members.

Well out at sea, the Anson's starboard engine kicked and conked out. The Pilot, Sgt. A. G. Jagger, swung the ship around and headed for home on one engine. Losing altitude rapidly, they sifted down to 300 feet. He picked out the crest of an oncoming wave for his forced landing.


Fast Teamwork Saves Five Lives In Coastal Air Crash

OTTAWA, Oct. 20 —(CP)— Fast

Fast Teamwork Saves Five Lives

Continued from page 1.

horizon, hoping their S O S signals had not gone unheard. Their luck held. An Anson from their own base sighted a red Verey light fired by the pilot and passed the word along to the air-sea rescue service. A motor launch sped to the scene. Three hours from the time the aircraft pointed its nose at the sea, five wet but happy airmen were helped aboard the rescue launch.

At this point, every member of the crew had to work fast, with no time allowed for mistakes.

The student navigator, Sgt. William Walton, gave the pilot a quick wind direction, shot the emergency landing order along to the wireless air gunners, Sgt C.R. Neilson and Sgt. N.O. Weekes, who swiftly got the emergency dinghy ready for launching and inflation. Flt. Sgt. J. H. Straugnan, instructor, jumped to the wirless key and was tapping out an SOS signal as the big ship hit the sea.

The dinghy launched and inflated, the crew members scrambled out.

Tossing in their small dinghy on the vast expanse of the Pacific Ocean, the five airmen scanned the horizon, hoping their SOS signals had not gone unheard. Their luck held. An Anson from their own base sighted a red Verey light fired by the pilot and passed the word along to the air-sea rescue service. A motor launch sped to the scene. Three hours from the time the aircraft pointed its nose at the sea, five wet but happy airmen were helped aboard the rescue launch.

ON TRACK

What's your NavDB?

by Barker College,
Instrument Check Pilot (ICP) Staff


Photo: Cpl McDonald

What is your Aircraft's Navigation Database (NavDB)?

If your answer to the question above is Universal, Rockwell Collins, or even...I don't know, then you could probably use a refresher. On today's flightdeck, the Flight Management System (FMS) is a mission-critical partner. Behind its sleek interface lies a powerful engine driven by a NavDB that quietly orchestrates your route, procedures, and flight guidance. But like any system, its reliability hinges on the integrity of its data. And that's where your vigilance as a pilot becomes essential. The common phrase, "garbage in, garbage out" accurately defines the potential for error in databases.

What Is a Navigation Database?

A NavDB is a structured digital repository of aeronautical data: waypoints, airways, approaches, airports, Standard Instrument Departures (SIDs), Standard Terminal Arrival Routes (STARs) and Navigation Aids (NAVAIDS). Updated every twenty-eight or fifty-six days, it allows your FMS to compute accurate routing, fuel planning, and lateral/vertical guidance. This data provides the underlying definitions for all of the previously mentioned waypoints and procedures. The Aeronautical Information Regulation and Control (AIRAC) cycle, which pilots most commonly believe is the only Flight Information Publication (FLIP) publishing cycle determines the NavDB validity dates and times.

Common suppliers include Jeppesen, Lufthansa Lido, and NAVBLUE but military aircraft may also use databases sourced from the Department of Defense (DoD) or even mission-specific data sets. However, most databases follow the Aeronautical Radio, Incorporated (ARINC) 424 standard format, to ensure consistency across platforms. The oversight and certification of NavDBs comes from a combination of Transport Canada Civil Aviation (TCCA) and RCAF Technical Airworthiness Authority (TAA) guidance.

Transport Canada Advisory Circular AC 700-038

Transport Canada mandates that pilots:

- Confirm the navigation database is current at system initialization
- Verify proper aircraft position and route entry
- Avoid manual entry of waypoints for RNAV/RNP operations, as this invalidates route integrity

Continued on next page

RCAF Technical Airworthiness Advisory 2019-05

The RCAF Flight Operations Manual (FOM) and TAA guidance require:

- Verification of database integrity before primary navigation use
- Cross-checking waypoint coordinates with World Geodetic System 1984 (WGS-84) charts
- Comparing bearings and distances between FMS waypoints and enroute charts
- Reporting discrepancies to the database supplier
- Ensuring database support arrangements meet required standards for data integrity

Military Navigation Databases

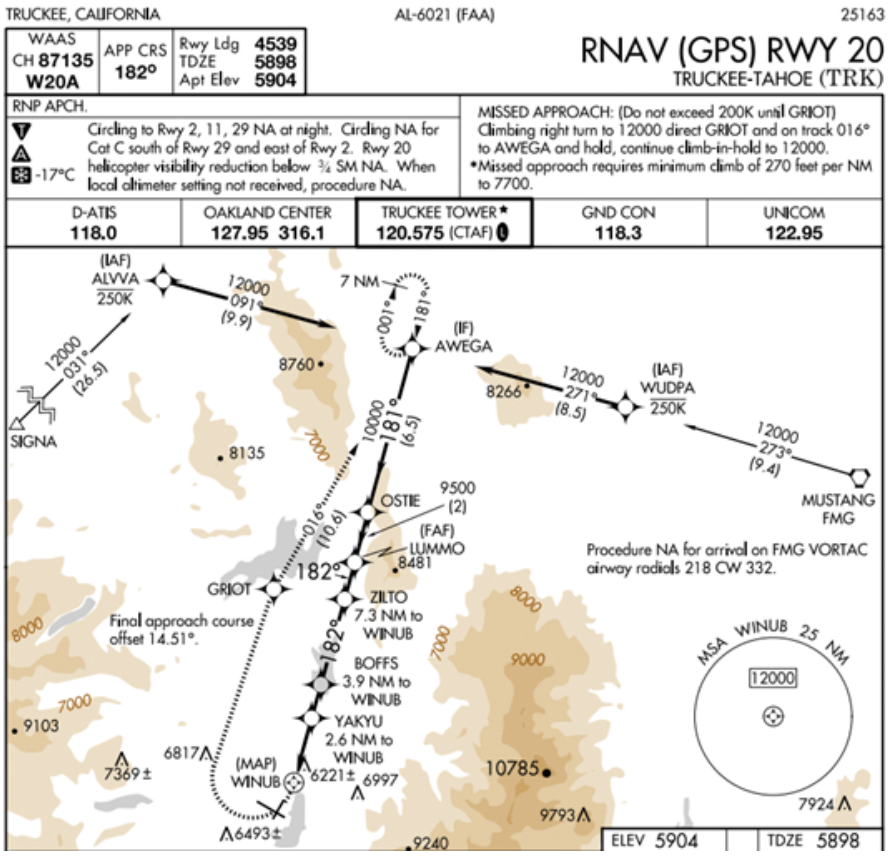
RCAF aircraft may use specialized databases sourced from:

- United States DoD (e.g., National Geospatial-Intelligence Agency (NGA)-sourced data like the Digital Aeronautical Flight Information File (DAFIF))
- RCAF mission-specific datasets
- GPS M-Code and anti-jamming capabilities implemented under the RCAF NAVWAR initiative

These databases may include tailored data not covered by civil authorities, which require additional validation by Department of National Defence (DND) personnel. The RCAF mandates a NavDB Support Plan that outlines:

- Data sourcing and delivery
- Validation procedures
- In-service update protocols
- Error reporting and version control

Figure 1. RNAV (GPS) RWY 20, Truckee, California



What's the Big Deal?

In aviation, precision is everything. But what happens when the very system designed to ensure precision contains a critical error? The answer... potential violation, loss of separation, or even a fatal accident. Consider the following:

Case Study 1

Honeywell provided the following example in a recent post highlighting awareness of FMS logic:

A pilot reported that the aircraft did not initiate the expected right-hand turn while conducting a missed approach from the RNAV (GPS) RWY 20 at Truckee-Tahoe Airport (KTRK), California (figure 1). Importantly, KTRK sits at an elevation of 5,904 ft Above Sea Level (ASL) and is surrounded by significant mountainous terrain. Instead of commencing the turn as expected by the pilot, the aircraft continued straight ahead, raising serious concerns about terrain clearance. Fortunately, this occurred in Visual Flight Rules (VFR) conditions.

What happened? The aircraft was at 6,220 ft at WINUB, below the required 6,300 ft for initiating the turn required by the FMS systems logic. The pilot, unaware of this logic, expected the turn to begin immediately at WINUB. Had this approach been conducted in Instrument Metrological Conditions (IMC), the results could have been disastrous.

Case Study 2

Consider Innsbruck Airport (LOWI) (figure 2) located in a narrow valley surrounded by high terrain. Its RNAV (RNP) approaches are carefully designed with tight lateral and vertical constraints. In a past AIRAC cycle, a navigation database error misrepresented a waypoint's location by just 0.3 NM. In mountainous terrain, that error could place an aircraft outside protected airspace, dangerously close to terrain. The charted procedure was correct, but the database coding was flawed. While no accidents occurred, it's not difficult to imagine the possible consequences like an Air Traffic Control (ATC) violation or even loss of terrain clearance.

Figure 2. Innsbruck Airport (LOWI)

Photo: Rolf Kickuth, Creative Commons Attribution-Share Alike 4.0 International, no changes made. https://commons.wikimedia.org/w/index.php?curid=99165107

What about operations in Canada?

It's not difficult to recognize that similar risks exist in Canada. Consider the following locations:

- **CFB Comox (CYQQ):** Surrounded by mountainous terrain, an RNAV procedure with incorrect data could quickly lead to a Controlled Flight into Terrain (CFIT).
- **Loss of ground-based NAVAIDS:** Singular reliance on flawed database entries could result in substantial navigation drift or missed waypoints when ground-based NAVAIDs no longer exist to provide redundancies, particularly in non-radar environments like Canada's Northern Domestic Airspace (NDA).

Pilot Procedures

RCAF pilots will find regulatory guidance for NavDBs in the RCAF FOM and GPH 204A. However, your Pilot's Operating Handbook (POH), Aircraft Flight Manual (AFM), AFM Supplement, Aircraft Operating Instructions (AOIs), or Standard Manoeuvre Manual (SMM) may provide additional guidance. As a minimum, the following steps will serve you well.

1. Monitor Supplier Alerts

Jeppesen, Lufthansa Lido, and NAVBLUE publish notices also known as Nav Data Alerts for each AIRAC cycle. These may include:

- Misplaced waypoints
- Incorrect procedure coding
- Missing altitude constraints
- Chart/database mismatches

Continued on next page

Photo: Avr Zahari

Some common ones used by RCAF crews:

- Jeppesen: https://ww2.jeppesen.com/notices/
- Lufthansa Lido: https://fms-info.lhsystems.com/FSA_NDA.htm

2. Preflight checks

Check the IDENT or STATUS page on the FMS for:

- Cycle number.
- Effective/expiry dates. If it will expire during the mission, there must be a means to update the database.
- Ensure your database is appropriate for your area of flight and contains appropriate NAVAIDs, waypoints, and procedures for all your potential enroute, arrival, departure, destination, and diversion procedures.

3. In Flight

- Just because a procedure loads does not mean it's correct. Cross-check the coordinates against current WGS-84 charts (like an accredited FLIP), especially in terrain-critical environments.
- Prior to an approach, compare the FLIP with the procedure retrieved from the aircraft NavDB.

Small differences in course may be seen between the FMS calculated Magnetic Variation values and the value provided for the airfield as displayed on the FLIP.

Remember, the GPH 204A prohibits flying pilot-defined approaches in IMC.

4. Report Discrepancies

RCAF regulations require you to report suspected database errors. Detailed guidance can be found in the Canadian Flight Supplement (CFS).

Suspected issues with the supplier's database?

- Contact your database supplier.

Suspected issues with the aeronautical data on the chart?

- Canadian civil aeronautical data questions can be directed to NAV CANADA AIS Data Collection at aisdata@navcanada.ca
- Military facility or procedure? Military commanders are responsible for the facilities under their jurisdiction. Contact the Division Instrument Check Pilot (DICP) for guidance.

5. Expired Database?

If you've been specifically authorized to fly with an expired database, be aware that you are subject to significant operational limitations – unless those limitations have also been explicitly approved:

- Can no longer fly GNSS approaches (GPH 204A article 431).
- Can no longer GPS substitute for ground-based NAVAIDs (GPH 204A article 431).
- Must verify ALL flight plan waypoints (latitudes, longitudes, assigned altitudes, etc.) against current products like FLIP. (Manual of Instrument Flying A-GA-148-001, 3206.12).

Final Thoughts

Whether you're flying a tactical sortie or a cross-country IFR leg, your navigation database is only as good as its inputs. In the RCAF, database integrity is not just a technical requirement, it's a matter of operational safety.

So, before you push that EXEC button, ask yourself:

Have I checked for alerts?
Is my data current?
Is it verified?

Photo: Avr Zahari

DOSSIER

Photo: Avr Zahari

Flight Operations Manual – The Sequel

by Captain Braden Buczkowski, CD, Staff Officer, Air Force Standards 2-2, 1 Canadian Air Division Headquarters

Imagine if you will a time in the not-too-distant past, a time of lugging around three-ring binders and paper publications, a time of flipping endlessly through a myriad of orders and regulations to find the one tiny section that applied to your operation. It was a time of quarterly write-in ink amendments in hundred-page manuals. For those of you who have never had the experience of searching the squadron bookshelf for the one primary document, it is likely because you enrolled in the RCAF within the past 10-15 years. For those of you who are a bit "longer in the tooth," rest assured that this organization is well past having to rely solely on paper publications. Advancements in technology have made life easier for aircrew, especially when it comes to accessing the necessary information that is so vital to our operations.

In 2012, direction from the leadership of the RCAF was provided for the creation of a new one-stop document for all flying related rules and regulations. The intent was to detach the important need-to-know air-ops related sections of the 1 Canadian Air Division (CAD) Orders and create a new book which became the Flight Operations Manual (FOM). Such a daunting task was thrust upon select members of the Instrument Check Pilot (ICP) School which at that time fell under Air Force Standards, Directorate of Aerospace Readiness. This small group of steadfast individuals applied surgical precision to remove the vital sections of the 1 CAD Orders and create a new 800ish page document. At that time, the RCAF had yet to adopt Electronic Flight Bags (EFB), so there was no real attempt to format the FOM for use on a tablet. Instead, a PDF friendly website format was the result and while that worked for a little over a decade, the first iteration eventually swelled to somewhere in the neighbourhood of 1200 pages. The addition of numerous amendments and annexes led to a manual that became increasingly frustrating and difficult to navigate, so it was decided in 2024 that a refresh was needed. This task once again fell to the Air Force Standards section, however this time around, a robust working group was formed and formatting and technical assistance was provided from experts at the Royal Canadian Air Force Aerospace Warfare Centre (RAWC) in Trenton, as well as one junior officer awaiting pilot training. After a year of work, the September 2025 version of the FOM in the new composition has been published and is available for all to see.

It is well known that technology evolves at a rapid pace, and things have unquestionably come a long way in the past decade, especially in the aviation community. Almost every flight deck in the RCAF now has one or more EFBs onboard and this was one of the primary considerations while creating the new FOM composition. The improved document is

designed specifically for use on a tablet and most of the annexes and appendixes have been moved into the body of the text. There are now indexing buttons at the top of each page for easier navigation. The sections have been reorganized for expediency, and the typewritten font is easier to read. There is also improved numbering to allow for a more seamless expansion when new capabilities come online. In addition, numerous titles were updated and standardized to better reflect the content. The old FOM composition was divided into four chapters; it will quickly become apparent that the new composition now has seven chapters with each one having its own table of contents (Figure 1).

Figure 1. FOM Chapters

TABLE OF CONTENTS

It is important to note that Chapters 2, 4 and 5 respectively have a General section as well as fleet specific material so it may require searching in more than one area. This is not new as the old composition also required some page flipping. Finally, Chapter 1 provides detailed direction regarding the proper steps to follow when submitting amendments. It is crucial that these numbering and formatting instructions be followed precisely to ensure that the standard is maintained and to avoid future problems. In short, the new composition is a needed improvement, however this overhaul comes at a price.

So, what is the cost of this renewal? There are now multiple documents at each Wing and Unit throughout the RCAF that need to be reviewed and updated to reflect the new FOM numbering system. Standards and Training personnel must coordinate their efforts to ensure that any fleet specific documents that reference the FOM are still accurate. One would be correct in thinking that this will take time, but it should not be too difficult. In the end, this new FOM composition is a definitive step forward and it will continue to serve as our guiding document but now with an improved user experience.

You can find the latest edition of the Flight Operations Manual (FOM) at:

https://rcaf.mil.ca/en/1-cad/fom.page

Photo: MCpl Morin

DOSSIER

DESIGNING FOR SAFE SKIES

The Strategic Value of Flight Safety Promotional Items

by Major James Feagan, CD

In the Royal Canadian Air Force (RCAF), the mission of the Directorate of Flight Safety (DFS) is clear: to safeguard lives and preserve operational capability by preventing aviation accidents and incidents. While investigations and reports are critical components of our mandate, the proactive side of our mission—promotion and prevention—is equally vital. One of the most visible and impactful tools in our preventive arsenal is the annual distribution of Flight Safety promotional items.

Why Promotional Items Matter

Promotional items such as hats, pens, mugs, and shirts may seem modest in nature, but their strategic value lies in their ability to embed safety culture into daily life. These items serve as constant, tangible reminders of our shared responsibility to uphold Flight Safety.

Here's how:

1. Visibility and Repetition Drive Awareness

Behavioural science tells us that repetition and visibility are key to habit formation. A coffee mug with a safety logo, a pen with a hotline number, or a hat worn on the flight line reinforces safety messaging every day. These items act as passive but persistent nudges toward safer behavior.

2. Engagement and Ownership

When personnel receive quality items branded with Flight Safety messages, it fosters a sense of personal connection and ownership. It's not just a

Photo: Sgt Hardwick

Promotional items are available at the Flight Safety Office. Help us reinforce safety and grow our Flight Safety Culture by displaying them whenever possible.

pen—it's my pen, reminding me to stay vigilant. This emotional engagement is a powerful motivator for compliance and attentiveness.

3. Bridging Hierarchies and Units

Promotional items transcend rank and role. Whether you're a technician, pilot, or senior commander, a shared symbol of safety helps unify diverse teams under a common cause. This is especially important in joint operations and multi-unit environments where cohesion is critical.

4. Cost-Effective Prevention

Critics may point to fiscal constraints, but the cost of promotional items is minuscule compared to the cost of a single accident—in lives, equipment, and operational readiness. As the saying goes, an ounce of prevention is worth a pound of cure. Investing in awareness campaigns is not a luxury; it's a strategic imperative.

Quality Matters: Why We Must Invest in Durable, Useful Items

Cheap, disposable items may meet budget targets, but they often fail to deliver lasting impact. High-quality items:

- Last longer, ensuring prolonged exposure to safety messaging.
- Are more likely to be used and seen, increasing their effectiveness.
- Reflect the professionalism and seriousness of our safety culture.

When we distribute well-made, thoughtful items, we send a message: Flight Safety is not an afterthought, it's a priority.

Conclusion: A Strategic Investment in Culture and Safety

Promotional items are not just giveaways—they are tools of cultural transformation. In a high-stakes environment like military aviation, every opportunity to reinforce safety matters. By continuing to fund and improve our promotional campaigns, we are investing in a safer, more aware, and more resilient RCAF.

Let us not underestimate the power of a pen, a shirt, or a mug. These small items carry big messages—and those messages save lives.

Don't Rush Me

by TSgt James M. Graben, 4 Fighter Wing, Seymour Johnson Air Force Base, North Carolina

Photo: MCpl Picard

While stationed with the 13th Fighter Generation Squadron at Misawa, Japan in 2022, I was the Weapons Expediter for swing shift. I was responsible for ensuring the safety and coordination of all weapons crews on my shift, as well as coordinating with flightline production. One day, a problem arose when my crew tried to deal with a hung gun.

On one of our unit's flying days, while the F-16s were firing their 20 mm guns, one of the aircraft squawked in an In-Flight Emergency for a hung gun. The response includes requiring the troubled aircraft is the last to land, in order that other planes may land before the airfield is shut down. After the stricken aircraft lands, the emergency responders arrive on site, and the weapons crews try to safe the gun as quickly as possible to permit the airfield to reopen. I tasked one of my load crews to pull the gun system once the aircraft was on the ground.

The day shift responded to the call and worked with Armament shop crew and Explosive Ordnance Disposal (EOD) to safe the gun. Once they declared the gun system to be safe, the aircraft was towed back to its parking spot. By the time my weapons crew arrived, the F-16 had been parked for 4 hours, and there were several people in the area, many of whom were working on the aircraft. My crew then determined the gun was in fact not safe, and was jammed so badly that it would take several hours to safe it.

The day-shift crew expediter had received several calls from our production supervisor, asking when the gun would be safe, and how soon the aircraft could be towed it back to its parking spot. He had felt pressured to finish the job quickly. Rather than verifying it himself, he had taken word of other agencies such as EOD and Armament Shop that the gun was safe.

As soon as our team began working to remove gun, the chief noticed something wrong with the way the safety hold-back tool had been installed, and called me over to confirm. I inspected the safety device for the gun system and agreed that it hadn't been installed correctly. I worked with the crew to try to install the hold-back tool properly, but we were unsuccessful. We couldn't determine whether the firing position had a live round in it or not. I called Production Super to let him know that I was declaring a ground emergency for an unsafe condition on the F-16. I called the Maintenance Operation Center to declare the emergency and cordoned off the aircraft, ensuring that only essential personnel were in the area.

After declaring the emergency, I, too, was called about 10 times for an estimate as to when the aircraft would be safe. They keep telling me that our aircraft were running out of fuel at End of Runway, and we needed to end the ground emergency because they had put a freeze on aircraft movement.

Once the Fire Department arrived, I gave them all the information and released the scene to them. EOD was called because there were explosive ordnances on the aircraft. It took more than three hours for us to safe the gun system and removed it from the aircraft.

Our biggest problem—and the greatest lesson we learned—had to do with training. Neither the EOD members, the Armament shop, nor the day shift weapons crew knew how to correctly install the gun safety hold-back tool, yet they had deemed the gun to be safe.

This could have been a disaster. A live round in the firing position of the gun system could have fired while the aircraft was being towed, or while the earlier shift was working on it. We maintainers need to understand that safety is the most important thing, no matter what type of mission we have to accomplish. When we rush and don't verify, or are uncertain but don't ask, we are bound to make mistakes. We should have the fortitude to ensure everything is safe, even under pressure. Do not be afraid speak up if you don't know something. Trust but verify, and don't rush.

"When we rush and don't verify, or are uncertain but don't ask, we are bound to make mistakes."

A special thanks to "The Combat Edge," the United States Air Combat Command's quarterly safety magazine for the use of this article. You can download the magazine at https://www.acc.af.mil/Home/ACC-Safety/

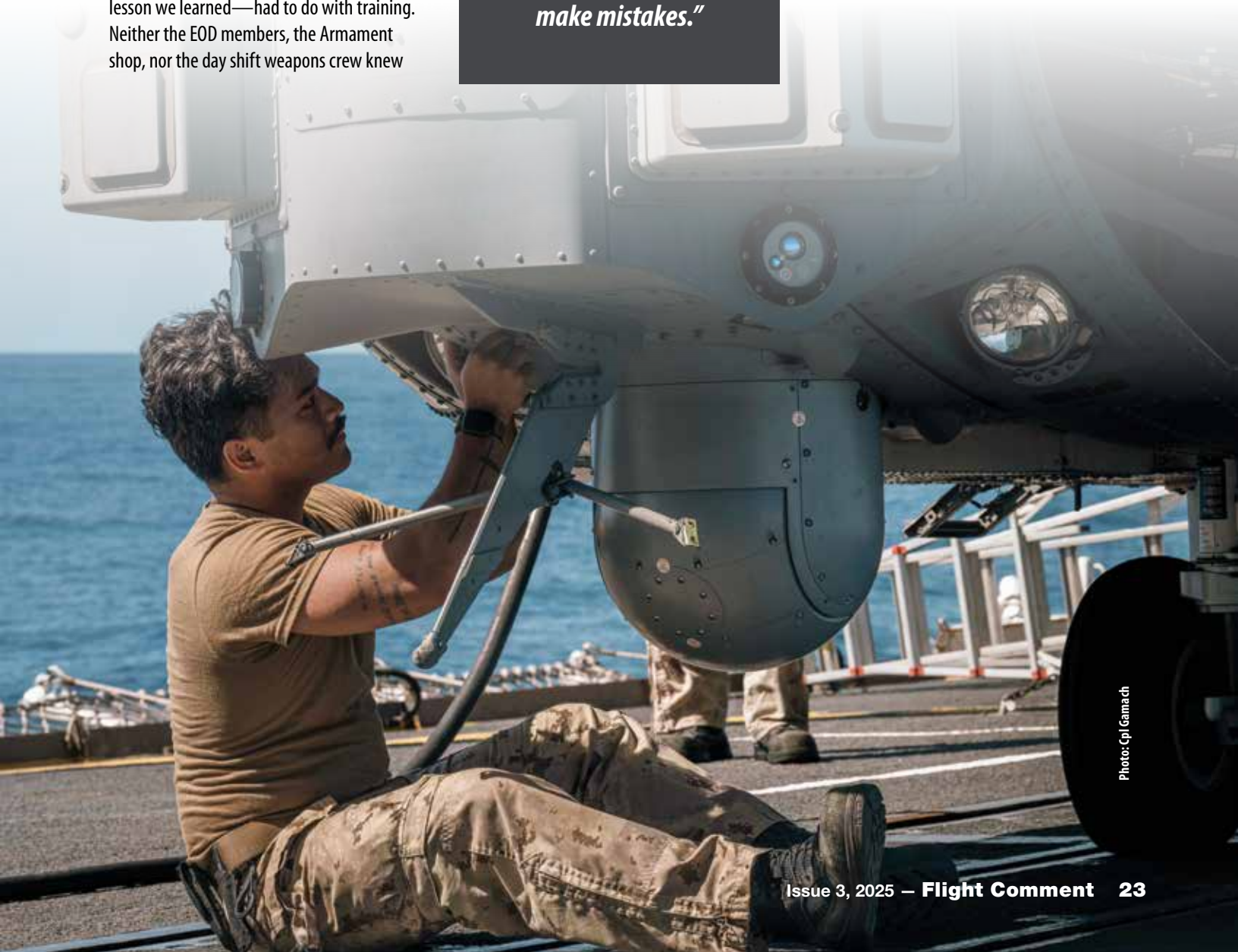


Photo: Cpl Gamach

Photo: MCpl Brochu

The Flight Safety Awards Program

By Major Courtney Douglass, DFS 3-3 – Flight Comment Editor

Awards are an excellent way of recognizing actions performed in the spirit of the Flight Safety Program that are worthy of recognition by peers and the whole of the Canadian Armed Forces (CAF). In order to qualify for a Flight Safety Award, the action(s) of the nominee(s) must exceed the standard of professional conduct expected of our personnel or be outside the scope of duties relative to their qualifications and position. Awards available through the program include, the Good Show, the For Professionalism, the Wing/Formation Commander's Flight Safety Commendation, the Directorate of Flight Safety (DFS) Commendation, the DFS Coin and the SICOFAA award.

Good Show Award

The Good Show award is given for an outstanding action or series of actions that averted in extremis a serious accident or reduced its severity. The actions of the individual(s) nominated are such that without their involvement an aircraft would have been lost, or much greater injuries or damages would have been sustained. A Good Show will be awarded when one or more of the following conditions have been met by an individual, crew or team:

a. actions directly prevented loss of life or loss of an aviation resource;

b. actions directly reduced the severity of an accident in terms of damages and/or injuries; or

c. actions demonstrated outstanding perseverance, skill, knowledge, judgment or situational awareness to identify or rectify a critical hazard that would have, in all probability, lead to an accident or loss of aviation resources.

* The Good Show Award is reviewed and signed by the Commander of the Royal Canadian Air Force (Comd RCAF).

For Professionalism Award

The For Professionalism award recognizes acts that may not qualify for the Good Show award yet reflects a superior professional attitude that averted an aircraft accident or significantly reduced the threat posed by a hazard. Acts in the completion of normal duties may qualify if clearly indicative of commendable extra effort. A For Professionalism award will be awarded when one or more of the following conditions have been met by an individual, crew or team:

a. actions demonstrated superior skill or perseverance in identifying and rectifying a significant hazard to Flight Safety; or

b. actions exhibited a superior display of skill, knowledge, situation awareness or judgment that resulted in an important contribution that enhanced significantly Flight Safety.

* The For Professionalism Award is reviewed and signed by the Director of Flight Safety (DFS).

Wing/Formation Commander's Flight Safety Commendation

A Wing/Formation Commander's Flight Safety Commendation could be given for an action that does not warrant a Good Show or a For Professionalism but is worthy nonetheless of recognition.

Photo: MCpl Brochu

Photo: Sgt Matiz

Photo: CAF

DFS Commendation

The DFS Commendation recognizes outstanding professional long-term performance and dedication in the field of Flight Safety. The DFS Commendation is awarded to deserving individuals who, through their actions, have contributed significantly to enhance the capability of the Flight Safety Program across the CAF and who emulates the values and ethos promoted by the program.

Flight Safety Coin

The Flight Safety Coin is used to recognize a notable contribution to the Flight Safety Program. It conveys DFS' appreciation to a worthy recipient. As such, all recipients of the FS awards described above will receive a FS coin. It can also be awarded on a discretionary basis by the Director of Flight Safety. An individual can be nominated for a Flight Safety Coin by providing a short narrative explaining the Flight Safety event/contribution to the local Flight Safety representative.

SICOFAA Award

Canada is a member of the international aviation association called Sistema de Cooperación entre las Fuerzas Aéreas Americanas. This Spanish designation means System for the Cooperation of the Air Forces in the Americas (SICOFAA). Each year SICOFAA provides member countries with an opportunity to nominate a deserving unit within their individual air force. This unit must have demonstrated the highest level of dedication to the furtherance of Flight Safety and, by their actions, been an exceptional example to others. The intent is to acknowledge a concerted effort over a period of time. The unit or formation must have developed, implemented and performed at a high level of Flight Safety efficiency or have a Flight Safety Program that is:

a. innovative;

b. proactive;

c. comprehensive;

d. effective; and

e. enthusiastically embraced by all members of the Flight Safety team.

For more information including staffing procedures see A-GA-135-001/AA-001 Flight Safety for the Canadian Armed Forces (CAF), Chapter 6 Promotion. For all other questions please speak to your local Flight Safety representative.

Good Show

For Excellence in Flight Safety

Corporal Daniel Thorne

On 16 November 2024, Corporal Daniel Thorne, an Aviation Systems technician from 409 Tactical Fighter Squadron, Cold Lake, was working in 3 hangar at the Servicing Desk when technicians from the neighbouring 2 hangar, communicated that the Auxiliary Power Unit (APU) on aircraft 188925 had spontaneously started during maintenance operations, and efforts to shut it down had been unsuccessful. The APU prime switch had been engaged during fuel priming and had failed internally causing the start circuit to be energized and the APU to start. The technicians present attempted to shut down the APU by way of the emergency shut-down switch and circuit breaker, to no avail.

Cpl Thorne immediately proceeded with haste to 2 hangar and entered an environment with significant hazards. The confined space of the hangar amplified the potential for hearing damage from the APU noise, with the exhaust fumes presenting respiratory risks. Additionally, the situation carried a heightened risk of fire, endangering not only the aircraft in question but also the entire hangar, multiple aircraft stored within it, and personnel. Displaying outstanding composure under substantial pressure and dangers, Cpl Thorne assessed the situation and acted decisively. Utilizing their extensive knowledge of CF188 power plant emergency procedures, they quickly retrieved a panel tool and immediately opened door 10L on the aircraft, gaining access to one of the circuit breaker panels. They then precisely located and pulled the APU prime circuit breaker, which resulted in the APU shutting down. This action effectively mitigated the risks of fire and environmental hazards, safeguarding the aircraft, the hangar, and all personnel in the vicinity.

Cpl Thorne's swift, courageous, expertly executed actions directly prevented a potentially catastrophic incident. Their technical knowledge, combined with their situational awareness and willingness to put themselves in harms ways resulted in the preservation of aircraft, infrastructure and personnel.

For Professionalism

For Commendable Performance in Flight Safety

Major (Retd) Cynthia (Cindy) Pettitt

Major (retd) Cynthia (Cindy) Pettitt is the Senior propulsion/liaison engineer at Standard Aero limited (SAL). One of her roles is to gather maintenance data and together with SAL Maintenance Support Advisors (MSA), provide maintenance recommendations and risk assessments to the RCAF related to the CC130H T56 engine.

Photo: Major (retd) Pettitt

In July 2024, the lord mount bracket assembly on two of AC130336's engines, were found corroded during the aircraft's scheduled Primary Inspection. After engagement with SAL Subject Matter Experts (SMEs), it was understood that 435 Squadron were going to replace both engine brackets before next flight, following Cindy's recommendation. Notably, Cindy identified the advanced metal oxidation could hide underlying corrosion cracks which could lead to failure of the bracket. If the lord mount brackets were to fail, the engine would be partially detached from the nacelle which would cause extreme vibration to the engine compartment and aircraft. This could trigger severe damage to the aircraft, increased crew workload, cause mission abort, and endanger the flight crew.

On 8 August, Cindy proactively and on her own initiative followed up to ensure the brackets were replaced. She learned, through the Winnipeg MSA, that the brackets were not replaced but entered as a Deferred Defect by an aviation systems technician (AVN).

Cindy recognized that the AVN technician might not have the qualification to make the call on corroded metal and airworthiness impact, though an authorized "level A" aircraft structures technician (ACS) technician might. The aircraft had not flown since the corrosion had been identified, but it was now identified as "serviceable" with the lord mount repair/replacement deferred to a later time. Cindy's communication with the CC130H T56 Technical Advisor and 435 Squadron's Chain of Command increased awareness and recognition of the technical risk, resulting in an authorized ACS technician assessing the serviceability of the lord mounts.

The number one engine lord mount bracket was deemed serviceable by the ACS technician, but the number three engine component was deemed to be outside of tolerance, therefore requiring replacement.

Had Cindy not followed up on the maintenance actions or not facilitated support to conduct the maintenance activities, the mounts would not have been subject to further inspection until the aircraft's next scheduled inspection, up to 150 flying hours later.

The persistence, professionalism, and attention to details from Cynthia Pettitt prevented a potentially catastrophic situation and as such she is deserving of this *For Professionalism* award.

For Professionalism

For Commendable Performance in Flight Safety

Major Ryan Wilson

On 22 Aug 2023, Major (Maj) Ryan Wilson, Squadron Aircraft Maintenance Engineer Officer (SAMEO) and Squadron Maintenance Manager (SMM) of 407 Squadron, identified an issue with a Canadian Forces Technical Order (CFTO) which mistakenly called for the use of ULTRACHEM Assembly Fluid in several incompatible systems.

Maj Wilson moved with haste and immediately identified this as an unknown level of risk to flight safety. Without delay, he grounded the Comox fleet of CP140 Auroras, engaged the Weapons System Manager (WSM) regarding the issue, and recommended the grounding of all CP140 Auroras to his counterparts at 14 Wing Greenwood to err on the side of caution and safety until more could be investigated and levels of risk evaluated. Subsequently, the entire CP140 Fleet was grounded within hours of identification of the issue. At the further direction of Major Wilson, all 19 Wing Comox CP140 Aircraft had their maintenance record set (MRS) thoroughly analyzed by the Aircraft Maintenance Control and Repair Office (AMCRO) section allowing the CP140 Fleet to be ungrounded, released from quarantine and put back into operational service within 48 hours. For going above and beyond what is normally expected, Maj Wilson is most deserving of this *For Professionalism* award.

Photo: S1 De Guzman

For Professionalism

For Commendable Performance in Flight Safety

Commander Jeremy Samson

On 20 January 2025, Commander (Cdr) Jeremy Samson, Commanding Officer of HMCS REGINA, was standing on the bridge of his ship which was situated just outside of Esquimalt harbour, awaiting the embarkation of a CH-148 Cyclone helicopter to kick off a six-week sailing program.

Photo: CAF

Having previously deployed with helicopter air detachments, Cdr Samson was well versed in the challenges and risks associated with helicopter operations. While following his usual embarkation routine of diligently scanning down each side of the frigate from the elevated vantage point afforded by the port and starboard bridge wings, he noticed a suspicious object flapping in the wind. Recognizing the potential hazard, he immediately returned to the bridge and instinctively broadcast "wave-off, wave-off, wave-off" on the internal communications net. This had the Landing Signals Officer (LSO), who was in radio control of the helicopter at the time, to initially query the source of and cause for the wave-off call; as a "wave-off" is not a command that is typically heard from the bridge. The LSO directed the helicopter to abort their approach and remain a safe distance away from the ship.

The observed flapping object turned out to be a 6 foot by 4-inch piece of lightweight plastic material, likely left over from maintenance work completed in port prior to sailing. The piece of plastic was wrapped around a corner railing and obscured behind a fender on the port mezzanine deck. The immediate risk was that the relative wind could dislodge the plastic, sending it toward the approaching helicopter, potentially interfering with critical components such as an engine or the rotor systems.

FOD (Foreign Object Debris) hazards are taken very seriously on ships, with the outer surfaces inspected before any flying operations and prior to leaving port. This piece of FOD was overlooked that morning during the inspection of the outer surfaces on the ship, likely due to its obscure position behind the fender, with it becoming more noticeable only when the relative wind picked up, causing it to flap about.

Cdr Samson is commended for his keen attention and quick action. His proactive measures not only safeguarded the helicopter but also reinforced the importance of maintaining a vigilant and safety focused environment prior to and during critical flying operations, making him a deserving candidate of the *For Professionalism* award.

For Professionalism

For Commendable Performance in Flight Safety

Master Corporal Simon Gingras

On 06 March 2025, Master Corporal (MCpl) Gingras, a Level A Aircraft Structures Technician at 12 Air Maintenance Squadron (AMS), was installing the forward float inflator bottle pressure gauge supply lines when he noticed that a fitting was missing from the aircraft. To verify the assembly and installation procedure, he cross-referenced the Interactive Electronic Technical Manual (IETM) with the Maintenance Record Set (MRS) of another aircraft which had recently had similar work completed. They determined that the missing fitting was inadvertently returned with the previously removed sub-assembly.

A further discrepancy was noted, in that the forward float inflator bottle valve fitting on this other aircraft had been torqued to 135–145 in-lbf, as specified in the IETM. However, a more recent directive, Defect Repair Engineering Disposition (DRED) 148-DRED-TP-14844, dated 24 January 2024, had updated the correct torque specification to 95–105 in-lbf. The result was an over-torqued fitting, and this over-torque of the fitting impacted the integrity of the aircraft's flotation system, a critical safety assembly utilized in emergency water landings to keep the aircraft upright long enough to permit personnel to evacuate the aircraft.

Raising the issue with their Chain of Command led to the discovery that nine other aircraft across the fleet were affected by the same issue. MCpl Gingras helped verify when the updated directive was integrated into the IETM, clarifying the implementation timeline, and prevented further confusion.

MCpl Gingras' exceptional diligence to ensure a task was completed properly, their additional effort to determine the extent of the issue, and the assistance provided in conducting corrective actions on a critical safety system for multiple aircraft is well deserving of this *For Professionalism* award.

For Professionalism

For Commendable Performance in Flight Safety

Corporal Steve Cannell

On 15 May 2025, Corporal (Cpl) Steve Cannell of 12 Air Maintenance Squadron (AMS) was installing a tail rotor blade Rotor Icing Protection System (RIPS) moulded harness, previously removed from aircraft CH148814, he noticed the O-rings were significantly deteriorated. This observation prompted Cpl Cannell to review the relevant Interactive Electronic Technical Manual (IETM) procedures, which clearly state that all four packings (O-rings) must be removed and discarded during each removal and installation (R/I) cycle. Recognizing the potential implications of this oversight, Cpl Cannell conducted further research and expanded his inspection to the remaining connectors on the same tail section (P619, P620, and P622). He discovered that the previously installed O-rings had not been replaced during prior maintenance and were in a similarly poor condition.

Photo: Cpl Graveline

Understanding the critical function of O-ring packings Cpl Cannell initiated a supply chain review. This revealed that only 46 of the required O-rings had been issued fleet-wide since the CH148 Cyclone entered service. This low usage volume was inconsistent with the frequency of R/I tasks expected across the fleet and strongly indicated a widespread maintenance gap. Cpl Cannell's findings were elevated and triggered a Flight Safety investigation.

The investigation confirmed that the procedural step to remove and replace the O-ring packings had been missed in at least 25 documented instances dating back to June 2018. These figures exclude partial replacements, where only one or two packings were installed instead of the required four. A search of the Flight Safety Information Management System (FSIMS) also uncovered three additional related cases, confirming that the issue extended beyond a single occurrence.

Cpl Cannell's technical diligence and initiative directly led to the discovery of this significant, systemic oversight. His actions resulted in concrete corrective measures, including updated maintenance guidance, the addition of tool-control prompts to ensure compliance, improved technician awareness, and the development of educational materials to reinforce proper procedures. These efforts collectively reduced the risk from RIPS connector degradation, enhancing the safety and reliability of a system critical for maintaining aerodynamic performance and control in icing conditions.

Cpl Cannell's actions demonstrate the highest level of professional excellence, attention to detail, and commitment to airworthiness. By identifying a long-standing procedural failure and helping to implement effective fleet-wide corrective action, Cpl Cannell has made a lasting impact on the operational safety and readiness of the CH148 Cyclone and is deserving of this *For Professionalism* award.

For Professionalism

For Commendable Performance in Flight Safety

Corporal Francis Hamel

Photo: Capt Rochon

On 13 March 2025, while conducting routine maintenance in the left flap well area of a CT114 Tutor, Cpl Hamel identified a critical rigid hydraulic line misalignment. While functioning the flaps he observed a flap bell crank contact the rigid hydraulic line and move it approximately half inch in the direction of the bell crank's travel.

This specific rigid hydraulic line carries full hydraulic pressure when the system is selected on, powering aircraft flight controls and landing gear.

Realizing the possible severity of this situation Cpl Hamel proactively checked other Squadron aircraft and found the same hazardous misalignment existing on three additional aircraft. Unchecked, a possible failure of the rigid hydraulic line could have caused catastrophic loss of hydraulic pressure, limited control of the aircraft and possibly a fire. Cpl Hamel's keen eye and presence of mind averted a potentially dangerous inflight situation and the possible loss of several aircraft, and he is therefore deserving of this *For Professionalism* award.

For Professionalism

For Commendable Performance in Flight Safety

Corporal Yu Liu

On May 2, 2025, Corporal Yu Liu of 403 Squadron at CFB Gagetown demonstrated outstanding professionalism, technical expertise, and a strong commitment to Flight Safety during a routine troubleshooting task. While investigating a fault on CH146407, where the #1 fire handle failed to illuminate during high-RPM pre-flight testing, Cpl Liu chose not to dismiss the issue as a minor or transient fault. Instead, they conducted a thorough inspection of the aircraft's fire detection wiring system.

Photo: Cpl Bond

During the inspection, Cpl Liu identified loose backshells and visible tool markings, along with a separated wiring pin—clear indicators of improper handling and a potentially serious fault in a critical safety system. Recognizing the broader implications of this issue, Cpl Liu immediately reported the findings through the appropriate maintenance chain.

As a direct result of this action, a local inspection was ordered for all CH146 aircraft within 403 Squadron. The inspection revealed that nearly every aircraft exhibited similar issues with fire detection wiring. The severity and frequency of the defects led to the recommendation of a fleet-wide Special Inspection, which was elevated to the Aircraft Engineering Officer (AEO) on the same day.

Further investigation determined that a manufacturing defect in replacement wiring components had contributed to the problem, posing a systemic risk to aircraft safety. Thanks to Cpl Liu's vigilance and initiative, enhanced engineering checks and additional in-flight verification procedures were implemented across the CH146 fleet.

Cpl Liu's methodical approach and refusal to accept surface-level conclusions directly prevented a significant Flight Safety hazard. Their actions protected aircrew, preserved mission readiness, and highlighted a major quality control issue. Their actions exemplify the highest standards of Canadian Armed Forces aviation maintenance and reflect great credit upon themselves, 403 Squadron, and the Royal Canadian Air Force and they are deserving of this *For Professionalism* award.

For Professionalism

For Commendable Performance in Flight Safety

Corporal Daniel MacDonald

On 9 May 2024, while serving as an apprentice at 423 Maritime Helicopter Squadron, during a 56-day corrosion inspection on Aircraft 827, Corporal (Cpl) Daniel MacDonald identified a critical issue with the No. 1 engine exhaust duct bi-pod support. The outboard leg was found detached from the mounting bracket. A detailed inspection found that loose mounting hardware had permitted movement of the support about the retaining bolt. Over time, this movement resulted in wear that enlarged the mounting hole beyond the washer's diameter, ultimately causing the leg to detach. Notably, the exhaust duct bi-pod is not typically included in the scope of a 56-day corrosion inspection. Corporal MacDonald demonstrated exceptional diligence and initiative in identifying and addressing this issue, going above and beyond his standard duties.

Photo: CAF

The Flight Safety report concluded that an incorrect installation caused the damage by facilitating wear and deformation of the mounting hole material over time. A local survey at 423 Squadron identified a further four aircraft with hardware installed incorrectly. A fleet wide review by the Weapon System Manager identified several more aircraft with the bipod loosely attached.

Cpl MacDonald's proactive approach and ability to identify issues unrelated to the work at hand, exemplify their commitment to flight safety and dedication to excellence in their role and they are deserving of this *For Professionalism* award.

For Professionalism

For Commendable Performance in Flight Safety

Mr. Alexandre Bougon

Photo: Cpl Vos

Mr. Alexandre Bougon is employed as an Aircraft Maintenance Engineer on the Airbus CC330 for L3 HARRIS. On 18 February 2025, a maintenance crew, from the Ottawa Airport, was pushing CC330-002 back from parking point 63 in preparation for departure. The team, consisting of a tractor driver and an airport employee (assistant), were aided by Mr. Bougon. Following the pushback, the assistant removed the tow bar from the aircraft, removed the forward landing gear steering bypass pin and disconnected the communications headset.

During the removal of the pin, Mr. Bougon noticed an object fall from the assistant's pocket and tumble in the direction of the #2 engine, which was running at the time. Fearing that the assistant would approach the running engine to retrieve the object, Mr. Bougon, without hesitation, immediately alerted the flight crew and signalled them to pre-emptively shut down the engine.

Once the engine was shut down, Mr. Bougon and the assistant were able to safely retrieve the object, a work glove. When all was clear, flight preparations were resumed, engines started, and the aircraft departed without further incident and completed its mission. After the incident Mr. Bougon explained his actions to the team and reminded the airport crew of the hazards of foreign object damage (FOD) and the ingestion power of a jet engine. He was specific to the fact that a jet engine can ingest a person even when it is running at idle.

Thanks to his vigilance and quick reaction, Mr. Bougon prevented a dangerous situation from potentially turning into a tragic accident. Mr. Bougon's actions demonstrate positive leadership which is essential to the sustainability of the Flight Safety Program. His heightened situational awareness and display of professionalism demonstrates that Mr. Bougon is deserving of this Flight Safety *For Professionalism* award.

For Professionalism

For Commendable Performance in Flight Safety

Ms. Elizabeth Galloway-Gallas

On 20 January 2025, during the replacement of overwing emergency slides on CC150-002 at 8 Wing Trenton, contractor technicians under L3 HARRIS transferred newly installed parts from CC150-001. While verifying documentation, Ms. Elizabeth Galloway-Gallas, Technical Records Controller, identified a missing inspection record in the Maintenance Record System (MRS).

Her investigation revealed that the inspection interval—originally set at 36 months—should shift to 12 months once slides exceed 15 years of age due to ozone-related degradation. This requirement, however, was absent from both the legacy AVEOS MRS and the current L3 system, leading to a fleet-wide oversight.

Thanks to Ms. Galloway-Gallas's deep knowledge and attention to detail, six expired slides across two active CC150 aircraft were identified. The aircraft were promptly quarantined and brought back into compliance, averting a potentially serious safety risk.

Her diligence exemplifies the highest standards of flight safety making her highly deserving of the *For Professionalism* award.

Photo: CAF

From the Investigator

TYPE: SZ23 Glider (C-FQYI)
LOCATION: Bromont, QC
DATE: 1 August 2025

The accident flight was part of the Air Cadet Gliding Program in Bromont, QC in support of the summer glider pilot training and involved a solo cadet student glider pilot.

During the training flight, the cadet student pilot was preparing for landing on grass Runway 05 in Bromont. While on the base leg for the approach, the student pilot made a late turn to final and ended up misaligned with the grass runway. The aircraft was heading towards the take-off area which was located off to the left side of grass Runway 05. The student pilot made two attempts to regain proper runway alignment but was unsuccessful.

The glider touched down hard with a heading of approximately 110 degrees magnetic, about 60 degrees off to the right of grass Runway 05 heading. The hard touchdown caused the aircraft to bounce over a ditch running parallel to grass Runway 05. Also, the right wing and outrigger wheel hit the ground with energy, causing the glider to rotate 180 degrees. The glider came to rest entangled in a fence about 200 metres from the runway threshold.

The aircraft sustained very serious damage, and the student pilot was not injured.

The investigation did not reveal any evidence of technical factors with the aircraft or environmental factors that could have contributed to the accident. The investigation is now focusing on human factors.

Photo: Capt Bertrand

Photo: MWO Moon

Epilogue

TYPE: SGS 2-33A
LOCATION: Saint-Jean-sur-Richelieu, QC
DATE: 25 Jul 2024

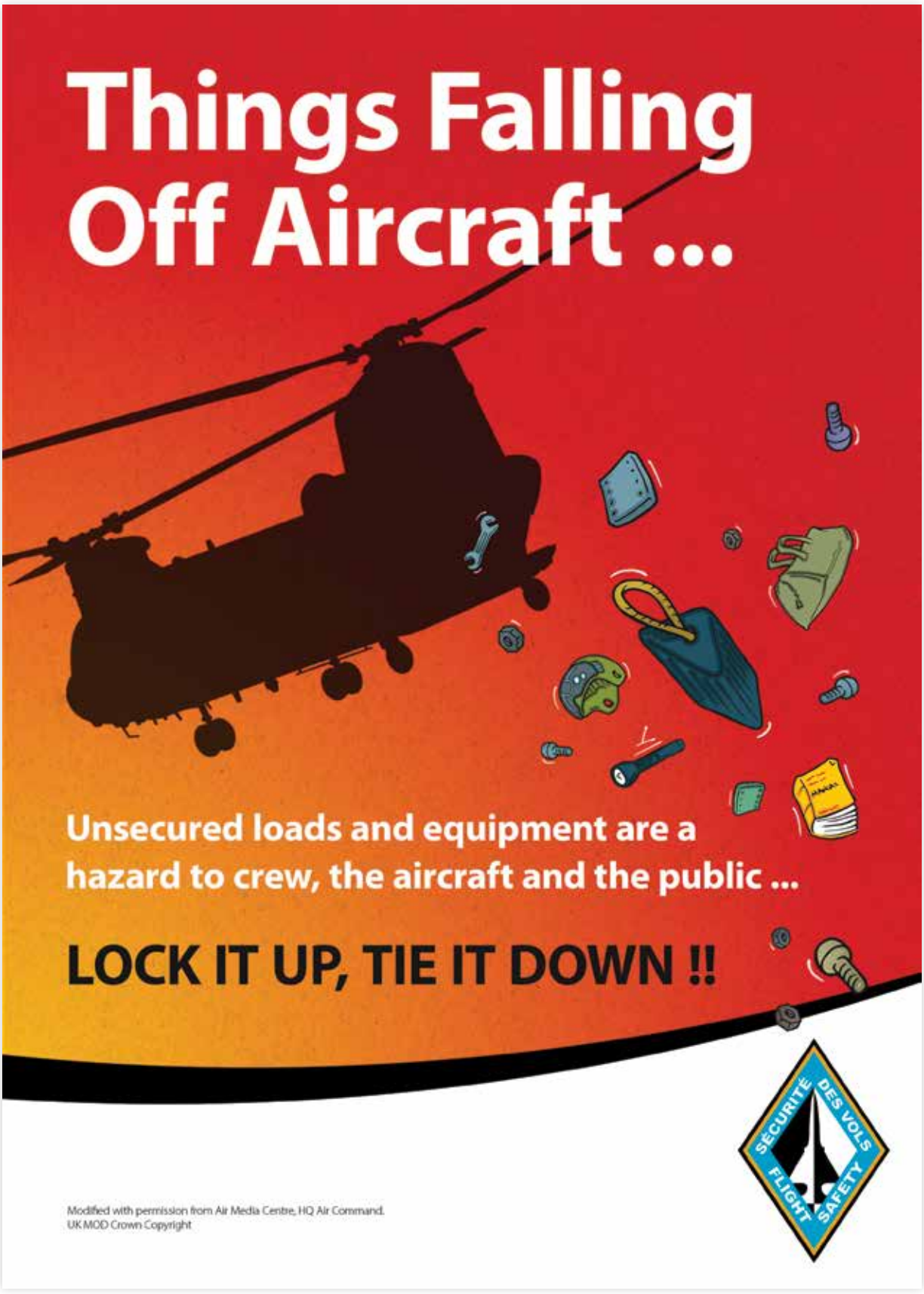
The accident flight was part of the Royal Canadian Air Cadet Gliding Program in Saint-Jean-sur-Richelieu, QC, as part of the Glider Pilot Training Course. The SGS 2-33A is the only glider type in use in the Air Cadet Gliding Program and is used for all flying activities.

The winds at the time of the accident were strong and gusty, at 20 knots gusting to 28 knots, from 260-270 degrees magnetic.

The mission consisted of a solo flight in accordance with the Basic Glider Pilot Training Plan (Provisional). At the end of their third training mission that day, their second solo mission, the cadet student pilot joined the circuit in preparation for landing. The approach proceeded normally until the glider turned onto final for landing on grass Runway #3, which parallels asphalt Runway 29. While on short final, the glider drifted right towards parallel grass Runway #2. During the flare and upon touchdown the right wing and fuselage struck the ground on grass Runway #2. The aircraft sustained very serious damage, and the pilot received minor injuries.

The investigation did not reveal any evidence of technical issues with the aircraft and focused on human and environmental factors. Due to inexperience flying under the prevailing environmental conditions, the cadet student pilot drifted right and landed hard, right wing low. The preventive measures recommend modifications to the Air Cadet Gliding Program manual for operations in high winds and instructional staff decision-making guidance.

Photo: Eastern Region Cadets – Flight Safety


Things Falling Off Aircraft ...
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