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AVIATION SAFETY LETTER

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Learn from the mistakes of others;

You'll not live long enough to make them all yourself...

Canada 

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Do You Know What to do in the Event of a Cockpit Illumination?

by Simon St-Pierre, Civil Aviation Safety Inspector, Quebec Region, Civil Aviation, Transport Canada

Cockpit illumination incidents caused by laser pointers have increased significantly in Canada. At the beginning of the 2000s, there were a few cases a year. In 2009, there were more than 105 incidents and in 2015, this tally reached nearly 600 incidents. Most incidents occur at night near airports in major Canadian cities.

In Canada, beam strength is not regulated; however, anyone who projects a high-intensity beam of light toward an aircraft can be charged under the *Aeronautics Act*. An individual found guilty can face a fine up to \$100,000, five years jail time, or both. They can also face charges under the *Criminal Code of Canada*, which can have serious consequences.

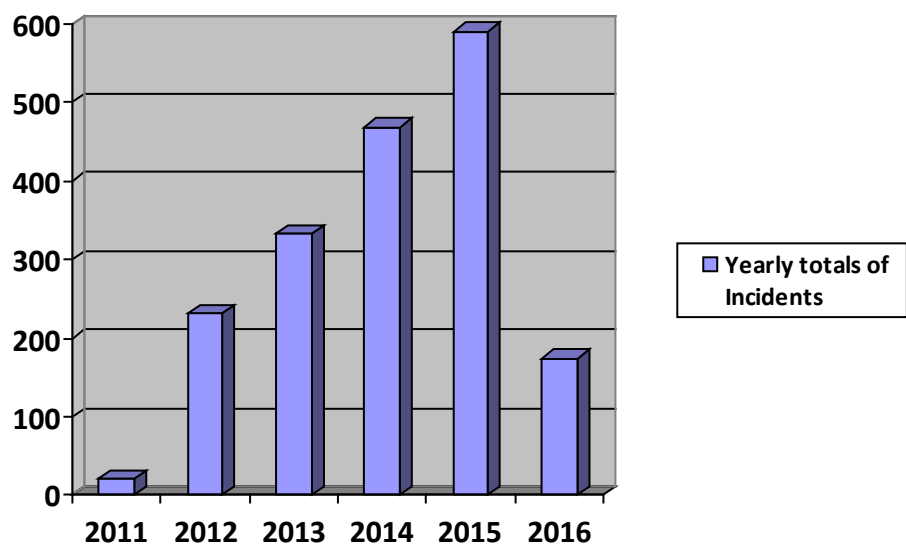
There are several types of lasers. A 5 milliwatt (5 mW) laser pointer, such as the ones often used by amateur astronomers, can create a distraction up to 12 000 ft and can be dangerous to the eye if closer than 260 ft. In contrast, a 1-watt (1 000 mW), hand-held laser pointer can create a distraction at more than 170 000 ft and can be dangerous to the eye if closer than 3 600 ft.

Even though curiosity may cause a crew member to find the source of a laser beam, it can be dangerous to look towards the source. The effects can range from a loss of night vision to permanent eye damage. With powerful hand-held laser pointers (1 W) now on the market, it is important to follow the safety measures suggested in [AIR 4.15.2.2.2 of the Transport Canada Aeronautical Information Manual \(TC AIM\)](#).



This image illustrates the possible effects of a 5-mW green laser pointer on vision, depending on the distance separating the aircraft and the light source.

Number of Incidents Where an Aircraft was Targeted by a Laser



Laser Incident Procedures

If a laser beam illuminates a pilot in flight, the pilot should:

- a) immediately look away from the laser source or try to shield their eyes with their hand or a hand-held object to avoid, if possible, looking directly at the laser beam.
- b) immediately alert the other flight crew member(s) and advise them of the illumination and its effect on their vision.
- c) if vision is impaired, immediately transfer control of the aircraft to the other flight crew member. If other flight crew members have been illuminated, engage the autopilot (if equipped).
- d) be very cautious of spatial disorientation effects (e.g. the leans). After regaining vision, they should check cockpit instruments for proper flight status.
- e) resist the urge to rub their eyes after a laser illumination, as this action may cause further eye irritation or damage.
- f) contact air traffic control (ATC) and advise of a “LASER ILLUMINATION”. Use this terminology for all laser incident/accident reports. If the situation dictates, declare an emergency.
- g) when time permits, provide ATC with an incident report that includes the laser location, direction, and beam colour as well as the length of exposure (flash or intentional tracking) and the effect on the crew.

NOTE:

To ensure that TC has sufficient information to analyze and investigate occurrences, please complete the Directed Bright Light Illumination Incident Report/Questionnaire available at http://wwwapps.tc.gc.ca/wwwdocs/Forms/26-0751E_1405-03_E_X.pdf and send the completed form to services@tc.gc.ca.

TC works with various agencies to maintain a high level of aviation safety in Canada. We must continue to work together to ensure that the growing trend of these incidents does not result in serious accidents. For more information, visit www.tc.gc.ca/Lasers. △

CADORS Laser Incidents 2011-2016

Province	2011	2012	2013	2014	2015	2016
Alberta	26	17	24	22	28	10
British Columbia	37	50	69	70	82	47
Manitoba	8	14	5	7	10	3
New Brunswick	0	1	4	1	3	1
Newfoundland and Labrador	0	2	1	5	0	0
Northwest Territories	0	0	0	0	0	0
Nova Scotia	2	2	3	3	4	0
Nunavut	0	1	0	0	2	0
Ontario	94	157	219	174	235	69
Prince Edward Island	0	0	0	0	1	0
Quebec	57	81	127	177	214	40
Saskatchewan	7	8	17	14	11	4
Yukon	0	0	0	1	0	0
Yearly Totals	231	333	469	474	590	174

Fatigue

The following article, taken from the Civil Aviation Authority of New Zealand's Personal Preflight Web site, has been edited and adapted. This text about fatigue is part of an online course. For more details, please visit: <http://avkiwi.co.nz/>.

Introduction

Fatigue is a feeling of tiredness, exhaustion and lack of energy. It usually comes from a combination of mental, physical and emotional influences.

Fatigue is recognized worldwide as a leading cause of accidents and incidents.

In 2009, an ATR-42 on a night cargo flight crashed in extremely poor weather conditions, including low cloud and freezing drizzle, during an instrument landing system (ILS) approach. The aircraft was written off but the crew escaped unharmed.

An aircraft flap problem, combined with the weather and poor aircraft control and decision making by the two crew members, was identified as the main cause.

Another significant cause was also identified. The captain was suffering from severe sleep debt due to split shifts. The resulting fatigue led to severely impaired performance by the experienced captain.

Effects on personal performance

Fatigue will affect your work performance, including your work output and the completion of complex tasks such as planning and flying.

A number of factors may induce fatigue, including:

- inadequate rest and recovery—sleep disruption
- disturbed biological rhythms—working outside the 24-hour clock cycle
- excessive muscular or physical activity—short sector flying operations
- excessive mental work—paperwork, decision making, management, personnel

Fatigue can lead to other significant effects on your performance, such as impaired decision making, short-term memory loss, lack of task attention, poor communication and slowed reaction times.

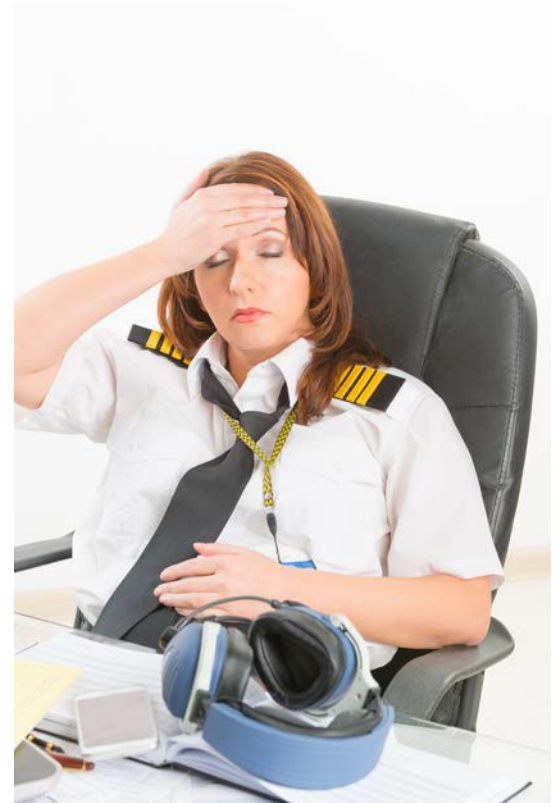
An experienced agricultural pilot completed a 14-hr duty day that included 10 hr of productive flight time and 130 takeoffs and landings. During the ferry flight back to their base at the end of the day, the pilot admitted to the loader driver that he could not remember the last hour of productive flight!

Physical and mental fatigue had led to short-term memory loss and a loss of situational awareness. Combine impaired decision making with a lack of adequate rest and water intake, and we can see how personal decisions and actions created a potentially lethal situation.

Effects on relationships

Feeling fatigued is a personal assessment of how you feel.

Lack of sleep, long hours at work (which can lead to sleeping outside the normal 24-hr cycle), and personal commitments to family can bring on fatigue.



When it comes to rest, most of us will choose family demands over our own sleep requirements. Your family will thank you but your body might not.

People around you may not see your fatigue, but they will see the effects of your fatigue. Your family will quickly notice any character changes, and your workmates will see the changes in your manner and performance.

It is up to you to manage the overall effect this has on your home and work relationships. You need to be honest with yourself about your levels of fatigue and your part in other people's lives.

Sleep

Sleep is a state of partial or full unconsciousness, and it must be achieved for the body and mind to rest and be restored. In general, we need seven to nine hours of sleep every 24 hr. Any less can cause the onset of fatigue.

When you do not get enough sleep, your mental and physical performance is reduced. Sleep loss can be cumulative and over time a sleep debt builds. For example, if you need eight hours sleep per day and only manage six hours a day over four days, then you have accumulated an eight hour sleep debt.

What effect does this have? Recent research indicates that the effect of 17 to 24 hr of continuous wakefulness is equivalent to a blood alcohol concentration of 0.05%–0.10%.

Both the quality and quantity of sleep are important. They are determined by your activities during the 24-hour cycle. Humans are programmed to be active during the day and to sleep at night. Shift work or night rosters disturb your body clock.

Sleep inertia is the disorientation and reduced alertness that is felt when you first wake up. It can impact your performance and has been identified as a factor in several accidents and incidents.

There is a very popular smartphone app that claims to be able to monitor your sleep patterns and wake you during your lightest phase of sleep, thereby eliminating sleep inertia. You can find the app here: <http://www.sleepcycle.com/>.

Micro sleeps are very short periods of sleep, typically less than three seconds, that happen when you are fatigued and are trying to stay awake to perform a monotonous task. You will not know that you have been asleep, but your blank stare and head snapping will alert others.

Sleep disorders, such as sleep apnea and insomnia, are treatable. Talk to your doctor for advice.

How can you get the sleep you need? There are a number of things that you can do. Make sure that the bedroom is designed for sleeping. Keep it this way by taking out all items that are non-essential to sleep, such as computers and workout equipment. You need a quiet, dark area to sleep in, especially if you are away from home.



Fatigue and alcohol

Alcohol is a central nervous system depressant. It is also a diuretic; it flushes water from the body.

In large amounts (four or more standard drinks), alcohol will make you fall asleep or pass out quickly. This reduces the quality of your sleep, may cause you to wake frequently to go to the toilet, and may cause you to wake up feeling less than refreshed.

Your sleep will also be interrupted if you consume alcohol or stimulating drugs close to your usual bedtime.

A hangover leads to increased sleepiness and reduced alertness. It can also cause stomach upset, which can lead to dehydration and fatigue.

Combining these factors leads to fatigue-impaired performance, especially in high workload and demanding situations such as during in-flight emergencies.



Managing fatigue

There is no simple answer to managing fatigue but we know that we need to do so. Managing fatigue is about modifying behaviour. We have talked about some of the causes of fatigue, and the risks of trying to operate aircraft or use engineering skills when fatigued. How can you change the way you look at fatigue? There are several things you can do. Understand that you are not immune to fatigue, and that you should be aware of the symptoms both at work and at home.

A good idea is to arrive at the airfield fit to fly, both mentally and physically. Also, keep the lines of communication open with your family and those involved in your flying. Talk to your safety officer, flight instructor and other aviation folk. They will see any signs of fatigue that you might be showing, and they can help you avoid behaviour that creates stress and fatigue.

Your plan for managing fatigue must include getting quality sleep and rest.

Think about your family and their demands. They want you to be part of their lives, so you may need to plan your work and rest around seeing them.

Home can mean demands on your time to maintain, clean, and complete household chores in addition to paying for the property.

Now, what about you?

Have you made space to enjoy your own time? Are you drinking plenty of water and eating healthy food? What about personal fitness levels? Do you still have time for a walk, a round of golf or a bike ride? Do you see a balance between life and work?

Do not forget age considerations. Just because we are getting older does not mean we should relax. Plan for any special requirements you might have, and know the effects of any medication that you are taking. Seek medical advice regularly. Manage your fatigue by knowing what it looks and feels like, and develop a plan to manage its effects.

How to measure your own level of fatigue

The best and easiest way to manage your own level of fatigue is to know when to say "I've had enough." By making this bold exclamation, as a result of a rigorous self-evaluation process, you identify those symptoms of fatigue that are affecting your performance and your personality.

The other way to measure your fatigue is to have someone else, someone you trust, make the fatigue assessment. They should know the warning signs of behavioural change, including:

Physical signs

- falling asleep
- head nodding
- heavy eyes
- lack of coordination
- headaches
- double vision

Mental signs

- making errors
- impaired decision making
- lack of concentration
- lapses in memory

Emotional signs

- irritable and moody
- lethargic
- quiet and withdrawn or loud and aggressive

You and your aviation organization can develop a plan for managing and measuring fatigue. Whatever options you choose, educating yourself and showing how you can deal with fatigue will have positive effects on safety.

Key points

- Fatigue is a causal factor in accidents.
- Understand that fatigue is normal and that no one is immune.
- Know the symptoms of fatigue.
- Fatigue affects your ability to fly safely.
- Your relationships with family and workmates may suffer if you are fatigued.
- Sleep, or a lack of it, is a major part of the fatigue puzzle.
- Alcohol, a poor diet, and insufficient water intake can increase fatigue.
- You must manage your own levels of fatigue; but, if you work for a commercial venture, your operator is required to look out for your health too.
- Measure your fatigue levels and take appropriate action.
- Trust others' evaluation of your performance and behaviour. △



Transport Canada's 13th Technical Standard Order (TSO) Workshop

The 13th Technical Standard Order (TSO) Workshop will be held on September 13-14, 2017 at the Marriott Hotel at 100 Kent Street in Ottawa. Manufacturers, installers and operators of TSO articles and regulatory authorities (EASA, FAA, Transport Canada) will have the opportunity to present and discuss policy and technical initiatives, and issues related to TSO articles. [Register for the TSO Workshop](#)

Transport Canada's Fit to Fly Workshop

by Sean P. Borg, A/Chief, Technical Programs & Evaluation (TPEC), Standards, Civil Aviation

Transport Canada's (TC) first-ever Fit to Fly workshop was a success thanks to collaboration with the aviation industry. On June 6 and 7, over 200 attendees from across the industry gathered in Gatineau, Que., to learn how to support aviation personnel with mental health and substance abuse disorders in the interest of aviation safety.

The workshop's purpose was to raise awareness about mental health and substance abuse disorders, provide information about best practices and programs, share practical methods of promoting a healthy workforce, and address the topic of random drug and alcohol testing.

The workshop also aimed to cultivate trust and acceptance in aviation culture, which would enable those who need help to safely self-identify.

The Fit to Fly workshop featured four panels centered on various topics pertaining to mental health and substance abuse disorders. Each panel prompted high levels of engagement from audience members through meaningful discussion, debate and questions.



The first panel was entitled "Understanding Mental, Physical and Substance Abuse Disorders." It educated the audience on how to understand these disorders as well as their associated stigmas. For example, panellists explained that alcoholism is a brain disease, and that the focus should be on impairment rather than intoxication. The panel discussed how mental health disorders should be treated like any other disease in the workplace and how a mental health disorder can be managed with a subsequent return to flight status.

The second panel was called "Tools, Programs and Best Practices." It focused on the support/assistance programs that the panellists have in place at their respective organizations; the panellists also shared lessons learned. Best practices presented by this panel included having volunteer-run programs and confidential counselling services.

In response to audience questions, these first two panels provided input on how pilots from large and smaller airlines as well as other aviation workers (e.g. maintenance workers) can be accommodated.

The third panel, "Prevention, Implementation and Measuring Success," highlighted the fact that the well-being of employees and peers is a responsibility shared between TC and the aviation industry. It also stressed that employee assistance programs are important to achieve aviation safety. Prevention tips included the importance of having integrated health and wellness programs that support healthy work environments, emotional health and healthy lifestyles.

The final panel was entitled "Rights, Regulations and Roles." It clarified how the existing legislative and regulatory framework deals with mental health and substance abuse disorders, what our rights are, and what additional role the regulator may play. For example, it highlighted that employees have the right under the *Canadian Human Rights Act* to be accommodated by their employers if they are struggling with addiction and/or mental health disorders.

This panel also discussed random/mandatory drug and alcohol testing and enforcement. It revealed that views on mandatory testing range from supportive to complete opposition. There were also varying opinions regarding the enforcement of regulations.

The panel emphasized that all testing regimes need to take into account human rights implications, privacy laws and the employer's duty to accommodate.

On the [Canadian Human Rights Commission Web site](#), there is information for employers on topics such as the duty to accommodate, how to create an inclusive workplace, and how to manage an employee's return to work.

Many audience members asked questions about cannabis use. It was strongly reinforced that TC will continue to have a zero tolerance policy for cannabis, regardless of whether it becomes legal, as cannabis use is not consistent with being medically fit to fly.

Panellists shared a lot of valuable information at the Fit to Fly workshop. TC is making this material available on [Smart Pilot](#) and encourages you to consult it and promote it within your community.

It is important that we continue to talk openly about mental health and substance abuse disorders. Doing so contributes to what is likely the most effective safeguard against troubled workers reporting for duty. TC will host Fit to Fly sessions at industry conventions later this year and those sessions will be listed on the TC Web site.

Please visit www.tc.gc.ca/FitToFly for more information. △

Report Unsafe Unmanned Aircraft Use



On November 29, 2015, a DHC-2 pilot observed an unmanned aircraft close to his aircraft as he was positioning for takeoff from Vancouver Harbour Water Aerodrome (CYHC). The pilot alerted the CYHC tower, which contacted the Vancouver Police Department (VPD). The VPD located the unmanned aircraft operator in Crab Park. He was released at the scene.

The investigation showed that the unmanned aircraft was flown over the water north of Vancouver Harbour, flying 50–100 ft over a DHC-2 that was taxiing for takeoff. Fortunately, the pilot saw the unmanned aircraft, interrupted his procedure to maintain a visual of the aircraft, and reported the aircraft to air-traffic services (ATS). The unmanned aircraft was also operated between the aerodrome and an approaching helicopter. ATS was able to communicate the hazard to the flight crew of the helicopter.

The case was referred to Crown counsel and the operator was charged under *Canadian Aviation Regulation* (CAR) 602.45. The offender pleaded guilty in provincial court and received a \$3,000 fine. It was determined that the aircraft was a model aircraft, rather than an unmanned air vehicle (UAV). Regardless of the distinction, it is important that unsafe unmanned aircraft be reported.

The actions of the pilot who reported the unmanned aircraft allowed the proper authorities to be notified, and actions were taken to ensure that the unmanned aircraft did not continue to pose hazards to aircraft at the aerodrome. Reporting unmanned aircraft helps to prevent hazardous situations and improve aviation safety.

For more information about how to report unsafe unmanned aircraft use, please visit www.tc.gc.ca/eng/civilaviation/opssvs/report-drone-incident.html. △

Accident Synopses Involving Unmanned Air Vehicles (UAVs)

Note: The following accident synopses are Transportation Safety Board of Canada (TSB) Class 5 events. These occurrences do not meet the criteria of classes 1 through 4, and are recorded by the TSB for possible safety analysis, statistical reporting, or archival purposes. The narratives may have been updated by the TSB since publication. For more information on any individual event, please contact the TSB.

— During the popular *Défi 5 kilomètres en couleurs* event held at Lorne Worsley Park in Beloeil, Que., a *DJI Phantom* unmanned air vehicle (UAV), piloted remotely by a citizen, fell on the ground from a height of 25–50 ft. The aircraft struck and injured a person in the head; an evacuation by ambulance to a regional hospital was required. The UAV was operated recreationally above a group of people without an operations certificate and without authorization from event organizers. TSB A16Q0063.



— A *de Havilland DHC-8-300* was conducting a flight according to instrument flight rules (IFR) from Saint John (CYSJ), N.B., to Montréal/Pierre Elliott Trudeau Intl (CYUL), Que., with 42 passengers and three flight crew members on board. When it was at 11 NM, on final approach for CYUL at 4 000 ft, an unmanned air vehicle (UAV) flew by, 30–40 ft below the aircraft. The flight crew did not have time to take evasive action. The aircraft landed without incident and no one was injured. TSB A17Q0044.

— An *Embraer ERJ 190-100* aircraft, from Toronto/Lester B. Pearson Intl (CYYZ), Ont., to Saskatoon/John G. Diefenbaker Intl (CYXE), Sask., was on a 2.5 mi. final approach for Runway 09 when the aircraft encountered what seemed to be an unmanned air vehicle (UAV) or a radio-controlled (RC) model aircraft. The UAV/RC model came within approximately 100 ft of the Embraer ERJ 190. The flight continued and landed without further event. TSB A16C0099.

— A *de Havilland DHC-8-402* aircraft was conducting a flight from Montréal/Pierre Elliott Trudeau Intl (CYUL), Que., to Ottawa/MacDonald-Cartier Intl (CYOW), Ont. During the final approach to Runway 07 at 1 500 ft above ground level (AGL), the flight crew briefly observed an unmanned air vehicle (UAV) at their 11 o'clock position, approximately 4.2 NM from the threshold of the runway. The pilot flying made a small roll input as an evasive manoeuvre, and the UAV passed just under the left wing of the aircraft. There was no damage to the aircraft, and no reported injuries to the occupants. TSB A17O0079.

— A *de Havilland DHC-8-106* aircraft was en route from Island Lake (CYIV), Man., to Winnipeg/James Armstrong Richardson Intl (CYWG), Man. The flight was about to level off from its descent to the assigned altitude of 2 700 ft above sea level (ASL), on a right downwind for Runway 36. As the aircraft was approximately a half mile north of the St. Vital shopping mall, the flight crew observed an unmanned air vehicle (UAV) about 100 ft from their right wing and about 100 ft below the flight path. The UAV was light in colour, was three feet wide with at least six rotors, and appeared to be moving in the same direction as the flight. No evasive manoeuvres were required and the aircraft landed without further incident. The UAV was detected on primary radar and the Winnipeg Police Service was notified. TSB A16C0056. △

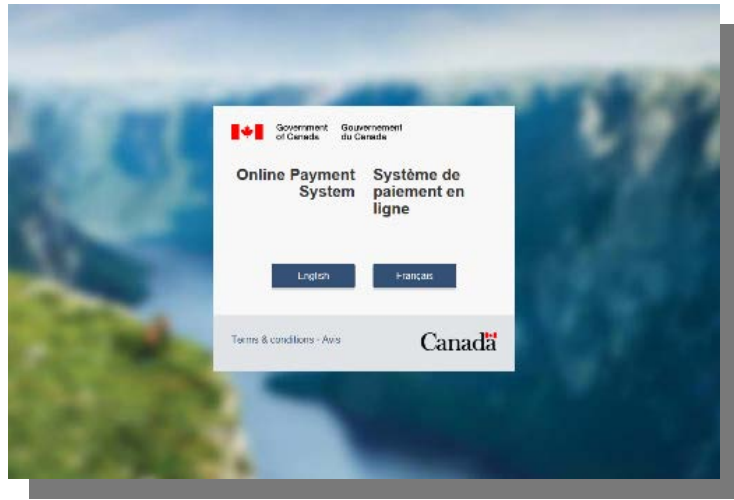
Transport Canada's New Online Payment System

To better serve the aviation industry, Transport Canada Civil Aviation has introduced an online payment system as a means of paying for 29 high-volume services.

The online system is secure, convenient, easy to use and available for our clients and delegates whenever they need to submit one or multiple regulatory fee payments.

Effective immediately, when applying for any of the following services, clients can use the online payment system at www.canada.ca/payments-air to submit the required fee payments for:

- Replacement of a lost or destroyed Licence, permit or certificate
- New licence or permit
- New rating
- Temporary licence, permit or medical certificate
- An invoice (medical certificate fee or other invoices)
- Aircraft marks
- Aircraft certificate of registration
- Flight test conducted by a Transport Canada inspector
- Written examinations



Online Payment System
www.canada.ca/payments-air

The system is designed to process payments for multiple applications under any service grouping listed above. It accommodates individuals paying for their own services and supports delegates involved in licensing, aircraft registration and examination activities paying for services on behalf of others.

Once a payment is processed, a receipt and a confirmation email will be sent listing all the services purchased in that session. Both email messages will include an **ORDER ID** number that must be included on application forms before they are submitted to the department for processing.

For application requests that have already been submitted to the department and for which an ATS reference number has been received, the reference number can be included in the payment system.

The online payment system does not replace traditional methods of payment. Credit card payments can still be made by telephone by calling 1-800-305-2059. Cheques will continue to be accepted provided they are attached to the application submitted.

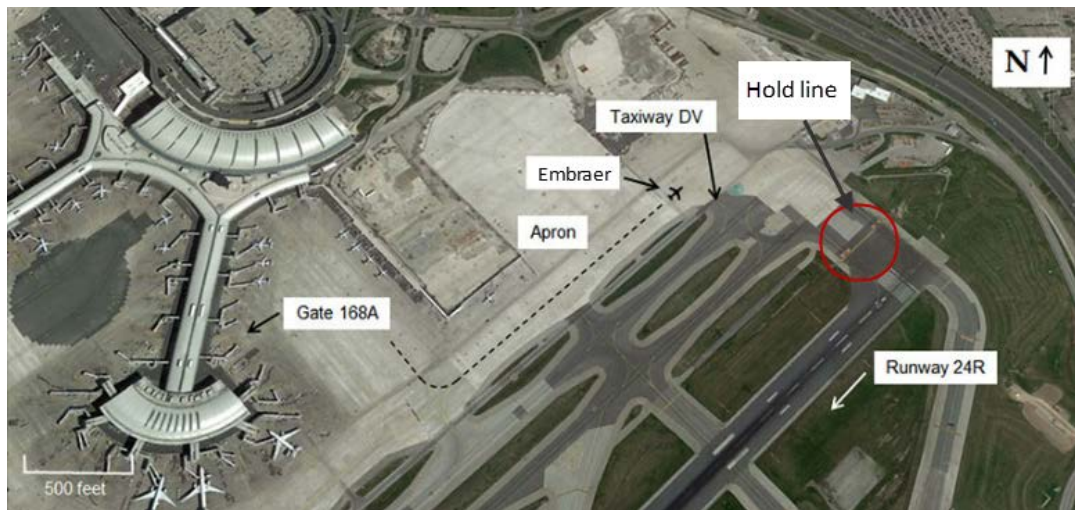
Questions regarding the new system can be sent by email at services@tc.gc.ca.

TSB Final Report A16O0016—Runway incursion and risk of collision

On January 30, 2016, an Embraer 190-100IGW was operating on a scheduled flight from Toronto/Lester B. Pearson International Airport, Ont., to New York/LaGuardia Airport, N.Y. The Embraer taxied over the hold line and onto Runway 24R without authorization at the same time that an Airbus 320-214 was on final approach for landing on the same runway. At 21:01:38 EST, as the Embraer was turning onto the runway centreline, the flight crew of the Airbus 320-214, which was now 0.41 NM from the Runway 24R threshold and at 270 ft above ground level (AGL), reported to the airport controller that there was an aircraft on the runway and that they were overshooting the runway. The Airbus 320-214 was climbing through 580 ft AGL when it flew over the Embraer. Air traffic control (ATC) had not been aware of the runway incursion before being notified by the Airbus 320-214 crew that there was an aircraft on the runway. The incursion occurred during hours of darkness.

Findings as to causes and contributing factors

1. The plain language taxi instruction issued by the ground controller was misinterpreted by the flight crew, and the flight crew's read back using the same phraseology was ineffective in confirming that the ground controller and the flight crew had a common understanding.
2. Due to a misinterpretation of the taxi instruction, the Embraer 190-100IGW taxied across the hold line and onto Runway 24R without an authorization from the airport controller to line up on the runway or take off.
3. Given that the airport controller's attention was directed toward the arriving aircraft, the controller did not detect that the Embraer 190-100IGW was crossing the hold line and taxiing onto the runway.
4. When the runway incursion monitoring and conflict alert system (RIMCAS)¹ stage 1 visual alert was displayed on the tower's advanced surface movement guidance and control system (A-SMGCS)², the airport controller's attention was directed toward the aircraft on final approach, resulting in the stage 1 alert being undetected on the A-SMGCS display.
5. Five seconds later, the RIMCAS stage 2 alarm sounded in the tower at the same time that the Airbus 320-214 flight crew reported to the airport controller that there was an aircraft on the runway and that they were overshooting the runway. The RIMCAS stage 2 aural alarm did not provide a timely warning to the airport controller to provide alternate instructions to the flight crews. △



Embraer on the apron at Taxiway DV

¹ A runway incursion monitoring and conflict alert system (RIMCAS) is “a software package designed to monitor movements on an aerodrome surface and the neighboring airspace in order to detect and identify possible conflict situations involving aircraft and other objects on pre-defined areas of the surface.”

² Toronto/Lester B. Pearson International Airport (CYYZ) is equipped with an advanced surface movement guidance and control system (A-SMGCS) in the tower that provides a real-time display of aircraft and vehicle traffic on the airport manoeuvring areas.

Answers to the 2017 Self-Paced Study Program

1. readable with difficulty; poor
2. in use at the time
3. follow normal communications failure procedures; 7600
4. No.
5. A, B, and C; D or E
6. Broken stratocumulus based at 2 000 ft above sea level (ASL) with tops at 10 000 ft ASL. Local visibility varying from 2–5 SM in light snow showers. Ceilings 500 ft to 1 000 ft above ground level (AGL). Local light freezing drizzle and light snow grains.
7. 8 000 ft.
8. The wind information is missing.
9. Wind varied from 140° to 210° true.
10. 800 ft.
11. Between 0800Z and 1600Z on the 3rd.
12. 3–6 SM.
13. 2 mi. for non-helicopter and 1 mi. for helicopter; clear of cloud
14. a clearance from air traffic control (ATC); establish two-way communication with the appropriate ATC agency
15. 1-866-WXBRIEF (1-866-992-7433); 1-866-GOMÉTÉO (1-866-466-3836)
16. 25; a VFR flight plan or a VFR flight itinerary
17. the termination of all alerting services with respect to search and rescue (SAR) notification
18. 123.2
19. 126.7
20. 5
21. Maintain a listening watch, report joining the circuit, report on downwind if applicable, report established on final, and report clear of the surface on which the aircraft has landed.
22. flight information service en route (FISE); SAR action
23. level; good; very low
24. one hour; the SAR time specified, 24 hr after the duration of the flight, or the ETA specified
25. 126.7 MHz; local VFR common frequency; local area control centre (ACC) instrument flight rules (IFR) frequency listed in the *Canada Flight Supplement* (CFS); 121.5 MHz; high frequency (HF) 5680 kHz, if so equipped
26. At 2100Z on November 12th.
27. It signifies that a replacing or cancelling NOTAM must be issued.
28. alertness; decision-making ability
29. Once a turn has been entered and is being maintained at a steady rate, the sensation of turning will disappear.
30. Waterproof matches, candle, fuel tablets, and a saw.
31. 2 000 ft AGL
32. Per the CFS.
33. Per the NAV CANADA Web site.
34. 62.9 L; 2.77 hr or 2:46
35. tire pressure; speed
36. outside visual references; spatial disorientation
37. all single-rotor; 30
38. Away from the ridge.
39. 1202; otherwise directed
40. A manoeuvre or a path that has a very low load factor.
41. Blade flapping.
42. Deflation.
43. 150 ft △

Continuing Airworthiness—Feedback

The time has come to update and modernize Feedback in order to make it more accessible and responsive to the needs of the aviation industry. This latest update changes Feedback from a quarterly PDF magazine into a more dynamic information website: <http://www.tc.gc.ca/eng/civilaviation/certification/continuing-feedback-menu-703.htm>.

Feedback is a safety awareness communication for the aviation community. Subscribe to receive quarterly updates and other safety related information through [e-news](#).△

General Aviation Safety Campaign

In Canada, general aviation (GA) represents \$9.3B in economic output. The Canadian Owners and Pilots Association (COPA) represents over 17 000 pilots. There are more than 350 000 aircraft and 700 000 pilots worldwide who are part of the GA community. GA is a vital piece of the aviation sector and advancing its safety is a priority for Transport Canada (TC).

As a step towards enhancing safety in the GA community, TC launched the General Aviation Safety Campaign (GASC) in June 2017 at the COPA Convention and Trade Show in Kelowna, B.C. This event included breakout sessions covering topics that ranged from aviation insurance to the contents of survival kits. Around 1 150 aviation enthusiasts, about 700 members of the public and 450 delegates, attended the conference. TC would like to thank COPA for the opportunity to announce the GASC, a three-year initiative, at this convention to so many members of the GA community.



This campaign will enhance GA safety through promotional tools and educational materials. TC is working in partnership with COPA and SmartPilot.ca to ensure an effective, national rollout of this campaign.

A focus group has been established and it consists of GA safety partners who will provide valuable input to guide the campaign towards a successful outcome. The campaign will focus on various aviation safety topics. The first set of topics will include pilot decision-making, mountain flying, culture change, as well as the importance of shoulder harnesses.

TC is using the GASC as an opportunity to engage with the GA community and hear their concerns about aviation safety. In launching this campaign, TC is starting the conversation and is ready to listen. △

"COPA is proud to partner with Transport Canada in launching this exciting initiative to not only inform members of the general aviation community, but also the public, on some of the important safety topics relevant to general aviation."

- Bernard Gervais, President and CEO, COPA



"SmartPilot and [Civil Air Search and Rescue Association] CASARA are excited about being part of the aviation safety partnership to make flying safer and more enjoyable. With a comprehensive safety Web site already dedicated to helping Canadian pilots, this partnership will enhance the capacity, quality and relevancy of our future programming."

- Ted Rankine, SmartPilot.ca





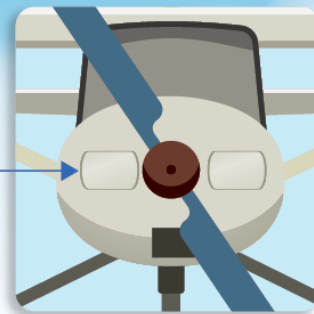
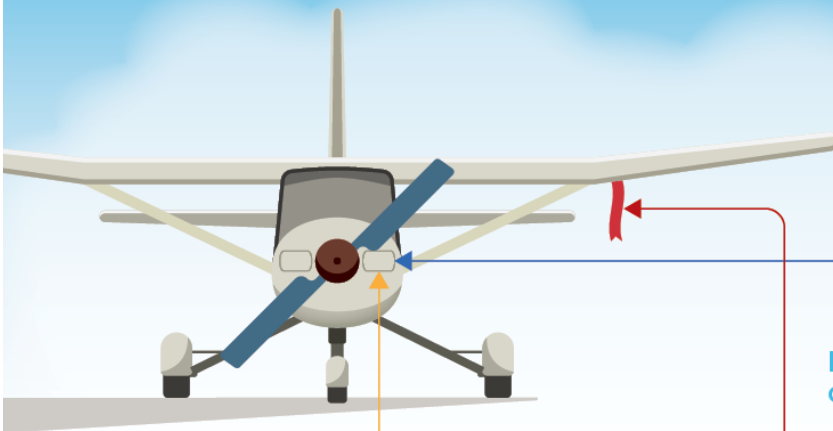
Transport
Canada

Transports
Canada



TP 12273

SAFETY IN FLIGHT BEGINS WITH THE PREFLIGHT

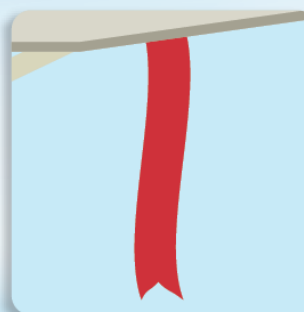
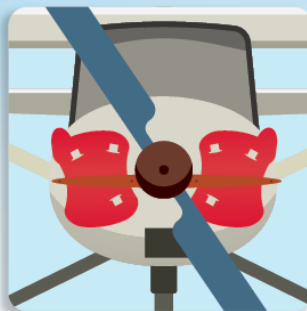


Failure to remove engine inlet plugs or flight control locks can result in:

- Loss of engine or control after takeoff
- Destructive oil and cylinder temps
- Low-to-zero oil pressure
- Reduced engine power
- Costly engine overheat damage
- Reduced engine time to overhaul

SAFETY SUGGESTIONS

Using contrasting engine inlet plugs helps ensure safety.



Warning flags and contrasting colours can be effective attention getters on engine inlet plugs and control locks.

2017 Flight Crew Recency Requirements

Self-Paced Study Program

Refer to paragraph 421.05(2)(d) of the Canadian Aviation Regulations (CARs).

Completion of this questionnaire satisfies the 24-month recurrent training program requirements of CAR 401.05(2)(a). It is to be retained by the pilot.

All pilots are to answer questions 1 to 33. In addition, aeroplane and ultra-light aeroplane pilots are to answer questions 34 and 35; helicopter pilots are to answer questions 36 and 37; glider pilots are to answer questions 38 and 39; gyroplane pilots are to answer questions 40 and 41; and balloon pilots are to answer questions 42 and 43.

References are listed at the end of each question. Many answers may be found in the Transport Canada Aeronautical Information Manual (TC AIM). Other answers can be found in the AIP Canada (ICAO). Amendments to these publications may result in changes to answers and/or references. The TC AIM is available online at:
<https://www.tc.gc.ca/eng/civilaviation/publications/tp14371-menu-3092.htm>.

The AIP Canada (ICAO) is available online at:
<http://www.navcanada.ca/EN/products-and-services/Pages/AIP.aspx>.

1. In a communications check, a 3 on the readability scale and a 2 on the strength scale mean _____ and _____.
(TC AIM-COM 1.11)
2. The first transmission of a distress call and message by an aircraft should be on the air-ground frequency _____.
(TC AIM-COM 1.12.1)
3. Before using a phone to contact air traffic services (ATS) in the event of an in-flight communications failure, you should _____ and squawk code _____.
(TC AIM-COM 1.15)
4. Can visual flight rules (VFR) global navigation satellite system (GNSS) receivers be used to replace current charts? _____
(TC AIM-COM 5.11)
5. Transponder airspace consists of all Class _____ airspace and any Class _____ airspace specified as transponder airspace in the *Designated Airspace Handbook*.
(TC AIM-COM 8.2 and RAC 2.8)

**BKN SC 100
20**

LCL 2-5SM –SHSN

CIGS 5 – 10 AGL

LCL –FZDZ –SG

6. Decode the above graphic area forecast (GFA) clouds and weather chart.

(TC AIM-MET 4.11)

UACN10 CYKA 161752

VR

UA /OV CYDC 320012 /TM 1751 /FL080 /TP C182 /SK 040BKN080 /RM SCT TCU EMBD

7. In the above pilot weather report (PIREP), what altitude was the reporting aircraft located at? _____
(TC AIM-MET 2.1)
8. In an automated aerodrome routine meteorological report (METAR AUTO), what is the meaning of five forward slashes (/////) placed in the wind field? _____
(TC AIM-MET 8.5.4)

SPECI CYSB 251826Z 18013KT 140V210 20SM -RA SCT047 BKN090 16/03 A2989
RMK SC4AC3 SLP133 DENSITY ALT 1500FT=

9. In the above special report (SPECI), what is the meaning of 140V210?

(TC AIM-MET 8.3)

TAF CYVR 021741Z 0218/0324 27005KT P6SM FEW040 BKN220
FM030000 27005KT P6SM BKN040 OVC120
FM030400 06006KT P6SM -RA BKN025 OVC050
FM030800 06006KT 3SM -RA BR BKN008 OVC015 TEMPO 0308/0316 6SM -RA
BR SCT008 OVC020
FM031600 08008KT P6SM SCT015 OVC030 TEMPO 0316/0321 BKN015 OVC030
FM032100 08007KT P6SM BKN030
RMK NXT FCST BY 022100Z=

10. In the above aerodrome forecast (TAF), what is the lowest ceiling forecast for CYVR?

(TC AIM-MET 7.4)
11. In the above TAF, during which time periods could you expect mist?

(TC AIM-MET 7.4)
12. In the above TAF, what visibility could you expect from 0800Z to 1600Z on the 3rd?

(TC AIM-MET 7.4)
13. In uncontrolled airspace below 1 000 ft AGL, the minimum day VFR flight visibility is _____ and the minimum distance from cloud is _____.
(TC AIM-RAC 2.7.3 [Table 2.2] and CAR 602.115)
14. Before entering Class C airspace, VFR flights require _____, and before entering Class D airspace, VFR flights must _____.
(TC AIM-RAC 2.8.3 and 2.8.4)
15. Pilot briefing services are available at the following telephone number _____.
Bilingual pilot briefing services are available at the following telephone number _____.
(TC AIM-RAC 3.2)
16. Except where the flight is conducted within _____ NM of the departure aerodrome, no pilot-in-command shall operate an aircraft in VFR flight unless _____ has been filed.
(TC AIM-RAC 3.6.1)

17. The closure of a flight plan or flight itinerary prior to landing is considered filing an arrival report and, as such, it will result in _____.
(TC AIM-RAC 3.12.2)
18. At uncontrolled aerodromes without a published mandatory frequency (MF) or aerodrome traffic frequency (ATF), the common frequency for the broadcast of aircraft position and the intention of pilots flying in the vicinity of that aerodrome is _____ MHz.
(TC AIM-RAC 4.5.1)
19. Pilots operating VFR en route in uncontrolled airspace or VFR on an airway should continuously monitor _____ MHz when not communicating on an MF or ATF.
(TC AIM-RAC 4.5.6 and RAC 5.1)
20. Where possible, pilots are required to report at least _____ min prior to entering an MF or ATF area.
(TC AIM-RAC 4.5.7)
21. In addition to reporting aircraft position, what action should a pilot take when arriving at an uncontrolled aerodrome with an MF or ATF?

(TC AIM-RAC 4.5.7)
22. Pilots operating VFR en route are encouraged to make position reports on the appropriate _____ frequency to a flight information centre (FIC) where they are recorded and immediately available in the event of _____.
(TC AIM-RAC 5.1)
23. Wire strikes account for a significant number of low-flying accidents. A number of these accidents occur over _____ terrain, in _____ weather and at _____ altitudes.
(TC AIM-RAC 5.4)
24. If you have landed short of your destination for reasons other than an emergency and you are unable to advise ATC of your situation, a search will be initiated _____ after the estimated time of arrival (ETA) filed on your flight plan or, in the case of a flight itinerary, _____.
(TC AIM-SAR 3.5)
25. If your flight is interrupted due to bad weather and you cannot contact an ATS unit, you should attempt to contact another aircraft on one of the following frequencies in order to have that aircraft relay the information to ATS:
(a) _____;
(b) _____;
(c) _____;
(d) _____; or
(e) _____.

(TC AIM-SAR 3.5)

**170230 CZWG WINNIPEG FIR
BLASTING ACT 2 NM RADIUS CENTRE 524917N 835426W (APRX 54 NM W
ATTAWAPISKAT AD) SFC TO 1500 FT AGL. DLY 1700-2100
1711011700 TIL APRX 1711122100**

26. In the above NOTAM, when is the blasting expected to end?

(TC AIM-MAP 3.6.1.2)

27. What is the significance of the term “APRX” in the above NOTAM?

(TC AIM-MAP 3.6.2)

28. While flying an aircraft, a pilot must not have any condition that impairs _____, reaction time or _____.

(TC AIM-AIR 3.1)

29. Give an example where the organs of balance in the inner ear could give rise to dangerously false information in the air when the horizon is not visible?

(TC AIM-AIR 3.7)

30. *AIP Canada (ICAO)* GEN 1.5.1 describes survival in sparsely settled areas of Canada. According to Table 1.5.1—Survival Equipment, Rule: Make Fire, what are the four pieces of recommended equipment?

(*AIP Canada (ICAO)* GEN 1.5.1)

31. To preserve the natural environment of national, provincial, and municipal parks, reserves, and refuges, and to minimize the disturbance to the natural habitat, overflights of these areas should not be conducted below _____.

(*AIP Canada (ICAO)* ENR 5.6.7)

32. Find a copy of the *Canada Flight Supplement* (CFS) and go to the Planning section (section C). In “VFR Chart Updating Data,” read the information on Conservation, Hazards to Aircraft Operations, and Air Traffic Advisory Frequencies in your region of Canada. (CFS)
Record one of the topic names here: _____

33. Go to the NAV CANADA Web site and familiarize yourself with the AIP Canada (ICAO) supplements and the aeronautical information circulars (AICs). <http://www.navcanada.ca/EN/products-and-services/Pages/AIP-current.aspx>
Record the most recent AIC number here: _____

Aeroplane (including Ultra-light Aeroplane) Questions

34. How many litres is 100 lb of AVGAS at 15° C? _____.

Your aircraft burns 6 U.S. gal. per hour, how long can you fly on 100 lb? _____

(TC AIM-RAC 3.5.8; CFS General section, Fuel and oil weights)

35. Hydroplaning is a function of water depth, _____, and _____.

(TC AIM-AIR 1.6.5)

Helicopter Questions

36. Visit the Transportation Safety Board of Canada (TSB) Web site at <http://www.tsb.gc.ca/eng/rapports-reports/aviation/> and search for TSB aviation investigation report A11Q0168. Under **Findings as to causes and contributing factors**, the reports says the following:

“The pilot had few _____ during the night flight.”

“The pilot probably lost control of the aircraft shortly after take-off due to _____.”

37. Visit the Transportation Safety Board of Canada (TSB) Web site at <http://www.tsb.gc.ca/eng/rapports-reports/aviation/> and search for TSB aviation investigation report A13W0070. The report mentions the following statement under **Unanticipated yaw or loss of tail rotor effectiveness**: “Loss of tail rotor effectiveness (LTE) is not related to an equipment or maintenance malfunction, and may occur in _____ helicopters at airspeeds less than ____ knots.”

Glider Questions

38. When flying along a ridge, which direction should you turn to reverse course?

(Use glider references)

39. Pilots of gliders that are equipped with a transponder should adjust the transponder to reply on Mode A, Code _____ at all times, unless _____ by ATC.

(TC AIM-COM 8.4)

Gyroplane Questions

40. What kind of manoeuvre or path dangerously lowers the air flow passing through the rotor and causes the rotor revolutions per minute (RPM) to decrease quickly?

(Use gyroplane references)

41. What can happen during a roll at excessive speed or with gusty winds?

(Use gyroplane references)

Balloon Questions

42. Should power line contact become inevitable, what is the best action for a balloonist to take? _____

(Use balloon references)

43. To launch a 120-ft balloon within a built-up area, the diameter of the launch site must be no less than _____.

(CAR 602.13(3))

Date Completed _____ **Pilot** _____

Answers to this quiz are found on page 14 of ASL 3/2017.