



Flight Comment



SPECIAL SERIES

Neck and Back Pain: ACP

DOSSIER

Rime Salt

LESSONS LEARNED

Cold Weather Diligence

Cover – Soldiers from 3rd Battalion, Royal 22e Régiment prepare to board a CH146 Griffon helicopter from 430 Tactical Helicopter Squadron.



Tripwire

10



New! Flight Safety App

16



Rime Salt

20



Just Breathe

24



Shadowing the Controls

26



Diligence in Cold Weather

28



TABLE OF CONTENTS

Issue 2, 2023

Regular Columns

Views on Flight Safety	2
The Editor's Corner	3
DFS Commendation	5
Special Series on neck and back pain – RCAF Aircrew Conditioning Program	6
Check Six	10
Dossiers	
New! Flight Safety App	16
Rime Salt	20
Lessons Learned	
Just Breathe	24
Shadowing the Controls	26
Diligence in Cold Weather	28
Epilogues	29
The Back Page	32

Awards

Sergeant Vincent C. Benoit	4
Cadet Instructor Thompson-Clement	8
Cadet Greenough	9
Master Corporal Belchevski	14
Corporal Brock Gatien	15
Mr. Clayton Haight	18
Corporal Jascha Pabalate	19
Corporal Thomas Hillock	22
Master Corporal Elise Laviolette	23
Aviator Austin Bauder-Eldridge	25
Corporal Gaël Autmizguine	27



DIRECTORATE OF FLIGHT SAFETY

Director of Flight Safety
Col Jean-François Gauvin

Editor
Maj Jill Sicard

Imagery Technician
Cpl Jessica Vos

Graphics and design
d2k Graphic Design & Web

THE CANADIAN ARMED FORCES FLIGHT SAFETY MAGAZINE

Flight Comment is produced up to four times a year by the Directorate of Flight Safety. The contents do not necessarily reflect official policy and, unless otherwise stated, should not be construed as regulations, orders or directives. Contributions, comments and criticism are welcome. Contributions become the property of *Flight Comment* and may be edited for content, length or format.

Send submissions to:

Directorate of Flight Safety
Attn: Editor – Flight Comment
60 Moodie Drive
Carling Campus CFB O-G
Building 7N.2.C19.21
Ottawa, ON, Canada K1A 0K2

Telephone: 613-901-7698
Email: dfs.dsv@forces.gc.ca

This publication or its contents may not be reproduced without the editor's approval.

To contact DFS personnel on an URGENT flight safety issue, please call an investigator who is available 24 hours a day at 1-888-927-6337 (WARN-DFS).

Visit the DFS web page at <https://bit.ly/DFS-DSV>.

Flight Comment magazines and flight safety posters are available on the flightcomment.ca website.





Views on Flight Safety

by Col Jean-François Gauvin

Col Gauvin joined the Canadian Armed Forces in 1989. After completion of pilot training, he served with 439 Combat Support Squadron (CSS), 2 CFFTS, 430 ETAH, and 27 Sqn with RAF UK Exchange flying Chinooks. He was subsequently Commanding Officer of 439 CSS and 413 (T&R) Sqn before being promoted to his current rank.

He has amassed over 5000 flying hours on various platforms including helicopters and training aircraft and has flown in multiple operational deployments in Bosnia, Haiti, Cyprus and Afghanistan. Col Gauvin is currently Director of Flight Safety and Airworthiness Investigative Authority.

I have been in the DFS position for a year now and have had the opportunity to visit most of you. Firstly, I am impressed by the level of Flight Safety (FS) involvement across the RCAF, the Cadets, the greater CAF/DND and its contractors. The CWO and I have met with keen individuals with the right levels of professionalism and confident attitudes, without any compromise to safety.

When we compare our FS Program with those of our allies, I am confident in saying that our program is amongst the top! However, we need to sustain it. Too often in the past we have seen cuts being made to smoothly running programs when the onus to keep pushing was not readily apparent as there

were no negative FS indicators. Since we cannot know how many incidents or accidents have been averted due to the FS Program, it is difficult to quantify its results statistically. However, this is not the time to let our guard down. Instead, it is the time to reinforce and build upon the great work that is already being done, keeping in mind that the FS Program is an operational enabler that enhances our fighting capability, and its ultimate focus to achieve zero accidents and fatalities.

In this respect, the staff at DFS have been working hard this year to innovate our reporting system by developing a FS application. The main goal of this application is to enhance reporting, by making it easily accessible, at any time, to everyone operating, maintaining or supporting CAF air assets. This app is both cloud and web-based, meaning that it can be used on a personal phone, tablets or laptop as well as on any Government of Canada LAN computer. The other main feature is that all the pertinent promotion and prevention information can be found via the app. Flight Comment magazines, FS posters, FS reports, FS manuals and some training information is only a click away. The user interface is specifically designed to allow for better capture of the data, allowing for improvements that will come with a new and improved version of the Flight Safety Information Management System (FSIMS) as detailed below.

Concurrently, Flight Data Analysis (FDA) for FS will soon be delivered by way of a

contracted service for DFS. FDA is the process of analyzing recorded flight data in order to improve the safety of flying operations. The aim of this 2-year trial is to develop a program that is designed to prevent accidents by identifying potential risks and hazards at an early stage.

Lastly, my plan is to continue with our digitalization efforts by upgrading FSIMS so the benefits of having a new FS app can work in concert with the information management aspect of our work. The aim is to reduce FS personnel's workload by having our software's internal processes automate as much of the work as possible for a more consistent, efficient, and effective way of doing business. This will also greatly improve our ability to perform data analytics, generate reports, identify trends, and will ultimately strengthen our FS program.

These initiatives are either already under way or will be by the time this article is published. These are exciting times which will bring digital advancements to develop how we do our FS business. Look out for the QR code in this magazine and keep an eye out for the associated FS posters. Remember that reporting everything, including repetitive occurrences, is key to allow us to prioritize investigations and develop preventive measures. When we report, we learn and we avoid repeating the same mistakes; **reporting saves lives.** 📌

The Editor's Corner

by Maj Jill Sicard

Greetings dear readers! We know you've been eagerly awaiting our return, and yes, it's been a while as some of our team members have assumed new roles, including our wonderful and talented image tech MCpl Kyle Morris who has been promoted and posted – you and your amazing skills will be greatly missed here at DFS! We also welcome our new image tech, Cpl Jessica Vos who is very excited to jump right in, as well as some other members new to the team that will help make Flight Safety a fantastic place to be (not that it wasn't already ;)). Rest assured we've been swept up in a whirlwind of activity here at DFS. Exciting new projects have kept us on our toes and although the temporary pause may have left you wondering, fear not we're armed with an issue brimming with riveting content and enlightening lessons.

Let's kick things off at the very beginning – our "Views on Flight Safety" section, where the Director of Flight Safety has imparted upon us his invaluable insights. And don't forget to dive into the grand finale of our "Special Series" – it's all about neck and back pain, a topic near and dear to the hearts (and spines) of many aircrew.

This issue boasts a historical piece penned by Mr. Chris Shelley, delving into the critical role of leadership in Flight Safety – a topic that resonates deeply in the aviation world, both in the past and today.

In our Dossier section, you'll find a firsthand encounter with "rime salt," a truly unique experience. And the cherry on top – an exciting announcement about our BRAND-NEW APP! It's your one-stop source for navigating this cutting-edge tool, filled to the brim with valuable information.



Cpl Kyle Morris receives his promotion to Master Corporal (from left to right; Col J.-F. Gauvin, MCpl K. Morris and CWO Carl Phaneuf.

As for the winter season, we might not have much to say, except for a good chuckle on our back page, where our new cartoonist, Mr. Claude Bertrand, works his magic. However, let's not forget the importance of diligence, both in your professional and personal life.

As the holiday season approaches, remember to stay safe and take care of one another. We here at DFS want to wish everyone a Happy

Holiday season. I'm already hard at work crafting the next issue for the coming year. But, as always, we welcome your contributions and stories. If you have something to share, don't hesitate to send it our way through the DFS email. We're thrilled to be your source of inspiration, information, and entertainment whether you're waiting for your next dental appointment, hanging out in the common area, or wherever you may pick up a copy! 📖

For Professionalism

For Commendable Performance in Flight Safety

Sergeant Vincent C. Benoit



Photo: CPL Michael Vandebroek

On May 15, 2023, Sgt C. Benoit was the Team Lead during a day of SAR training. The crew was conducting safety checks prior to opening the ramp and door for SAR drops.

Although the checks were already complete, Sgt C. Benoit did an additional cross check of all the monkey tails and discovered that a fellow crew member's button was not fully popped, indicating that there was not a positive lock on

the spring latch, although the button originally indicated that it was locked during the initial check. Sgt C. Benoit immediately attempted to properly latch the hook, but in doing so discovered that it was malfunctioning and would not fully open when it should. He notified the Load Master and the faulty monkey tail was quarantined.

Sgt C. Benoit has consistently shown excellent attention to detail and situational awareness,

which has granted him a *Good Show* award just last year. This second deed most likely prevented a very dangerous and potentially fatal situation from arising. For complete dedication to his crew's safety and the FS Program, Sgt C. Benoit is awarded the Flight Safety *For Professionalism* Award. 🦋

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 the following deserving individuals who, through their actions, have contributed significantly to enhance the capability of the FS Program across the CAF and who emulate the values and ethos promoted by the Program.



Sgt Steve Wille



WO Ron McMullen



SPECIAL SERIES on neck and back pain

RCAF AIRCREW CONDITIONING PROGRAM

by Dr Tara Reilly and LCol Erin Smith

The prevalence of neck and back pain in RCAF aircrew remains stubbornly high, with the latest reports indicating a frequency of over 90% (Smith, 2021). Various solutions have been proposed to this issue, including equipment changes, more ergonomic cockpits (Bickerton P, 2022) and flight schedule changes to allow more time for rest and recovery. One very promising solution is targeted strength and conditioning programs (Ang, 2009; Salmon, 2011). Recently, the UK's Royal Air Force developed and demonstrated the effectiveness of the Aircrew Conditioning Program (ACP) (Slungaard, 2018; Slungaard, 2019). The program has since been adapted and implemented in the Royal Australian Air Force (RAAF) (Wallace, 2019).

In 2021, under the guidance of the Canadian Forces Environmental Medicine Establishment (CFEME), the RCAF adopted and adapted the ACP for aircrew at 408 Sqn and 2 CFFTS. The program known as the "RCAF ACP" was implemented with the help of Personnel Support Program (PSP) exercise specialists for each unit. The Surgeon General Health Research Program endorsed the ACP, which was executed by PSP Human Performance Research and Development, with assistance from Defence Research and Development Canada (DRDC). Concurrently with the 12-month trial of the RCAF ACP, a research study was conducted to assess the feasibility (participation) and effectiveness at both locations. Evaluation included objective (physiotherapy, fitness assessments) and subjective (surveys) metrics collected at

baseline, 3-, 6-, and 12-month intervals. The effectiveness of the program was determined by physical testing and surveys, while feasibility was based on resource utilization, compliance, and program evolutions.



Among the physical tests conducted, the most significant improvement was observed in deep neck flexor muscle endurance. The muscle is vital for maintaining proper head positioning during flight, particularly when wearing a helmet, NVGs or other helmet-mounted devices (HMDs) and/or when experiencing higher G forces. Endurance is a measure of resiliency and the ability to withstand and recover from repetitive strenuous use. It is required to maintain proper position throughout multiple flights and/or flights of longer duration over days to weeks. For reference, normative results for deep neck flexor muscle endurance for healthy males (without any symptoms of medical issues) is 40 seconds (+/- 20 seconds) (Domenech et al, 2011). Both 408 Sqn and 2 CFFTS participants showed significant improvement in deep neck flexor muscle endurance at three- and six-month intervals. Notably, 2 CFFTS' performance greatly improved from below 40 seconds to over 90 seconds after 12 weeks of training, demonstrating the gains which can be seen with adherence to the RCAF ACP in aircrew.

The effectiveness of the program thus far has been highly reliant on participant compliance. It is imperative for participants to attend sessions at least twice weekly to see improvement.

Regarding feasibility, compliance with the program's attendance requirements is crucial. The research results indicated that compliance



at 408 Sqn was insufficient to assess the effectiveness of the ACP after 6 months. While higher in the first 12 weeks, operational tempo, public health restrictions, and the high frequency of flying exercises hindered the participants' ability to attend the minimum required sessions. This highlights the need for flexibility in physical training schedules for operational flying units, which would require an increase in staffing and flexibility with PSP, training establishments and operations. In contrast, compliance at 2 CFFTS was significantly higher, partly due to a more structured schedule at a training establishment and the existing requirement for students to attend multiple physical training sessions per week. Some weeks saw as much as 93% participation. With close coordination between PSP staff and the training establishments' operations center, flexibility in scheduling can be effectively managed, as demonstrated by 2 CFFTS.



A comprehensive analysis of the final testing data conducted after 12 months is currently underway. The final report is expected to be published in 2023 and will be presented to RCAF leadership. It is available upon request.

Evolution of RCAF ACP programming may include:

1. A "pre-program" for those who are not experienced with strength training.
2. A "post-program" that can be delivered after the initial 12-week program, which will allow greater flexibility and tailoring to meet individual needs or for high tempo operational units.

The next phase of the RCAF ACP implementation, aims to extend the program to other training establishments, Tactical Aviation units, and other flying communities expressing interest. Potential sites for 2023 include 3 Wing, 4 Wing and 12 Wing. If proven effective and feasible in multiple communities, the long-term objective is to implement the RCAF ACP across the entire RCAF.

When considering implementation at a given flying unit, it is important to remember that the RCAF ACP was developed in consultation with multinational experts, based on similar successful programs in the UK and Australia. The key to success in those countries was that it was *supervised* and *mandated* training. Without these components, and adherence to the RCAF ACP the training offered cannot be considered as official ACP. Lack of supervision

and mandated training may result in low attendance and consequently, a lack of improvement in performance for participants.

Increasing the physical activity of RCAF aircrew is a positive step towards improved fitness, health, resilience, and flying performance. All CAF members are encouraged to engage in at least 30 minutes of physical activity five days a week. While waiting for the RCAF ACP to be implemented across the RCAF, aircrew are encouraged to work with the existing local PSP staff to develop and follow a training program suited to their individual needs. Additionally, they should seek assistance from local CF Health Services staff in case of illness or injury.

For additional information or to request that the RCAF ACP be implemented at your unit, contact LCol Erin Smith (Erin.Smith3@forces.gc.ca) and Dr Tara Reilly (Reilly.Tara@cfmws.com). 📍

Good Show

For Excellence in Flight Safety

Cadet Instructor Kyle Thompson-Clement

On August 14, 2023, during a student training mission in an Air Cadet Glider, the crew encountered an aileron control restriction.

Cadet Greenough, the Student Pilot (SP), was piloting the aircraft while conducting upper air manoeuvres when she noticed that the control column seemed to be catching and could not be manoeuvred to the right. She promptly communicated this issue to CI Thompson-Clement, the Instructor Pilot (IP) who was instructing from the rear seat. The IP assumed control of the aircraft and quickly recognized that they were in an emergency situation. The glider was continuously rolling to the left, but they were unable to correct it using the aileron controls. Despite the challenging circumstances, the IP managed to regain level flight using the rudder and elevator controls.

Together, the crew decided to make an emergency landing on the paved runway at the aerodrome instead of the grass glider lane. Taking the initiative, the SP assumed control of the radio and informed other airport traffic about the control anomaly and their intentions. Throughout the rest of the flight, the SP provided the IP with updates on traffic positions and calmly communicated information relevant to navigation and aircraft control.

Following the flight, it was determined that a radio antenna cable had become entangled between the aileron bell-crank and the aircraft frame, preventing aileron movement.

CI Thompson-Clement and Cadet Greenough, operating as a cohesive team under time constraints, adeptly and professionally



responded to this emergency event, ensuring the safe recovery of the aircraft. The quick and effective actions of CI Thompson-Clement in the emergency, allowed the team to land safely and warrant recognition with the Flight Safety *Good Show* Award. 📌

For Professionalism

For Commendable Performance in Flight Safety

Cadet Georgia Greenough

On August 14, 2023, during a student training mission in an Air Cadet Glider, the crew encountered an aileron control restriction.

Cadet Greenough, the Student Pilot (SP), was piloting the aircraft while conducting upper air maneuvers when she noticed that the control column seemed to be catching and could not be maneuvered to the right. She promptly communicated this issue to CI Thompson-Clement, the Instructor Pilot (IP) who was instructing from the rear seat. The IP assumed control of the aircraft and quickly recognized that they were in an emergency situation. The glider was continuously rolling to the left, but they were unable to correct it using the aileron controls. Despite the challenging circumstances, the IP managed to regain level flight using the rudder and elevator controls.

Together, the crew decided to make an emergency landing on the paved runway at the aerodrome instead of the grass glider lane. Taking the initiative, the SP assumed control of the radio and informed other airport traffic about the control anomaly and their intentions. Throughout the rest of the flight, the SP provided the IP with updates on traffic positions and calmly communicated information relevant to navigation and aircraft control.



Following the flight, it was determined that a radio antenna cable had become entangled between the aileron bell-crank and the aircraft frame, preventing aileron movement.

Cadet Greenough and CI Thompson-Clement, operating as a cohesive team under time constraints, adeptly and professionally responded to this emergency event, ensuring

the safe recovery of the aircraft. Cadet Greenough's exceptional situational awareness and calm demeanor grant them a Flight Safety For Professionalism Award. 🏆



TRIPWIRE

by Col (Retired) Chris Shelley, C.D.

Chris Shelley joined the Canadian Forces in 1973. After graduation from Royal Military College he trained as a pilot, flying some 3800 hours with 424 Squadron and 408 Squadron on CH135 and CH146 aircraft. He flew on operational deployments in Central America (1990) and Bosnia (2001). He commanded 408 Squadron and 1 Wing before serving as Director of Flight Safety from 2006 to 2008. Retired since 2008, Chris retains a lively interest in aviation history and flight safety.

DFS comment: The following article depicts the necessity for the Flight Safety Investigation unit (DFS2) as well as Flight Safety program. This enables us to thoroughly examine all aspects of occurrences and then allows us to create preventative measures, thus harbouring a safe environment for all members.

This is the story of an accident with many flaws.

The leaders were too busy with other tasks to supervise and control the flying activity concerned, which resulted in elevated levels of risk, despite having been clearly identified prior.



The ensuing investigation was rushed and failed to establish actual responsibility for the accident or to identify any novel preventive measures.

The RCAF would miss, to its cost, an opportunity to reinforce safety attitudes just as it was

descending into the chaos of post-war demobilisation, a period that would see its worst peacetime accident in September 1946.

An experienced soldier knows that the best place to lay a tripwire is near the end of a forest path. As the enemy approaches the edge of congested woodland, their eyes will naturally be



Photo: unknown

drawn away from the track beneath to look up and out at the enticing brightness beyond. They will then miss the deadly wire that triggers the mine that seals their doom. By June 1945 the RCAF had raised its eyes from the path of war to gaze upon the sunlit uplands of a peaceful world. Germany had surrendered in May, and

the gigantic tasks of demobilizing 215,000 personnel, disposing of thousands of surplus aircraft and closing hundreds of training establishments lay heavy upon the shoulders of RCAF headquarters across Canada. As a result, attention was diverted away from the supervision of routine flying activity and the consequences would be deadly.

By late 1944, the RCAF had produced more aircrew than needed for the European war. Most Canadian training stations closed, and aircraft were put into short-term storage. Hundreds of trained RCAF pilots lay idle at holding units, no longer destined for overseas. However, the Royal Navy needed pilots desperately, as its aircraft carriers launched daily strikes against Japan, fighting a war that was forecast to continue through 1946. Paradoxically, surplus RCAF/RAF pilots could not be transferred to the Royal Navy without their consent, (and few consented), so, while most RCAF training schools were shutting down, 14 Service Flying Training School (14 S.F.T.S.) in Kingston continued training Royal Navy pilots at full throttle, flying an average 8,000 hours per month with 270 students, graduating 60 pilots monthly.

14 S.F.T.S. Kingston also had a responsibility to support local Canadian Army units training for deployment to the Far East. This support was provided by its Army Cooperation Flight, which coordinated, planned, and flew a variety of missions supporting army training. For large taskings, the Flight would be augmented by pilots from the instructional staff on the station. On 20 June 1945 the Flight carried out a mock attack on an army convoy, during which a Harvard aircraft struck a vehicle, killing the pilot and an army officer on the ground. The imprecise investigation revealed a disturbing combination of faulty supervision, mission creep and defective risk management.

The training event involved five Harvard and five Anson aircraft from the Army Cooperation Flight that staged an attack on an army convoy travelling along a highway next to the St. Lawrence River, near Mallorytown, Ontario. The Harvard pilots were briefed to simulate low-level strafing runs at an altitude of 25 feet above ground to be followed by Ansons that would drop one pound flour bag bombs. All aircraft were to maintain a 500-yard interval during the run-in. The objective was to cause troops to employ standard procedures for defence and dispersal when subjected to air attack. However, the army officer in charge had added an additional effect without coordination, placing small explosive charges in the river adjacent to the highway to simulate bomb explosions during the attack. Thus, when the aircraft commenced the first of five planned runs over the target, they were unaware that they were tracking inbound over the water and the exploding charges. The army officer in charge of the convoy became concerned these might harm the aircraft, so between the second and third runs he got on top of the cab of a recovery vehicle and attempted to wave off the attack. Just as he began to wave, the starboard wing tip of the fifth and last Harvard to attack, struck both the officer and a steel frame on the truck cab. The officer fell to the ground with fatal injuries, while the stricken Harvard carried on for another 300 yards minus its wing tip and crashed inverted in the median between the roadways. The pilot was killed, but a rear seat passenger survived with only minor injuries. The mission commander in the lead Anson then aborted the mission and directed the remaining aircraft to return to Kingston, while the troops on the ground attended to the casualties.

Continued on next page



CHECK SIX

14 S.F.T.S. reported the accident to its parent headquarters, No. 1 Training Command, Trenton, which appointed a Squadron Leader (Major equivalent) to investigate. While a Board of Inquiry would normally have consisted of four or five officers, by 1944 most training accidents were being investigated by a single officer to save administrative effort. Unfortunately, the results often fell short of the ideal, as would be the case here. The investigator arrived in Kingston quickly and began to gather evidence and take witness statements to determine the cause of the crash, and to examine mission authorization, planning, coordination, briefing and execution.

Determining the mechanism of the crash was eased by the witness statements, including a detailed sketch drawn by an army private who was a talented illustrator. Technical investigation quickly ruled out any mechanical failure, and so the investigator focused on the actions of the pilot. The fatal Harvard had come in a bit lower than the briefed height of 25 feet above ground, and it was supposed that an unfortunate air current had dropped the wing tip as it approached the vehicle, striking the officer on the truck's cab and the steel frame. This tore off the wing tip, causing the Harvard to crash in the

median between the lanes of the highway. While the investigator accepted as fact suggestions that minor turbulence had caused the wing to drop at the fatal moment, witnesses were unable to agree whether the turbulence was from previous aircraft passing over the truck, from an onshore breeze, or from daytime heating. Why had the Harvards decided to attack at such an extremely low altitude?

The investigator examined mission planning and coordination to determine if they were consistent with the mandate of the Army Cooperation Flight. Direction regarding the conduct of Army Cooperation missions had been issued to the Commanding Officer (C.O.) of 14 S.F.T.S. from No. 3 Training Command in a letter dated 23 October 1944. This directed 14 S.F.T.S. to support the Canadian Army Officer Training Centre (C.O.T.C.) at Brockville with two missions per month, using three Harvard to perform simulated low-level attacks on army formations. The letter noted that while Air Force Headquarters had approved low level attacks for this training, it had not specified a height or method. Therefore, 14 S.F.T.S. was to back brief No. 3 Training Command on the mission plan to gain approval for the height and method of attack.

As to height, the letter did not impose any limits, but suggested, "that no flight under a height of 50 feet would be of any use for Army Cooperation and would only constitute a hazard." Once No. 3 Training Command approved the mission, it was to be briefed to the crews by the Chief Instructor (C.I.) or the Deputy/C.I. of 14 S.F.T.S. The letter ended by cautioning that a fatal accident had occurred the year prior during Army Cooperation training, and that, "when drawing up final arrangements in liaison with the Army, the safety factor must be considered of prime importance."

The directive might have led to safe execution of Army Cooperation missions had it been followed, but the investigator could not find evidence of its implementation. The current 14 S.F.T.S. C.I. had arrived in April 1945, and stated he had neither seen the directive, nor been briefed on it by his predecessor. The Officer Commanding (O.C.) Army Cooperation Flight was unaware of its existence, and No. 1 Training Command, the successor to No. 3 Training Command, had not issued any orders respecting army cooperation missions. 14 S.F.T.S. Station Standing Orders were silent on the subject. Nor was there evidence that Air Force Headquarters had followed up with lower echelons to see if its concerns about the safe execution of army cooperation training had been taken seriously. In effect, the directive had been fired downrange without anyone observing the fall of shot or making any corrections to make sure the target was hit. It was supposed by the Investigating Officer and reviewing authorities that the instability caused by multiple changes of command, re-organizations and pending demobilisation had caused the responsibility

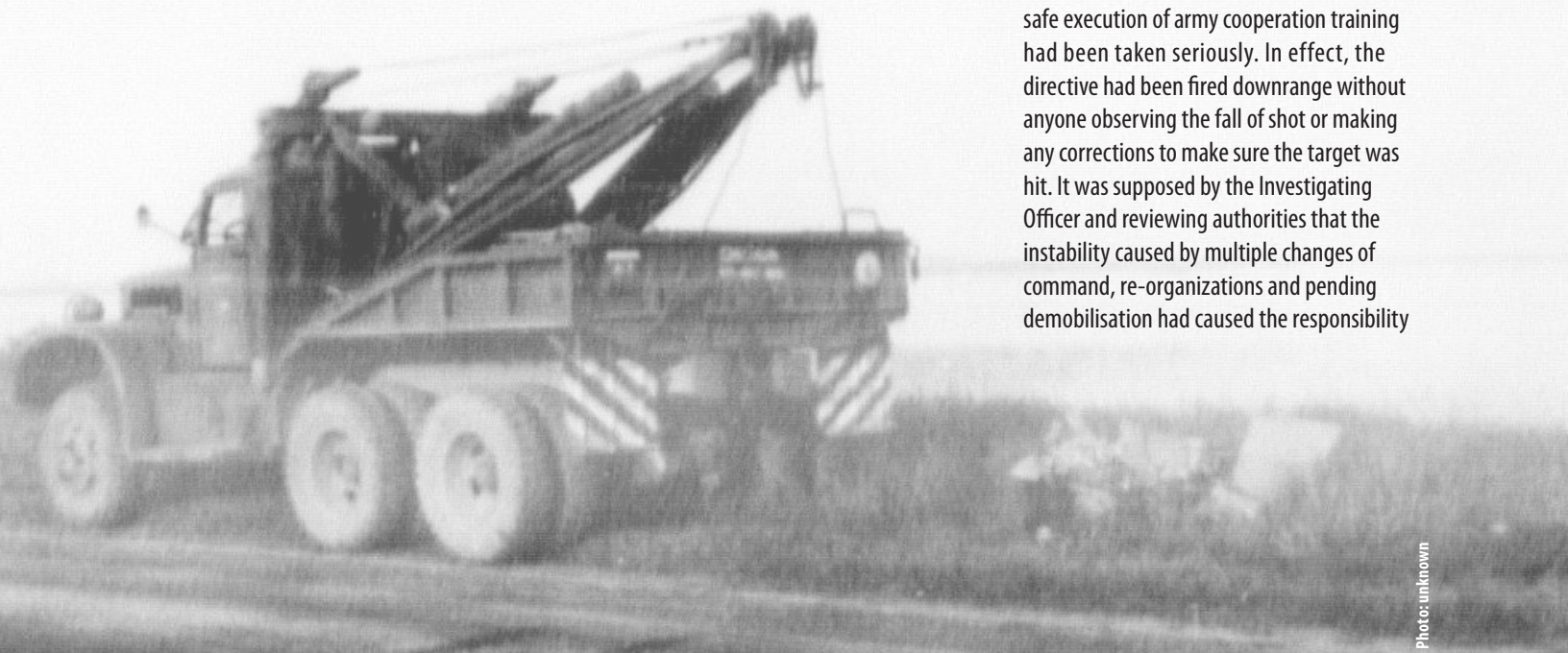


Photo: unknown



for supervision to be misplaced and forgotten. However, no one outside of 14 S.F.T.S. was interviewed on the matter.

The 20 June mission had been coordinated by the O.C. Army Cooperation Flight directly with the C.O.T.C. officer requesting the training (who had been killed in the accident). On receipt of the tasking request letter, the O.C. had notified both the C.O. 14 S.F.T.S. and the C.I. He had then attended a face-to-face meeting with army staff to determine the desired effects, timings, location, and the number of aircraft to be used. That the army would use small explosive charges to simulate bombs was unknown to the O.C. but did not surprise him as the army "had pulled similar stunts in the past." After conducting a detailed map reconnaissance and overflights of the exercise area, he had briefed the mission to the participating pilots, who were mostly instructors seconded to Army Cooperation Flight for the tasking. The investigator found that no one had raised any concerns over an altitude of 25 feet above ground being briefed, or any evidence of whether an increase in aircraft assigned to Army Cooperation taskings from three to ten had been approved by any level of command. As one reviewer noted, Army Cooperation taskings had essentially, "become a private arrangement between the O.C. Army Cooperation Flight and the army." The provisions of the No. 3 Training Command instruction had neither been implemented, nor had any effective control measures been put in place at any level to limit the scope of Army Cooperation Flight activities.

Reading between the lines, it seems that 14 S.F.T.S. found it impractical to have the C.I., who was already responsible for managing 270 students and 8,000 flying hours per month, personally brief the occasional Army Cooperation mission. This led to an internal delegation of responsibility to the O.C. Army Cooperation Flight that went unchallenged by No. 3 Training Command. This discrepancy was never corrected thus, dropped from the radar in early 1945 when No. 1 Training Command

assumed responsibility for 14 S.F.T.S. and the RCAF switched its focus from aircrew production to demobilization. Further, the suggested height restriction of 50 feet above ground was never implemented, leaving the O.C. Army Cooperation Flight free to choose any number of aircraft and whatever altitude he thought fit for purpose. Significantly, there were no pilots in the Army Cooperation Flight with ground attack experience who might have used their expertise to provide a safer and more realistic training event. The O.C. was a bomber pilot returned from Europe, and the other pilots all had training command backgrounds. To them low flying was a welcome change from boring instructional duties, so army cooperation flying was seen as an approved way to inject a little excitement into one's life. The facts that it was unnecessary and extremely dangerous did not seem to have perturbed anyone. Indeed, low flying was almost endemic at 14 S.F.T.S. despite severe punishments if caught. As one witness stated, "I do a lot of sailing on Ontario Lake... and I have before noticed that when low down over us [a Harvard] would nearly blow us off our raft or boat." Being buzzed by a Harvard was just part of daily life near most RCAF training stations.

The investigator found no person at fault for the accident, with no one responsible for any failures related to the occurrence. The closest statement resembling a cause factor was that "all pilots used poor judgement in that all flew at very low height under turbulent air conditions." The investigating officer recommended that better cooperation occur between Air Force Headquarters, No. 1 Training Command and 14 S.F.T.S. for Army Cooperation taskings, that a new letter of instruction be drawn up, that a specific height be determined for low-level attacks, that army cooperation taskings be limited to two or three aircraft and that the responsibility for coordinating and briefing army cooperation taskings be assigned officially to the O.C. Army Cooperation Flight.

The A.O.C. No. 1 Training Command was careful not to admit his headquarters role in the sad affair. Rather, he fixed responsibility for the accident on the occurrence pilot for flying too low in turbulent air conditions. The A.O.C. also determined that the Army Cooperation Flight had exceeded its remit and directed that a definite schedule for Army Cooperation exercises be drawn up for the coming year to be approved by Air Force Headquarters. Further, such exercises would be limited to three aircraft flying no lower than 100 feet above ground level.

The barn door had been well and truly shut! But it was all for nought. By August 1945 the political will to send Canadian troops and aircraft to the Far East had evaporated and the surrender of Japan on 15 August brought all flying training to a grinding halt. By September 1945, 14 S.F.T.S. was history. The RCAF was in a rush to drop from a strength of 215,000 to 16,000, and in the process, mistakes would be made that would cost lives and aircraft.

Many tripwires lay in the path of Army Cooperation Flight in 1945. Yet, had the measures put in place to detect them been maintained, these two officers might have finished the war and returned to civilian life instead of becoming two lines in the Book of Remembrance. What of the tripwires faced by today's RCAF? How many stern directives cross your desk daily, demanding immediate attention to any number of critical priorities, most of which have nothing to do with flight operations? How often do they draw your gaze up and away from the awesome responsibility of ensuring that aircraft launch, complete their missions successfully and return safely to fly again? How often are directives from higher ignored based on being impractical or unrealistic? How often do you follow up on the directives you've issued? Supervision ought never to be a "fire and forget" affair but must be a constant process of confirmation, consultation, and revision. Otherwise, we stand in peril of wandering into the tripwires that lie in wait for the unwary at the edge of the forest. 🍂

Good Show

For Excellence in Flight Safety

Master Corporal Hristo Belchevski

On August 18, 2015, MCpl Hristo Belchevski was a crew tech man (TCM) on the CC177 Globemaster III, which was a resupply mission to Nunavut. While acting as an additional crew member (ACM) in the cockpit, he was afforded the opportunity to observe the landing in VMC (visual meteorological conditions). The pilot was an experienced instructor pilot who was mentoring an acting aircraft commander candidate.

On approach, the flying crew unbeknownst to others, became fixated on finding the assault zone landing panels and the pilot flying (PF) forgot to call "Gear Down". As TCM's have no in-flight duties, MCpl Belchevski, on his own accord, decided to do a "safety check". During this process, he discovered that the landing gear was still retracted but the flaps were already deployed for final configuration. He re-confirmed his suspicion by looking at the gear handle carefully which was still in the "up" position.

Normally for VMC approaches, the aircraft is configured for landing through 1,000 ft. As the aircraft was descending through 500 ft, he had not heard the flying crew verbalize "Before Landing Check Complete". It was at this point that he came to the realization that the aircrew had forgotten about the gear completely. He immediately took it upon himself to speak up and alert the aircrew of this unsafe condition. By simply stating 'gear' his action word immediately alerted the crew. Upon realizing their mistake, the aircrew initiated a go-around since they were too low to land safely. After completing a second approach with the correct configuration, CFC 3656 landed without further incident.

Through his extensive training as a TCM and expertise as a technician, MCpl Belchevski identified the unsafe condition and did not hesitate to speak up. His actions potentially saved the loss of an aircraft and possibly the lives of the crew on board.



His outstanding situational awareness and quick decision-making process allowed him to make a critical safety observation during an operational mission. For these actions, MCpl Belchevski is very deserving of the Flight Safety *Good Show* Award. 📌

For Professionalism

For Commendable Performance in Flight Safety

Corporal Brock Gatien



On August 12, 2022, Cpl Brock Gatien was the lead Level A technician working in the tail section of a CH148 Cyclone helicopter conducting a Frame 600 crack inspection and repair as part of a fleet-wide requirement. During the inspection, and unrelated to the crack repair, Cpl Gatien noticed that the aft float bottle support appeared to be the incorrect model.

Cpl Gatien knew that the fleet had undergone an aft float bottle support modification. Upon reviewing maintenance records, Cpl Gatien

discovered that the original task for this modification had been designated as terminated but could not find any corroborating documents that the modification had occurred.

Cpl Gatien elected to measure the upgraded modified brackets and compare them to the ones installed on the aircraft. Cpl Gatien determined that the modification had not been carried out, and that the brackets installed on the aircraft were in fact cracked. Cpl Gatien immediately notified supervisors of

these findings as this aircraft was slated for deployment. Cpl Gatien spearheaded and oversaw the modification concurrent with the Frame 600 repair, ensuring it was completed, while offering guidance to junior technicians throughout.

Cpl Gatien's keen attention to detail, professionalism, and initiative removed a potential Flight Safety hazard. It is for these reasons that Cpl Gatien is most deserving of the Flight Safety *For Professionalism* Award. 🦋

DOSSIER

NEW! FLIGHT SAFETY APP

by Maj Jill Sicard



Ladies and gentlemen, fasten your seatbelts because we're about to take off into a new era of Flight Safety!

The DFS team proudly presents the Flight Safety App, a game-changer that you can now download on your personal or work tablet/phone. Trust me; if you're part of RCAF aviation, this app is your copilot for safety.

Picture this: a user-friendly interface with two primary zones. The red zone is your Flight Safety reporting hub, while the blue zone is all about Flight Safety information and promotion. For our French-speaking friends, language selection is just a tap away in the top right-hand menu. You'll also find contact info and a nifty QR code share option in the top-right corner.



But let's soar deeper into the app's cockpit. Reporting an occurrence is as easy as flipping a switch. Just hit the "Flight Safety Reporting" tab, and you're brought to the Occurrence or Hazard report section. Fill in the details, and just hit submit! When you're ready to return to base (the main page), click on the logo in the top-left corner.

In your downtime or when navigating for Flight Safety info, glide over to the blue tab. Here's what's in the hangar:

What's New: This section is like our version of in-flight entertainment. It's where we serve up the latest updates and changes in the app. You'll also find tutorials and some bonus content, including a quick 5-minute questionnaire. We'll feature your feedback in the next issue of Flight Comment!

Flight Safety Manuals: Your in-flight library with all the important documents you might need at your fingertips.

Flight Comment Magazine: Grab the latest issue or take a trip down memory lane with archived editions. Through the Flight Safety email, you can contribute articles, ask questions, and share your lessons learned stories for future issues.

Flight Safety Training: It's like your personal flight school, offering Powerpoint presentations, infographics, and manuals. Use it as your trusty reference or share it with your unit on training days for that extra knowledge boost.

Flash Debriefing Bulletin: Stay informed with the latest messages released via DWAN. It's like our version of in-flight announcements.

Investigation Reports: All the published reports, neatly organized from new to old. Catch up on findings or revisit anything you might have missed.

Investigation Tool: This is what DFS 2 uses for those deep dives into investigations. More importantly, if you've witnessed or been part

of an occurrence, you can quickly tap into this section to fill out a Self-Administered Interview while the memories are still fresh.

Flight Safety Posters: A treasure trove of Flight Safety posters awaits. If you're a Unit Flight Safety Officer (UFSO) and need some eye-catching material or want to bring back a classic but relevant poster, you'll find what you need here.

In a nutshell, the Flight Safety App is sleek yet packed with the information you need to navigate the skies safely. Remember to complete the questionnaire, so we can keep fine-tuning the app according to your preferences. If you have any questions or concerns, don't hesitate to contact us – it's never been easier, thanks to the app! Now, who's ready to take flight into the exciting new Flight Safety experience? 🛫



Photo: Cpl Ian Thompson

For Professionalism

For Commendable Performance in Flight Safety

Mr. Clayton Haight

On December 5, 2022, System Safety Technician (SST) Apprentice, Mr. Clayton Haight, was tasked to assist a qualified SST in the inspection of a CT156 Harvard aircraft's ejection seat leg lines. While inspecting the leg lines on the ejection seats, Mr. Haight identified cracking on the aft, right seat Capewell fastener. Upon closer inspection, both left and right sides of the Capewell fastener were found to be cracked. The damage identified on the Capewell fastener could have caused the lap belt to fail during flight.

If the Capewell fastener failed in flight during an aerobatic or "G" force manoeuvre, effective control of the aircraft could have been lost due to the pilot no longer being securely fastened in the seat. In addition, in an ejection scenario with the pilot's lower torso not retained in the optimum position fully back in the seat, downward "G" loading on the shoulders would force the pilot down and possibly result in injury.

Evidence of Capewell fastener cracking had not been reported on prior checks or on previous aircrew walkarounds.

Mr. Haight's professionalism and thoroughness removed a significant Flight Safety hazard. It is for these reasons that Mr. Haight is most deserving of the Flight Safety For Professionalism Award. 🏆



Photo: unknown

For Professionalism

For Commendable Performance in Flight Safety

Corporal Jascha Pabalate



On January 25, 2023, Cpl Jascha Pabalate conducted an exterior before-flight check on a CC130 Hercules aircraft. This check requires a general visual inspection (GVI) of the nosewheel well area. While inspecting area, Cpl Pabalate noticed that witness marks on multiple fasteners had become misaligned, indicative of hardware that had backed off and became loose. Upon further inspection, two of the eight fasteners for the nose landing gear trunnion fitting were found to be free spinning resulting in a safety of flight concern.

Non-destructive testing (NDT) examination also discovered small cracks in the nose landing gear trunnion hardware and attachment points, damage that would have otherwise gone undetected if not for the actions of Cpl Pabalate. Due to the location of the affected fasteners, partially obscured by hydraulic lines and combined with the quantity of aircraft components in that area, a scenario is created where a GVI in this area becomes challenging. In-depth visual

examination of the aircraft components in this area only occurred as a direct result of Cpl Pabalate's diligence.

By exhibiting superior attention to detail and outstanding professionalism, Cpl Pabalate's actions removed a potential significant Flight Safety hazard. It is for these reasons that Cpl Pabalate is most deserving of the Flight Safety *For Professionalism* Award. ✦

DOSSIER



RIME SALT

by Captain Tom Graham, CH148 Cyclone Crew Commander & Aircraft Captain
Major Stephen Brosha, HMCS *Fredericton* Helicopter Air Detachment Commander

Aircrew are very familiar with the impacts of icing conditions on their aircraft. Through training and experience the impact of even small amounts of ice accumulation have been proven to have a large impact on aircraft performance and safety. The deterioration of aerodynamic efficiency and increase in weight caused by icing build-up, for a helicopter in particular, leads to higher power requirements for a given flight regime. When flying in icing conditions it is imperative to be vigilant in monitoring and reacting to conditions conducive to icing.

Many aircraft, including the CH148 Cyclone helicopter, are fitted with systems designed to mitigate the dangers of icing conditions. In addition to pitot heat and engine anti-ice systems, the Cyclone is fitted with a Rotor Icing Protection System (RIPS), which provides heat to melt ice that has accumulated on the helicopter's rotor blades. The combination of such aircraft systems and vigilance on the part of aircrew, help to ensure we can safely operate in the harsh climates our missions require.

Recently, while deployed on Operation REASSURANCE in the Mediterranean Sea, the CH148 Cyclone Helicopter Air Detachment (HELAIRODET) on board HMCS *Fredericton* was able to participate in NATO Exercise DYNAMIC MANTA 2023, one of the world's premiere

multi-national anti-submarine warfare (ASW) exercises. A few days in, we were supporting a Combined Anti-Submarine Warfare Exercise (CASEX) with allied ships and aircraft, and we encountered a situation strikingly similar to icing conditions, but at low altitude and in comfortable temperatures around 16°C.

Our HELAIRODET was flying a three-sortie day, with all three flights participating in the CASEX. Given the considerable ranges and high tactical value of our HELRAS (Helicopter Long Range Active Sonar) to a naval task group fending off a subsurface threat, a 3-sortie day of sub-hunting meant we would be spending as much of our time as possible in the dip. In that one day alone, about five hours was spent in the dip.

For those who are unaware, a dip is when a helicopter—in this case our CH148 Cyclone, call sign PHOENIX—establishes a hover and deploys the sonar into the water via a reeling machine. The aircrew then sit in the dip while the SENSO (Sensor Operator) conducts a search, “pinging” the water space for any lurking underwater threat. This can take anywhere from ten minutes if cold (no contacts) up to an hour or more if maintaining tracking on a slow contact.

At the start of each dip, we run through what's called a “WATTS Check” prior to lowering the sonar dome into the water. First, we assess

wind, and attempt to ensure the helicopter is positioned into wind to ensure the performance of the aircraft is optimal. Any helicopter hovering is significantly impacted by the strength of the wind. Simply put, less wind equals more power required. In a low wind, temperate weather day for a CH148, we might anticipate hovering at approximately 95% torque for our weight and configuration. This number should decrease throughout the flight as we burn fuel, which should result in around a 15% decrease by the end of the sortie.

We move on to assess aircraft attitude, torque, and engine temperature (TGT: Turbine Gas Temperature) prior to directing the SENSO to lower the sonar dome into the water.

On this particular day during Exercise DYNAMIC MANTA, each PHOENIX sortie was spending between 1.5 to 2 hours of their 2.5-hour trip in the dip. By the end of the third sortie, the helicopter had been hovering at 80 feet above the water for almost five hours in total. During the first flight, we saw performance numbers well within the expected range. The crew of the second sortie noted slightly higher numbers, but logically assumed it was due to a decrease in wind. When the third sortie launched, the crew found the numbers to be higher still.



The crew of the third sortie proceeded to the dip with a calculated Hover Out of Ground Effect (HOGE) power required of approximately 98%. This number did not take wind into account, and we knew there was around 5–10 knots of wind, so we anticipated that our WATTS checks would indicate similar performance figures to the previous sorties, likely around 95% torque. We marked dip and found ourselves hovering at 104–106% torque, our maximum continuous torque is 113% while below 90 KIAS (knots indicated airspeed). This was a much tighter margin than we expected, making the situation slightly unpleasant. It was made even more uncomfortable because that particular trip was at night, so visibility was dramatically reduced. The pilots remarked that the high value was abnormal but could not immediately develop a reason why it should be so much higher aside from a possible decrease in wind speed as the evening progressed.

We continued with our support of the CASEX and did extensive dipping during that third trip. We noted our fuel flow and TGT to be higher than usual, though corresponding with the high torque values. By conducting our routine WATTS checks, we are alert to potential losses of power due to salt water being ingested into the engines. A few members of our HELAIRDET remember conducting routine WATTS checks from our previous CH124 Sea King experience and are attuned to the risk dipping poses in terms of salt encrustation on turbine engine stator vanes. Indeed, the process of post-flight engine rinses used in the Sea King has continued in the Cyclone era to ensure engine performance is maintained during ASW operations.

In any case, we continued with the dipping operations and throughout the final trip noted only a slight decrease in power, with values close to 96% torque in the final dip. We then returned to our ship for landing and noted similarly high torque values throughout the transit. The Aircraft Captain considered requesting an engine wash (beyond the routine engine rinse), but the symptoms we encountered did not seem to correlate with decreased efficiency within the engines themselves.

After mission completion, we were landed on deck. Due to ship requirements, the helicopter rotors were left spread. Upon shut down and disembarkation, a few technicians were standing under a main rotor blade, shining flashlights up at the end of the blade. The crew walked over and were very surprised to see that the rotor blade was completely caked in salt. Extremely similar to ice accumulation (ranging in appearance from light rime to moderate clear icing), the final four feet of the rotor were almost entirely white, rather than the usual grey-black. The remaining portion of the blade had a gradually diminishing presence of contamination as it got closer to the root of the blade. Everything immediately clicked for the crew. Never had the possibility of salt contamination—almost exactly like ice buildup—occurred to the crew as the culprit, but it explained all the puzzling symptoms we had experienced. A further walk around showed salt accumulation on the tail rotors, pitot tubes, mirrors and to a lesser degree on the leading edge of the sponsons and the front of the fuselage itself, all areas where we would expect to see ice accumulation in icing conditions.

The crew theorized that due to the low winds of the day, the helicopter rotor wash was not being pushed aft of the helicopter, but rather was just being recirculated up and around the helicopter continuously. Due to the extent of dipping throughout the three sorties, this gave extensive opportunities for the salt to build up and degrade the efficiency of the rotor blades. Perhaps the increased salinity of the Mediterranean Sea compared to the Atlantic Ocean was a contributing factor as well. One pilot on the HELAIRDET astutely noted that if salt water in the engines were the only consideration, there would be no corresponding increase in torque as the salt buildup continued after multiple dips, only an increase in TGT. So, it made sense that salt buildup on the control surfaces was the more significant factor here. In retrospect it seems obvious, but we had never experienced nor heard of such a phenomenon.

A Flight Safety HAZREP (Hazard Report) has been submitted by HMCS *Fredericton* HELAIRDET in relation to our experience, and members of the team are bringing this phenomenon to the attention of the 12 Wing Standards Forum for potential publication amendments to shed more light on this potentially insidious safety issue. Just as icing conditions render pre-flight calculations and safety margins untenable, unnoticed accumulation of salt on control surfaces and essential flight instruments like pitot tubes could be lethal. ❖

For Professionalism

For Commendable Performance in Flight Safety

Corporal Thomas Hillock



Photo: Sgt Kelly Press

In May 2023, Corporal Thomas Hillock, an Avionics Systems Technician in the 409 Tactical Fighter Squadron at Cold Lake, made a crucial discovery during routine maintenance on a CF188 Hornet aircraft. While replacing the Receiver-Transmitter of the Radar Altimeter system, Cpl Hillock noticed a discrepancy in the metals of a connector on the Receiver-Transmitter and its receptacle. Further investigation revealed that the connector had been replaced during an exercise in New Orleans on March 18, 2023.

Cpl Hillock promptly reported this issue to their supervisor and Squadron Flight Safety personnel, leading to a Flight Safety initial report and the necessary correction.

Subsequent research revealed that the NATO Stock Number for the connector had multiple Part Numbers in the Canadian Government Cataloguing System, highlighting the need for rigorous part verification to ensure compliance with Canadian Forces Technical Orders. The incorrect part had been stocked at other units that had previously replaced the Radar Altimeter Receiver-Transmitter connector, prompting a fleet-wide quarantine to prevent similar issues. Non-conforming parts were also found at other CF188 Squadrons, leading to their removal from the Supply System inventory.

If left unaddressed, the metal discrepancy in the connector would have caused galvanic corrosion, risking structural and electrical

integrity issues and the failure of the critical Radar Altimeter Receiver-Transmitter on the CF188.

Cpl Thomas Hillock's outstanding actions and meticulous research went above and beyond the expectations for their role. Their attention to detail and determination led to the identification of a fleet-wide issue that had previously gone unnoticed, potentially preventing repeated occurrences and their associated consequences across the entire CF188 fleet. As a result, Cpl Hillock is deserving of the Flight Safety For Professionalism Award. 🏆

For Professionalism

For Commendable Performance in Flight Safety

Master Corporal Elise Laviolette

On August 21, 2023, MCpl Laviolette reported a critical discovery to the Cadet Flying Instructor at the Trenton Cadet Training Centre. During a medication audit, it was revealed that a cadet was not taking their prescribed medication, despite being instructed to do so by the local Flight Surgeon and Transport Canada (TC) policy, which is essential for their fitness to fly.

Air Cadets at camp receive medication from camp personnel, and records showed the cadet had missed doses in July and August, resulting in two counseling sessions, but no higher authorities were informed. Missing a single dose required immediate grounding and violated federal law.

MCpl Laviolette promptly grounded the cadet and informed key personnel. A virtual meeting with the national Flight Surgeon confirmed the grounding and led to a mandatory report to TC about the cadet's license.

Her actions demonstrated professionalism and commitment to aviation safety, prompting a national-level response to review policy. She highlighted the lack of knowledge about TC medical certificate requirements among cadet personnel, earning recognition and commendation from TC authorities. MCpl Laviolette is deserving of the Flight Safety For Professionalism Award. 📌



Photo: Cpl Lucas Barrie

LESSONS LEARNED



Photo: S1 Victoria Logunov

by Anonymous

The feeling a technician gets when they receive the signing authority as a new Level A is an amazing feeling and to be honest, you feel like you finally have some power! The problem with that, is the possibility of complacency and too much pride over safety.

As a newly authorized Level A at 427 SOAS working in ARO, I was tasked with replacing the fire bottles on both sides of the CH146. My Sgt gave me a couple members from the Sqn to help with the change and eventual Function Check of the wires in that system. The two members were apprentices, and I didn't want to look incompetent during this procedure, so I decided the best way was to only refer to the CFTO's (Canadian Forces Technical Order) periodically as a quick reference and do the rest by knowledge. At the time, it sounded like the best thing to do – hindsight 20/20.

The purpose of the fire bottles in an emergency is for the Pilots to extinguish any fires that may happen in the engines using Halon. Halon is an excellent product to be used on fires because it literally removes oxygen from the area, thus preventing one of the three elements required for fire. It is very important to note to NEVER intentionally extinguish a Halon bottle indoors for the same reason it is used for fighting fires... It removes oxygen which also affects humans!

The "Swiss-cheese effect" has already begun on my part by neglecting the CFTOs. After completing the install of both bottles, then next part of the procedure was to do a function check and verify the wiring system for the Fire bottles were in proper working order. It was nearing the end of the day and I wanted to show my supervisor and both apprentices that I could complete the job with little experience.

Simply skimming through the procedure, I missed a very critical step, "Disconnect the wiring bundles from the Halon bottle BEFORE completing the Function Check of the wiring system." Thankfully, another technician just happened to come over and notice the testing kit attached to the wires while the wires were attached to the bottles and stopped the process before we started.

If I had continued, power would have been applied to the wires, inadvertently setting off the Halon bottles inside the hangar. Not only would it have taken our breath away, but the potential for greater, more serious breathing issues as well as an investigation from the Wing Environmental Officer and the possibility of losing my quals... All for my pride! ⚡

For Professionalism

For Commendable Performance in Flight Safety

Aviator Austin Bauder-Eldridge

Prior to the departure of a CC177 Globemaster III from the Comox Airport, Tower Data Coordinator Avr Bauder-Eldridge went above and beyond the positional requirements. He scanned the runway with binoculars because the west arrestor cable panel had been alarming falsely for several weeks. During this scan, Avr Bauder-Eldridge noticed that the west arrestor cable was raised halfway when it should have been fully down. As the CC177 was preparing to depart on Runway 12, he promptly alerted the duty aerodrome controller, preventing the issuance of takeoff clearance.

Arrestor cables are exclusively used by fighter aircraft and had the CC177 taken off with the cable raised, it would have jeopardized the safety of the crew and potentially caused significant damage to the aircraft. Avr Bauder-Eldridge's observation also led to immediate maintenance of the cable, considering that several CF188s and other visiting aircraft were present at the aerodrome for an exercise. His exceptional attention to detail and professionalism eliminated a substantial Flight Safety Hazard.

For these compelling reasons, Avr Bauder-Eldridge is highly deserving of this Flight Safety *For Professionalism* Award. 🦋



Photo: MCpl Loey Beaudin

SHADOWING THE *Controls*

by Anonymous

This is for all those instructors out there, new and old. We all fall into the mind frame from time to time where we get too comfortable with our students, we think we know them or can predict their thoughts and movements. For example, you are in the cockpit, your student is flying a very nice approach with a good glidepath and good airspeed. They correct nicely for the turbulence caused by that gust of wind. Crosswind corrections are used. Round-out is done at the right altitude. Nose is pitching up in the hold-off. Everything is looking smooth for landing... then at the last moment just before the wheels touch, your student unexpectedly pitches up more, causing the tail of the aircraft to hit the ground as the aircraft touches down.

Flying straight and level at altitude does not require one to have their hands right at the controls ready to correct the same way one would need to when their student is learning to land or perform an autorotation. In both cases though, the instructor needs to be closely monitoring the student. It is the critical phases of flight where we need to have our hands right at the controls ready to correct. The above example for instance, actually happened. The instructor was not shadowing the controls. In cases like this, instructors don't want to confuse the student if they must apply some pressure on the controls to help correct, they may not want the student to think they are doubted, or they may feel the student is handling the aircraft nicely and will continue to do so.

Shadowing the controls can mean different things. It may just mean that we have our hands close, ready to take the controls if required. It could mean we have our hands

firmly in place to prevent a student from an error that we have seen others perform. Instructors are aware of the risks of a tail strike on the CT102 Grob. Placing a hand behind the stick ready to prevent the nose from pitching too high on landing or to decrease the attitude is quite common. Why do we do this? It is because we don't want to join the "tail strike club". Shadowing the controls can also take on a more direct approach. That is, the instructor's hands are on the controls following the student as there is no margin for error. Bottom of an autorotation for example or when the student is learning to hover or approach the stern of a ship. It is very common to have hard landings in helicopters if the instructor is not shadowing the collective closely.

Working together with the student requires proper communication. They must know that you will be on the controls with them, but that they are still in control and flying the aircraft. Unfortunately, we have had a couple of cases where this was taking place and the instructor made a correction and then relaxed. The student thought the instructor was taking control and they relaxed. The aircraft started to change attitude in an undesired way and the instructor had to quickly take control to correct. How did this happen? Communication. There is a phrase we all learn when we first start learning how to fly. "I have control", "You have control". We must remember to use this when we are making any corrections on the controls when the student is flying. There can be no doubt as to who has control.

Shadowing the controls does not mean a lack of trust all the time. Think of how many times your instructor took control while you were learning.

It is simply a normal part of learning how to fly. We are not born with a natural ability to fly; it must be learned. Of course, mistakes will happen while learning. That is quite normal, no matter how well someone is doing. Communication will help the student to understand what the instructor is doing, and why they are doing it. The student needs to be aware that we will be shadowing the controls and that it is a normal part of our job. Instructors are taught that there are common errors that occur with new manoeuvres, so when they arise, we need to be ready for them and shadowing the controls is how we do this. To help your students understand, point them to Flight Safety investigations. How many have occurred over the years where qualified pilots have made errors?

Finally, we must not allow our students to lull us into a false sense of security. That is when things go wrong, and we end up filing a Flight Safety report. There was an occurrence years ago when an instructor relaxed because their student was recognizing and correcting nicely, until the round-out. The round-out did not go as planned and a very hard landing resulted. The right main wheel broke off and the left main landing gear was bent at an unnatural angle. The crew did manage to come back around and land the aircraft safely, but this demonstrates that we can never let our guard down.

Shadowing the controls is one way of ensuring a safe flight. Whether we are on the controls with our student, ready to prevent undesired inputs or just close to the controls ready to take over, we must always be primed for the unexpected. ⚡

Photo: MCpl Johanie Maheu

For Professionalism

For Commendable Performance in Flight Safety

Corporal Gaël Autmizguine

On Jan 10, 2023, Cpl Autmizguine was participating in the start of CH148809. The aircraft had been towed outside with the main rotor blades spread and the tail pylon folded. The marshaller made the decision to manually spread the tail before start-up. Unbeknownst to everyone participating, the main rotor blades had not been positioned correctly to ensure clearance for the tail blades and due to the auxiliary power unit running and the hydraulic ground pump on, the tail would spread expeditiously instead of the slower pace with the manual hand pump method.

When the spread selection was made, the tail moved faster than everyone anticipated. Realizing there was no time to stop the spread to avoid the impact between main and tail rotor blades, Cpl Autmizguine lunged to quickly disengage the gust lock on the moving tail. This permitted the tail rotor head to spin freely, thus diminishing the impact and preventing severe damage to a main and tail rotor blade. By saving these flight critical components, aircraft 809 was flying the next day enabling 443 (MH) Sqn to continue to meet its operational flying requirements.

Cpl Autmizguine's exceptional situational awareness, decisiveness and swift action exemplify the spirit of the Flight Safety Program and the highest levels of professionalism seldom seen. Cpl Autmizguine is well deserving of the Flight Safety For Professionalism Award. 🇨🇦



Photo: Capt Jonathan Mishirigi



Diligence in Cold Weather

by Sergeant Adam Pfeifer

Photo: S1 Zach Barr

Winter in Canada can be miserable, temperatures drop in the negative thirties then add some wind chill and this creates undesirable working conditions outside to say the least. The cold can numb your body and your mind, leading to complacency and rushed jobs. A factor that led me to making a critical mistake, which resulted in a dangerous situation and considerable damage to a CF188 Hornet.

It was on one of those dreadful winter days when one of my squadron's jets required an afterburner functional. As I am the Unit Run-Up Standards Supervisor, I decided to use this opportunity as an assessment run for one of my peers. This particular individual was an excellent technician, and he completed all of the pre-run-up safety checks without any issues.

At this point in the checks, it is required to climb into the cockpit to monitor and assess instruments for start-up. I decided to climb up into the cockpit's back seat with my counterpart climbing in the front. I was properly dressed for the weather; however, it made climbing the ladder extremely difficult and cumbersome. Even with all my gear on, the seat felt like

sitting on a block of ice. Instantly, I could only think of completing the task and returning to the warmth and comfort of inside.

The ground crew was completing one final step before the run: attaching the safety screens over the engine intakes. These are installed to prevent the engine from ingesting any FOD (Foreign Object Debris). Also, during maintenance, members are more likely to enter the danger areas and could be at risk of being fatally ingested without a safety screen, thus, they are required for all maintenance runs to mitigate the hazard.

At this point I was feeling quite cold, only to find out that the ground crew discovered one of the screens was missing the attaching hardware, so they needed to retrieve another one from the hangar. It took close to ten minutes for them to return to the run-up pad, meanwhile, I was miserable and starting to feel numb all over. Hoping this would be over soon, I was happy to see the ground crew return to work. Then the new screen turned out to have another issue: the hold-back pin is hardware that secures the screen onto the airframe. The screens are held in place by two quick release pins. This one did not

have enough slack to be properly inserted. I had a hard time trying to focus on the task due to the extreme climate and decided to wave off the crew, thinking that this would not be a problem since there are two and the ground crew created a make-shift solution (the pin was secured to the screen with a lanyard which, to my belief, would not become a hazard).

This was not the case; once the jet was brought to full afterburner, there was an explosive bang from a compressor stall. Inside the cockpit, cautions lit up on the screens and blared into our headsets. My counterpart at the controls reacted flawlessly and shut down the engines almost immediately. We then assessed the damage; the pin broke loose from its lanyard and severely destroyed everything in its path through the engine. I can safely say the temperature was the last thing on my mind at this point.

Luckily the damage was contained within the engine's casing and the aircraft was spared. However, I learned a very important lesson that day: being miserably cold can seriously affect one's priorities and judgements but is no excuse for deviating from proper procedures. ❖

Epilogue

TYPE: CT145D King Air 350 (C-GEAS)

LOCATION: Thunder Bay, ON (CYQT)

DATE: 31 January 2022

The accident aircraft was from the Multi-Engine Utility Flight out of 8 Wing Canadian Forces Base Trenton, ON and was on a training mission with three crewmembers on board.

The aircraft departed 8 Wing Trenton on an Instrument Flight Rules flight plan, with a destination of Thunder Bay Airport, ON. Following a routine climb out and cruise, the aircraft was cleared for the RNAV Z 25 instrument approach into Thunder Bay.

The aircraft was configured for the approach and flown utilizing automation.

Approximately two miles back from the runway and with the airport visual, the pilot elected to continue the remainder of the approach manually and disconnected the autopilot. As the aircraft crossed over the runway threshold with a height above ground of approximately 50 ft, the pilot flying moved both power levers to idle with the intent of landing.

A left yaw quickly developed followed by a rapid drop of the left wing. The pilot monitoring the approach took control and initiated an overshoot, however the left wing tip contacted the runway surface and the aircraft progressed



Photo: Galen Burrows

uncontrolled into the snow-covered infield. Once the aircraft came to rest, the three crewmembers egressed the aircraft.

The aircraft sustained very serious damage and the pilot flying suffered a minor injury, while the other crewmembers were not injured.

The investigation determined that the aircraft was documented serviceable prior to the flight and that no issues were evident to the crew before the power levers were brought to idle. Post-accident analysis of the recovered aircraft

flight data and componentry determined that a part within the propeller speed governing system failed to function nominally, specifically the beta valve or the beta solenoid. This led to the left-hand propeller windmilling, which was the most likely cause of the accident. Since the beta valve was damaged and internal parts lost during the accident sequence, a definitive determination of its serviceability could not be conducted. ❖



Photo: DFS

Epilogue

**TYPE: BL28 Bellanca Scout
(C-GBAZ)**

LOCATION: Brandon, MB

DATE: 20 June 2022

The accident flight was part of the Air Cadet Gliding Program in Brandon, MB and in support of 2022 Cadet Training Centre – Brandon. The Bellanca Scout aircraft is used to tow gliders to altitude where the glider would release from the tow plane and conduct their training mission.

After measuring out and inspecting the proposed glider operations area on the South Infield of the Brandon Municipal Airport, the pilot and one passenger launched from Runway 26, flew a standard circuit and lined up for landing on the planned Tow Plane Landing Strip on the infield. Shortly after landing the aircraft encountered a significant amount of standing water. The hydrodynamic forces on the forward landing gear acted similar to excessive braking, causing the aircraft to pitch forward. The propeller made

contact with the ground and the aircraft continued to pitch forward, passing vertical and coming to rest upside down on the upper wing surface and the tip of the vertical tail section.

The aircraft sustained very serious damage. The pilot and passenger were not injured.

The investigation did not reveal any evidence of technical issues with the aircraft and focused on human factors. Due to an inadequate inspection of the proposed operational area, and relative obscurity of the visual cues that may have indicated the potential water hazard, the pilot was unaware of the existence of the water, and its depth, prior to landing. Given the speed on landing, combined with the hydrodynamic forces of the water acting on the forward landing gear, once contact with the water was made the roll-over became inevitable.

The preventive measures recommended include modifications to the published inspection procedures and criteria as well as initial and routine training on recognition of visual cues that may indicate potential hazards for all personnel within the Cadet Training Program. 🚩



Photos: NCdt Neufeld

Epilogue

TYPE: CH146 Griffon
(CH146495)
LOCATION: North of Edmonton, AB
DATE: 20 July 2022

The mission consisted of a two-ship formation flight originating from the Edmonton Namao Heliport and heading to an area called Redwater for a troop extraction. As part of the mission the two CH146 aircraft were conducting a formation tactical low-level navigation training flight in the Tactical Low Flying Area.

The formation involved aircraft CH146449 (*Gander 21*) and CH146495 (*Gander 22*), with *Gander 21* in the lead for the first portion of the mission. After a planned lead change *Gander 22* took the lead for the second half of the tactical low-level navigation. It was during that portion of the mission that *Gander 22* struck a distribution power line when the aircraft was flown in a gap in the trees above a road crossing. The wire strike occurred approximately 67 km northeast of the Edmonton Namao aerodrome, across Township Road 190.

After the wire strike *Gander 22* did not land but continued flying to the troop extraction point Redwater, after which the formation split. *Gander 22* returned to Edmonton Namao airport without further incident.



The aircraft sustained serious damage and there were no injuries. The severed live wire started a small grass fire that was extinguished by the Smokey Lake Fire Department. Eighteen homes lost power for approximately four hours before repairs were completed.

The investigation determined that due to distraction from unrelated discussions in the

cockpit, the crew was in a relaxed state and reduced their vigilance to the low-level environment obstacle threats. It was found that cultural aspects at the unit led to crew decisions which ignored published procedures.

Recommendations include changes to procedures as well as further training in Human Performance in Military Aviation. 🦋



Photos: Sgt Yves Desfossés

