

Learn from the mistakes of others; you'll not live long enough to make them all yourself . . . **Issue 2/2005**

## Low Visibility Approach Leads to CFIT

On September 27, 2003, a PA-31 with one pilot and two passengers on board was on a VFR flight from the Îles-de-la-Madeleine, Que., to Gaspé, Que. While en route to Gaspé, the pilot was informed about weather conditions at his destination, which were a ceiling at 500 ft and visibility of  $\frac{3}{4}$  mi. in fog. The pilot requested clearance for an instrument approach, which he received at approximately 18:57 Eastern Daylight Time (EDT). A few seconds later, the pilot activated the aircraft radio control of aerodrome lighting (ARCAL) with his microphone button. That was the last radio transmission received from the aircraft. When the aircraft did not arrive at its destination, a search was initiated, and due to an emergency locator transmitter (ELT) malfunction, the wreckage was found only the next day at 10:28 EDT, on a hilltop 1.2 NM northeast of the airport. The aircraft was destroyed and the three occupants were fatally injured. This synopsis is based on the Transportation Safety Board of Canada (TSB) Final Report A03Q0151. All times quoted in this article are EDT.

The aircraft had been chartered to transport one passenger from Gaspé to the Îles-de-la-Madeleine, then return to Gaspé with two passengers. Before departing Gaspé, at approximately 16:12, the pilot visited the NAV CANADA Web site for a weather report. The terminal aerodrome forecast (TAF) for Gaspé issued at 15:30 was as follows: between 16:00 and 04:00, scattered cloud at 800 ft AGL, ceiling at 3 000 ft AGL, visibility over 6 mi.; and temporarily between 20:00 and 04:00, ceiling 800 ft AGL. The cloud and weather chart for the graphic area forecast (GFA), valid from 14:00, indicated the possibility of a ceiling at 200 ft AGL and fog patches, reducing visibility to  $\frac{1}{2}$  mi. along the shores of the Gulf of St. Lawrence.

The pilot arrived at the Gaspé airport around 16:45, and filed a VFR flight plan for the return trip.



The aircraft took off at approximately 17:05 with an anticipated return time of approximately 18:45. The flight to the Îles-de-la-Madeleine was without incident, and the aircraft landed there at approximately 18:00. Twelve minutes later, the aircraft took off for Gaspé with two passengers on board. While the aircraft was en route, the TAF for Gaspé was revised twice; at 18:39 and again at 18:49. These two revisions indicated deteriorating weather conditions compared to the TAF received prior to departure; the initial ceiling forecast of 800 ft AGL dropped to 300 ft AGL, and the forecast for visibility was  $\frac{1}{2}$  mi. in fog. There is no evidence that the pilot either requested or was advised of these revisions.

The pilot contacted the flight service station (FSS) at Québec at 18:53:32, and was advised that the surface winds were favourable for Runway 11. The pilot advised that he would proceed for Runway 11.

At 18:55:13, the FSS specialist gave the pilot the latest weather observation from Gaspé, which was a special bulletin issued at 18:41. It indicated a ceiling at 500 ft AGL and visibility of  $\frac{3}{4}$  mi. in fog. Based on this information, the pilot advised that he would proceed for Runway 29, but did not specify the type of

approach. At 18:56:07, when he was about 7 NM southeast of Gaspé, the pilot requested clearance for an instrument approach, which he received less than one minute later. At 18:57:20, the pilot pressed his microphone button seven times to switch the aerodrome lights on high. That was the last radio transmission received from the aircraft.

According to the information received, all lights were working normally at the time of the occurrence. Except for the call made when 7 NM southeast, the pilot made no reports during the approach.

The aircraft crashed on the summit of a hill with an elevation of about 300 ft ASL, 1.2 NM northeast of the threshold of Runway 29, and 0.8 NM north of the approach track. The swath cut through the trees by the aircraft extended over a distance of about 100 m. The debris pattern at the crash site indicated a high-speed, low-angle impact. Marks left on one of the speed indicators indicated a speed of 185 mph on impact, which is far greater than the normal approach speed of 110 mph. The flaps were retracted, and the landing gear was not in the down and locked position.

There was no evidence found of any airframe failure, engine or system malfunction prior to or during the flight. The pilot was properly licensed and highly experienced. There was no indication that physiological factors affected the pilot's performance.

Regulations permit the aircraft to conduct instrument flights with passengers on board without a copilot, provided that it is equipped with an autopilot. Examination of the autopilot control console did not reveal whether or not it was in operation prior to or at the time of impact. It was not required to be in operation.

The published minimum descent altitude (MDA) for the Runway 29 back course is established at 440 ft ASL and a visibility of 1 mi. The elevation of the aerodrome is 108 ft ASL. Even if the reported visibility was less than the minimum published for an instrument approach, the regulation did not prohibit the pilot from conducting the approach. With regard to the landing, the existing regulations prohibit the pilot of an aircraft on an instrument approach from continuing the descent below the MDA if they do not establish and maintain the visual reference required to land safely. If the pilot loses the required visual references, they must execute a go-around.

On December 16, 1997, a CL-600 crashed at the Fredericton, N.B., airport while executing a go-around in reduced visibility and low ceiling conditions. The TSB investigation of this accident (report A97H0011) identified 28 other accidents in Canada between January 1, 1984, and June 30, 1998, involving heavy aircraft landing in reduced visibility conditions where these conditions

contributed to the accident. This investigation also identified a safety deficiency due to the fact that the existing regulations did not provide sufficient protection against the risk of collision with the terrain when instrument approaches were conducted in reduced visibility conditions. In its report, published on May 20, 1999, the TSB recommended that:

“The Department of Transport reassess Category I approach and landing criteria (re-aligning weather minima with operating requirements) to ensure a level of safety consistent with Category II criteria.” (A99-05)

Transport Canada responded to the recommendation in August 1999, indicating that a draft regulation amendment to strengthen the standards applicable to instrument approaches in minimal weather conditions would be submitted without delay to the Canadian Aviation Regulation Advisory Council (CARAC) for comment, with the objective of applying the changes as soon as possible.

On August 12, 1999, a Beech 1900D crashed on approach to the Sept-Îles, Que., airport, when the reported weather conditions indicated a ceiling of 200 ft and a visibility of  $\frac{1}{4}$  SM. The TSB investigation into this accident (report A99Q0151) identified four other accidents that had occurred with reduced visibility as an underlying factor since recommendation A99-05 had been issued. The TSB report on this accident, published March 14, 2002, included a Board recommendation that:

“The Department of Transport expedite the approach ban regulations prohibiting pilots from conducting approaches in visibility conditions that are not adequate for the approach to be conducted safely.” (A02-01)

Transport Canada responded to the recommendation on May 26, 2002, indicating that they had prepared 16 notices of proposed amendment (NPA) to address the issue of a regulatory approach ban related to visibility. The response stated that the NPAs were, at the time, under review by the Department of Justice and that the final version was to be published in the *Canada Gazette* in June 2002. High priority given to the treatment of draft security regulations following the events of September 11, 2001, increased demand for the services of the Department of Justice and resulted in additional delays.

*Analysis*—The condition of the engines, the angle of impact, and the condition of the pilot indicate that the pilot maintained control of the aircraft until impact. Consequently, this accident falls into the category of controlled flight into terrain (CFIT).

The TAF received prior to departure from Gaspé gave the pilot reason to believe that he could complete the return trip under VFR. However, the GFA indicated instead the possibility of IFR conditions.



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Address correspondence to:  
Editor, Paul Marquis

**Aviation Safety Letter**

Transport Canada (AARQ)  
Ottawa ON K1A 0N8  
Tel.: 613 990-1289  
Fax: 613 991-4280

E-mail: [marqupj@tc.gc.ca](mailto:marqupj@tc.gc.ca)

Internet: [www.tc.gc.ca/ASL-SAN](http://www.tc.gc.ca/ASL-SAN)

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*Paul Marquis*

**Regional System Safety Offices**

- Atlantic**      Box 42  
Moncton NB E1C 8K6  
506 851-7110
  
- Quebec**      700 Leigh Capreol  
Dorval QC H4Y 1G7  
514 633-3249
  
- Ontario**      4900 Yonge St., Suite 300  
Toronto ON M2N 6A5  
416 952-0175
  
- Prairie & Northern**
  - Box 8550  
344 Edmonton St.  
Winnipeg MB R3C 0P6  
204 983-5870
  
  - Canada Place  
1100-9700 Jasper Ave.  
Edmonton AB T5J 4E6  
780 495-3861
  
- Pacific**      3600 Lysander Lane  
Richmond BC V7B 1C3  
604 666-9517

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A better analysis of the weather conditions by the pilot would have enabled him to anticipate the possible deterioration of weather conditions and to plan the flight according to IFR. The absence of weather condition updates while he was en route to Gaspé contributed to the late realization that the weather conditions at his destination were poor. Since the flight was made at night, it must have been difficult to see the poor conditions before flying into them.

It was only after he was informed by the FSS that the pilot realized that an instrument approach would be necessary. He was about 7 NM from the airport when he received his approach clearance, and it could not be determined if the pilot was able to complete the various tasks associated with preparing for an instrument approach, such as: deciding on the type of approach, getting out the approach plate, familiarizing himself with the plate, tuning in to the instrument landing system (ILS) frequency, activating the ARCAL, making the reports associated with an instrument approach at an uncontrolled aerodrome, and modifying the aircraft configuration for the approach and landing.

While the pilot was qualified for, and had considerable experience in, these sorts of conditions, he had to perform several tasks within a short period. His workload was likely quite high by performing these various tasks during the approach. Since the reported visibility was only <sup>3</sup>/<sub>4</sub> mi., it is unlikely that the pilot had the visual reference required to continue the descent below the MDA.

The TSB determined that the pilot descended to the MDA without being established on the localizer track, thereby placing himself in a precarious situation with respect to the approach and to obstruction clearance. It further determined that the pilot continued his descent below the MDA without having the visual references required to continue the landing, and he was a victim of CFIT.

The TSB is concerned that the existing regulations still do not provide adequate protection against the risk of ground impact when instrument approaches are conducted in reduced visibility conditions. While the TSB recognizes that the proposed approach ban regulatory initiative should decrease the probability of such accidents, until these proposed regulatory provisions come into force, safety measures will remain inadequate against the risk of CFIT resulting in loss of life.

*The approach ban regulations went to the Canada Gazette Part I on November 20, 2004. The consultation period was to end in January 2005, after which time the comments were to be reviewed and final publication would take place. —Ed. △*

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## TC and NAV CANADA to Introduce New Aeronautical Publications

Over the past couple of years, Transport Canada has been examining ways of improving how information services are being provided to the flying community. In addition, as part of its responsibility for the publication of aeronautical information, NAV CANADA has recently agreed to assume the responsibility for the production of an International Civil Aviation Organization (ICAO) compliant aeronautical information publication (AIP). The current *A.I.P. Canada*, though it fulfills the State AIP requirements, also includes additional information not required by ICAO. As a result, the AIP will be phased out in 2005 and replaced by a new Transport Canada *Aeronautical Information Manual* (TC AIM) and a new NAV CANADA AIP titled *A.I.P. Canada (ICAO)*. As a first step, we have posted the current *A.I.P. Canada* on the Transport Canada Web site in a downloadable (PDF) format; however, this is only a temporary measure as it will be replaced, starting in October 2005, by the TC AIM.

The TC AIM will contain the same aeronautical information that is currently contained in the current AIP, albeit in a different format. It will be published online in HTML and downloadable format (PDF) as well as in an 8½ in. x 11 in. permanently-bound format that will be published every six months instead of the current three months. Graphics and font size will be larger, and there will no longer be a need to insert amendments to keep your publication up to date because a complete TC AIM will be issued each time. The paper version of the TC AIM will be provided free of charge for the first year to all who qualify to receive the AIP; but after the first two editions, it will be available as a subscription for a small fee. The TC AIM will continue to be available

free of charge on the TC Web site. More details on subscriptions will be available at a later date. In both the online and paper versions of the TC AIM, an explanation of the amendments will be provided with each update, similar to the current amendment packages, so that users can see at a glance where and what the amendments are. In order to prepare for the introduction of the TC AIM, the last amendment to the paper version of the *A.I.P. Canada* will be amendment 02/05, dated April 14, 2005.

In October 2005, NAV CANADA will also be introducing its new ICAO-compliant AIP, titled *A.I.P. Canada (ICAO)*. This new publication will be different from the current AIP as it will be an ICAO-compliant publication intended primarily to satisfy international requirements, and will contain information that will not be in the TC AIM. It will be available on the NAV CANADA Web site as a downloadable product as of October 27, 2005. Supplements and aeronautical information circulars (AIC) that are currently available in the AIP and on the Transport Canada Web site will continue to be available on the Transport Canada Web site and will also be available on the NAV CANADA Web site starting July 7, 2005. Supplements and AICs will also be available as an element of the NAV CANADA *A.I.P. Canada (ICAO)*. Supplements and AICs will not be included in the paper version of the TC AIM.

These changes incorporate many suggestions received over the past few years from the flying community, and Transport Canada appreciates all of the constructive suggestions that have been made over the years. △

### Going Home

by Garth Wallace

Melville Passmore was in love. The private pilot graduate had met a new girl at his church during the holiday season.

"She might be sweet on me," he announced at the flying school. "I want to take her flying. Maybe somewhere for dinner that's open in the winter."

"Dinner" to the young farmer was at noon. I opened a local chart. "On Saturday you can get dinner at the London airport."

"Isn't there a control tower at London?"

Our Homestead field in southern Ontario was controlled, but Melville didn't like talking on the radio.

"Is there somewhere on the other side of Toronto?" he asked. "I could fly along the lakeshore like we did for my high density checkout. Then we'd see the tall buildings. If I stay under the terminal area, I only have to talk to the City Centre airport and Oshawa."

"Sure, Peterborough has a restaurant," I said. I pointed to the uncontrolled field northeast of Toronto.

"Good. I'll book a Cherokee for Peterborough next weekend."

I had no qualms about Melville flying through Toronto. I had been his instructor and I knew that the low-time pilot flew well when left to figure things out for himself. His radio work

was good too, even though he didn't like using it.

The appointed day came. I arranged to be on the ground when Melville arrived. His face was beaming when he introduced me to his girl.

He handed me his map and flight log. "I marked the route, checked the weather, the airport conditions and filed a flight plan, just like you taught me," he said.

I didn't tell Melville that I had also called flight service. The forecast called for a great day for winter flying. A high-pressure system was bringing sunny skies, light winds and cold temperatures.

"Everything looks good, Melville," I said.

“OK, thanks.”

I gave flying lessons all that day in clear skies. I didn't know that a light onshore wind had developed off Lake Ontario, and was pushing extra moisture over Toronto. Snow showers developed across the big city about the time Melville and his date were leaving Peterborough.

I was flying with a student when the local controller called me. “I thought you'd like to know that Melville declared an emergency over downtown Toronto,” he said calmly. “Apparently it's snowing there. He's airborne but they don't know for how long.”

Melville called approaching the zone. He joined the circuit and landed. When I returned from the lesson, he and his date were waiting in the lounge.

The round little farmer hovered nervously while I finished with my student. “So, Ace,” I said calmly. “I heard you had a problem.”

He took a big breath, licked his lips, and pulled in his tongue. “I'm glad you showed me instrument flying.”

“Did the weather turn bad?” I asked.

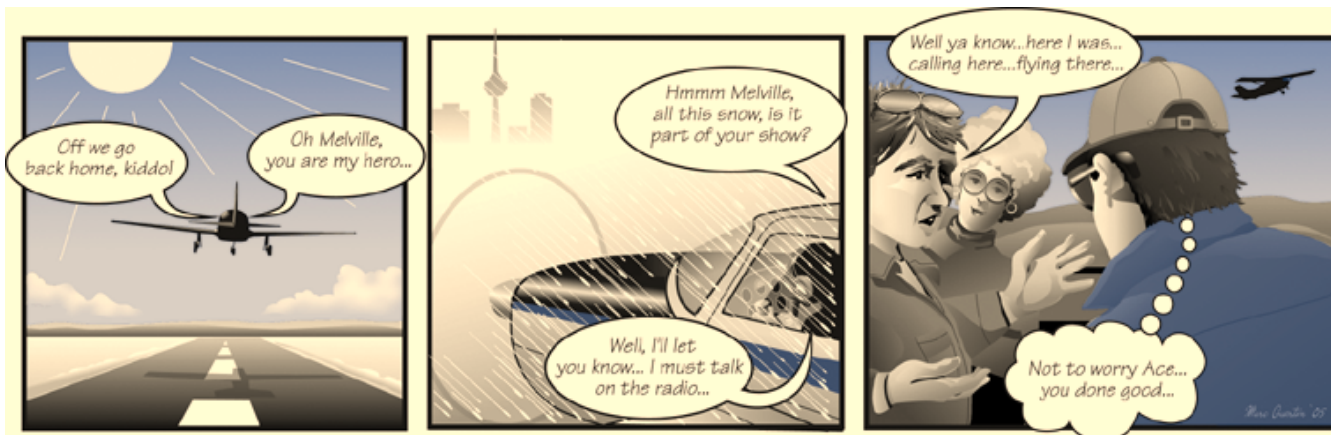
“Well, it started snowing after we had cleared through the Oshawa control zone on the way

snow with his tongue hanging out while he concentrated on the map, the ground, the instruments, the GPS and the radio.

“What did he say to that?”

Melville licked his lips and hauled in his tongue. “He asked if I was declaring an emergency.” “So you did?”

“No. I told him that I didn't have an emergency, I just wanted to land. He said without declaring an emergency, I couldn't fly VFR in the Oshawa control zone without a special VFR clearance. So I asked for a special VFR clearance to land at Oshawa. He said that I'd have to stay clear of



It was news that any flying instructor would dread.

“What's his emergency?” I asked.

“I don't know. I guess it's the snow. Toronto is tracking him on radar and he's headed this way. I'll call you back as soon as I hear more.”

“Thanks.”

I was worried beyond belief, but I didn't know what to be worried about. I knew Melville could fly in reduced visibility. The situation would have to be serious for him to declare an emergency. I wanted to help, but I didn't know how.

The controller called me again. “Melville's OK. He's flown out of the snow and will be approaching our control zone in a little while.”

“Wow. Thank you.”

I was still flying when

here.” Melville spoke with a worried edge to his voice. It warned of worse to come. “So I turned the airplane around and headed back to Oshawa.”

“Good.”

“No, not good. I called Oshawa tower and the guy said that their weather had dropped to 800 obscured and two miles in light snow. He asked my intentions. I said that I was going to land at Oshawa. He wanted to know if I was instrument rated and if the airplane was equipped for IFR flight. I said that the airplane had instruments and I was using them. Then he asked about my flight conditions. I said that it was smooth and snowy.”

Melville had done well during the instrument flying lessons on the private pilot course. I could picture him flying along in light

the control zone for now because of inbound IFR traffic.” The stubby farm boy shook his head from side to side. “Sometimes those guys can confuse a fella.”

“So then you declared an emergency?”

“No, I slowed down and circled the shoreline at 1 500 ft. There wasn't much time for sightseeing in that kind of weather, but then there wasn't much to see.”

“Then what happened.”

“The tower guy said that I was near the path of the inbound IFR traffic and I should clear the area I was in. So I flew southwest along the lakeshore and kept going. I decided since I didn't have an emergency that I would fly home.”

That meant that Melville had pointed the Cherokee toward the skyscrapers along the downtown

Toronto shoreline.

Melville's voice grew quieter. "The Oshawa controller advised me to contact Toronto terminal. I didn't want to but I selected the frequency. There was a lot of talking going on. There was no room for me to call so I switched to the City Centre ATIS [automatic terminal information service]. It said that the weather was 900 obscured, two miles in light snow. It wasn't any worse so I continued southwest."

The little farmer looked at me sideways to see my reaction. "And then what happened?" "I called City Centre tower and requested special VFR clearance through their zone."

"What did the controller say to that?" I asked.

"He wanted to know lots of stuff: my aircraft type, registration and where I was going. He gave me a transponder code, asked if I was instrument rated and if the airplane was instrument equipped. I told him that I was in a Cherokee and I was going to Homestead. I said the airplane had instruments and I was using them. Then he asked if I was declaring an emergency."

"So you did?"

"No, I told him I didn't have an emergency. I said that I was going to Homestead." Melville took a breath. "It's hard doing all that talking and flying."

Melville would have been hand flying the airplane; it did not have an autopilot.

"So what did he say?"

Melville licked his lips nervously and pulled his tongue back in. "He said that he was unable to approve special VFR in his control zone and if I didn't declare an emergency, that I would have stay clear of his zone."

With that, Melville stopped talking. I waited. He looked at the floor. He obviously didn't want to tell me what happened next. The only way around the City Centre airspace was to fly south, five miles off the shore of Lake Ontario.

"What did you do?" I asked quietly.

He spoke very softly. "That's when I declared an emergency." "Then what?" "At first he told me to stand by, but then he cleared me to land on any runway, gave me the wind, and advised me to stay south of the shoreline until I had the field in sight."

"Good advice," I said.

"No, not good. I told him I didn't want to land. I said that I was going to Homestead."

"How happy was he about that?"

Melville looked at me sideways. His tongue was at full hang.

"The controller said nothing for a while. Then he told me that VFR pilots declare emergencies in bad weather so they can land. I said that I'd rather fly in snow than try to land in it."

It was bold talk for the shy

farmer. I couldn't help smiling.

"What was his reply?"

"He told me that the weather was VFR in Homestead. I kept flying, hoping he didn't have any other ideas. He asked me to call clear of his control zone. I did. Those guys can make it hard even when there isn't any other traffic."

"They were trying to help in their own way, Melville," I said.

"Am I in trouble?" the little farmer asked.

"I don't know," I replied honestly. "The important thing is that you applied your own judgment and skill to fly out of a bad situation. Next time, maybe you should turn around sooner. You could have flown back to Peterborough and waited for better weather."

Melville looked up. "Oh no," he said, shaking his head. "I'd be in worse trouble."

"How do you figure that?"

Melville scratched his head and gave his date a funny look. "Her dad said if I don't have her back home by five o'clock, he'd whup me good." He looked at his watch. "We gotta run."

*Garth Wallace is an aviator, public speaker and freelance writer who lives near Ottawa, Ont. He has written eight aviation books published by Happy Landings (www.happylandings.com). He can be contacted via e-mail: garth@happylandings.com. △*

## BLACKFLY AIR ON SMS



## Beware the Midair

Reprinted from Aviation Safety Ultralight and Balloon 1/1990

Summer is fast approaching and this will bring a new season of balloon fiestas. This usually involves the launching of numerous balloons at the same time and from a common launch area. Now is a good time to review the general safety precautions and particularly a few points about coordinating lookouts in your balloon for the purpose of avoiding in-flight contact with another balloon. It is important to observe balloons immediately below your basket as potential for collision. Groups of balloons launched together must climb very slowly until separation is assured.

A fatal accident in Australia in the late eighties dramatically demonstrated how serious this problem can be. Two balloons, part of a group of four launched at approximately the same time, collided in flight.

Passengers in the surviving balloon reported that the canopy of the lower ascending balloon

contacted the basket of their higher balloon, then collapsed. Without the inflated canopy for buoyancy, the large balloon fell out of control to the ground, with fatal injuries to the pilot and 12 passengers. This type of accident also occurred in the USA during a competition, with serious injury to the pilot of the rapidly ascending balloon.

It is the pilot's decision to launch and fly in close proximity to other balloons; therefore, coordination with respect to lookout for balloons ascending from below is essential. A pilot of an ascending balloon may not see a balloon directly overhead; therefore, he or she must rise very



slowly to allow the pilot of the higher balloon, who can see the activity below, time to increase the climb rate as necessary to avoid a collision. Also, balloons tend to separate after takeoff due to varying local breezes, so ascending slowly allows more time for this to occur, thus increasing the margin of safety from a potential midair encounter. 📍

## The Chimney Effect

Reprinted from Aviation Safety Ultralight and Balloon 1/1990

The decision to land always involves many factors. This story illustrates what happened when the pilot set up for a landing in a vacant field near a built-up area. The balloon ended up being towed by the chase crew from my neighbour's front lawn. The pilot in this case was a visitor to Canada taking part in a local Balloon Fiesta, so he may not have been entirely familiar with the area and Canadian requirements. Transport Canada discourages the practice of landing balloons close to built-up areas.

Why did this balloon, after a normal approach to the selected field, suddenly change direction and drift toward the row of houses just as it was touching down?

As balloon pilots, there is something we must all keep in mind

when flying in light wind conditions on sunny mid-summer mornings: air heated over the dark-coloured roofs of nearby houses flows upward in a rising column. This rising column of air is replaced by cooler air near the ground, and this creates the inflow toward the building. The unsuspecting balloonist can get caught in this airflow when landing close to buildings or trees during periods of rapid daytime heating. This apparently happened to our visiting pilot. During the landing he found himself moving toward the front doorstep of my backyard neighbour. This being Sunday, the absent homeowner was probably at church and missed all the excitement.

In this case the pilot would have had a better selection of

fields further along his flight path. The light wind conditions and immediate availability of the chase crew to tow the balloon into the field may have influenced his decision to land at this point. In fairness to this pilot's decision, the field chosen is often used by balloonists, and another balloon landed well clear of buildings about the same time. The problem began during the approach because the balloon was not in position to land near the centre of the field away from the buildings.

*As a safety promotion writer I cannot resist the dramatic opportunity to illustrate the effect of daytime heating on this balloon landing. As a fellow balloonist I hope it does not cause undue embarrassment to the adventurous visitor to Canada.* 📍

## COPA Corner—The Power of Situations

by Adam Hunt, Canadian Owners and Pilots Association (COPA)



The power of situations can be overwhelming, especially when flying. Bad situations can get the best of our normally good judgement and lead us into traps that cause us to take unnecessary risks. The good news is that we can often control situations and prevent the traps from occurring; the bad news is that it often takes some advance planning.

Pressing the weather is a good example. Very few pilots set out on a trip with the intention of flying in weather that is beyond their skills. Usually, the situation traps them into making bad decisions. Take the example of a non-instrument-rated pilot who plans a VFR weekend trip by rental Cessna 150. He checks the weather and the forecasts look good for the flight and a return the following day. He departs from home on a Saturday morning for his destination, which is 200 NM away, and stays overnight.

The next day, his departure is delayed and he finds himself leaving later in the afternoon than he expected. The forecasts aren't working out—an unexpected area of low ceilings and rain is pushing into his route of flight. His destination is already marginal VFR and getting worse. It is a short trip, but the 150 will still take almost two and half hours to get him home. It looks like Monday will be a washout and the next chance to get home will be Tuesday. Staying over until Tuesday would probably be the smart thing to do, but the pilot may already have some strong situational factors stacked up against him, conspiring to making that decision to stay a difficult one to make.

Pilots in these situations have to contend with such factors as:

- The outfit that rented the plane may charge an additional four hours per day to have the plane parked for the bad weather—that could be expensive!
- The pilot's employer is probably expecting him to be at work on Monday morning.

- Having enough money to pay for another two nights in a hotel away from home is certainly another factor.

It all adds up to a lot of situational reasons to press the weather and try to fly home.

This pilot may feel stuck between “a rock and a hard place” now, but all of these factors could have been reduced beforehand.

He could have:

- Made sure the outfit renting him the plane had a policy of not charging for weather delays (most schools and other airplane renters know that is good business and saves wrecked planes).
- Talked to his boss in advance and explained that he may have to use a day's vacation if he gets stuck on a flight away from home. A quick call on Monday morning could have solved that one.
- Ensured that he didn't get caught without money by carrying his ATM card or credit cards.

Many situations will lend themselves to some creative solutions as well. In this case, the pilot could have possibly:

- Asked the school that rented him the plane to fly an IFR pilot down to fly back with him—he could have taken an IFR lesson on the way home (assuming the plane was equipped and the weather was suitable for that type of flight).
- Rented a car and driven the 200 NM home, and returned on Tuesday to pick up the plane, if he absolutely had to be back at work on Monday morning.

With a little advanced planning, almost all pressures from difficult situations can be reduced to the point where they don't lead you into making poor decisions and undertaking high-risk flights.

More information about COPA can be found at [www.copanational.org](http://www.copanational.org). [△](#)

## Flat Panel Displays—The Pros and Cons

by Ken Armstrong

Well, to cover the cons, we can start by saying these flat panel displays are virtually “con-less.”

This scribe recently conducted flight test evaluations on the Cirrus Design SR22, Lancair 350 with Avidyne Entegra primary flight displays (PFD) in concert with a multi-function display (MFD). A week later, it was my pleasure to evaluate the even more advanced Garmin 1000 system in the Diamond Star. The Avidyne requires three minutes

of power up time to be useable, and Diamond's Garmin about 30 seconds. So, pilots who power up the pounding pistons and immediately start to taxi will be forced to accomplish some of their checks at a standstill.

Owners of electronic cockpits need not live in awe of F-18 Hornet pilots or airline drivers, as the equivalent state-of-the-art instrumentation has arrived for general aviation (GA) aircraft. While I



haven't met an airframe I couldn't tame, these new displays can be a handful for those of us accustomed mainly to the old, round, "steam gauges." It's not that the old equipment is better in any way—other than adding ballast up front to aircraft that are challenged by aft centre of gravity (C of G) conditions. In fact, the Diamond, Lancair and Cirrus aircraft all possess a modicum of old-style flight and engine instruments that provide back-up information lest one of the digital screens fail. This is slightly humorous because the electrical systems for the flat screens are typically dual-redundant and the mean time between failures (MTBF) for these displays make them far more reliable than yesteryear's equipment. However, until one fully converts to digital displays, it is occasionally beneficial to have the back-ups available for quick reference. To be really effective at using the huge amount of differently presented data takes a number of conversion hours, so don't plan to launch on major IFR excursions until your brain and digital data are "hard-wired" to each other.

Cirrus runs a one-day course entirely dedicated to the PFD and MFD systems, and pilots tell me it is all they can do to absorb most of the information. The company will provide an additional training day as an option. Diamond runs a two-day course on the Garmin system, and this includes laptop computers with dedicated programs that students can take to their motel rooms to simulate flights. On that note, Diamond is also building full-scale cockpit simulators to provide even more realistic practice. These are prudent measures that are considerate of customer needs and safety.

### **The classy glassy cockpit**

The trend towards electronic flight instruments systems (EFIS) is becoming widespread as a costly option for many of the GA aircraft manufacturers. Airline pilots who fly in these light aircraft find little difference between the cockpit instrumentation used in GA compared to their airliners. Essentially, a PFD provides all the flight data commonly used during flights, in a visual manner that provides instant information—once one's brain adapts. The same is true for the engine instrumentation. A second 10-in. screen typically provides a host of other data, such as colour-shaded terrain clearance, moving map display, and a traffic awareness system (TAS) that mimics the traffic alert and collision avoidance system (TCAS) installations in the big kerosene burners. It should



*Garmin G1000 Avionics System in a DA40-180 Diamond Star.*

*Photo courtesy of Garmin Ltd.*

be noted that the TCAS function only operates when the transponder is within reach of American signals. Perhaps Canada will recognize the important safety considerations for GA aircraft, and improve their radar services to also provide this feature.

Another display capability includes up-linked current "weather" and temporary flight restrictions (TFR) data. Currently this includes: NEXRAD, METAR, SIGMET, AIRMET, TFR and lightning updates—but only over the USA at the moment. Additionally, the MFD shows checklists, performance charts, emergency information and a host of additional information that enhances the ability of a pilot to comprehend his situation awareness. It should be noted that these computerized systems are essentially limitless in the information they can provide. I especially like knowing bits of information not commonly found in dated cockpits, such as the wind speed and direction as well as my true airspeed, fuel flow, fuel remaining and the estimate of fuel remaining at my destination.

Personally, I love all this useful information, and there is no question about the safety benefits of improving a pilot's situational awareness. One no longer needs to interpret the demon dials, as the displays paint a picture similar to what one would see through the windscreen. For flights in instrument meteorological conditions (IMC), this is a huge capability, as the risk of misinterpretation of instruments is virtually eliminated.

So, what's the total downside? Well, these panels are typically optional equipment that will on average add approximately \$30,000 to the basic aircraft cost (about 10%). Additionally, you will have to invest some time in learning how to handle this huge amount of useful data, and perhaps have a refresher from time to time if you fly infrequently. In my opinion, these are all small prices to pay for the augmented information capabilities, enhanced aircraft performance and increased safety. △

## **The End of an Era, and Another Begins**

In 1976, the Aviation Safety Bureau of Transport Canada began producing a small publication called *Helicopter Accidents* as a sister publication to the *Aviation Safety Letter*. The first issue was just over a page long, and gave a brief synopsis of six helicopter accidents. As the publication grew, it began to dig a little deeper, and included discussion that went beyond the narrative in the accident synopsis.

Issue 10/79 saw the name changed to *Aviation Safety Vortex*, a name that has carried on for over 25 years, and has become somewhat of a cultural icon in the Canadian helicopter industry. The publication has even worked its way into the vernacular of Canadian pilots, as we hear people say “That’s a good way to get yourself in the *Vortex*,” or, “So far I’ve managed to stay off the back page of *Vortex*.” I recall when I started flying in 1981, my instructor telling me to “stay out of the *Vortex*.”

Well, times change, and we’re changing, too. Transport Canada is creating one quarterly safety journal, which will encompass its three flagship safety publications—the *Aviation Safety Letter*, *Aviation Safety Maintainer*, and *Aviation Safety Vortex*—as well as bringing back material previously found in the *Airspace Newsletter*. At the time of this writing, the new journal had yet to be named. It is hoped that this new magazine will be ready for distribution in late summer 2005.

For the past 29 years, *Vortex* has had a considerable, albeit intangible, impact on helicopter safety in Canada and abroad. In addition to our core

distribution to all holders of a Canadian helicopter pilot licence, supplemental subscribers include pilots and organizations from around the world. *Vortex* articles have been quoted and reproduced in numerous magazines and safety publications, referenced in safety books, and used as classroom material.

In addition to being an important source of safety information, *Vortex* has provided a forum for us to share our experiences with others. Some of those stories have been funny—like the one where a pilot’s haste to keep up with the competition ended up with his water bucket getting tangled in a tree—and some have been tragic, but they have all contained valuable lessons. I hope you will continue to contribute to the new journal—those submissions will remain an important part of getting the safety message out there.

On behalf of the entire helicopter community, past and present, I’d like to thank my predecessors for building and shaping *Vortex* over the years, and turning it into the world-class safety resource that it has become. The new journal will attempt to carry on that tradition, and we hope that you—the helicopter industry—will continue to read and support it.

I’d also like to thank the readership for their interest and feedback during my time at the helm of *Vortex*. It has been an interesting three years, and I have enjoyed interacting with all of you.

Brad Vardy  
Editor, *Aviation Safety Vortex*

## **Aviation Safety Letter Joins the Integrated Journal**

As you’ve read above in Brad’s message, the *Aviation Safety Letter* (ASL) is also bowing out of its current format after 32 years of uninterrupted production. From humble beginnings, the ASL has actually remained humble all the way; trying its best, in a no-frills design, to convey lessons learned from past aviation occurrences, without preaching, or unduly over-emphasizing others’ unfortunate aviation errors. Over the years, we have received our share of complaints and criticism regarding article tone, unnecessary emphasis on one’s mistake, and perhaps one too many unsolicited editorial comments; mercifully, we have received many more notes of appreciation and praise from pilots, commenting on how the newsletters have invited them to think outside the box; to challenge how they view aviation safety—theirs and that of others in the industry. In this respect, we would like to believe the newsletters have succeeded.

But we are not truly leaving; just changing format. The new journal will be primarily based on our original suite of newsletters, and readers will quickly recognize them as they go through the

publication. The journal will attempt to maintain the same look and feel of the original products, with a more modern touch, and will likely evolve over time as we broaden topics and invite a larger spectrum of aviation personnel to learn from each other.

Our hope in merging all specialties into one product is to break down silos, allow cross-pollination, and avoid duplication of messages. Pilots will be able to read articles meant for aircraft maintenance engineers (AME), while AMEs will now have direct access to ASL & *Aviation Safety Vortex* articles, all in one package. The material previously found in the *Airspace Newsletter* will return after a few years on the shelf; new columns will feature articles from various branches of Transport Canada Civil Aviation, such as Civil Aviation Medicine and Regulatory Affairs.

If the only constant is change, the following ASL tagline will never change:

***Learn from the mistakes of others, you’ll not live long enough to make them all yourself...***

Paul Marquis  
Editor, *Aviation Safety Letter*

## Recently Released TSB Reports

The following summaries are extracted from Final Reports issued by the Transportation Safety Board of Canada (TSB). They have been de-identified and include only the TSB's synopsis and selected findings. For more information, contact the TSB or visit their Web site at [www.tsb.gc.ca](http://www.tsb.gc.ca). —Ed.

### TSB Final Report A03A0013—Fuel Starvation / Forced Landing



On February 4, 2003, a single-engine Cessna 188B aircraft was being ferried from Canada to Africa and was en route from St John's, N.L., to Goose Bay, N.L. On the first leg of the trip, approximately 1 hr 30 min into the flight, the pilot attempted to transfer fuel from a modified fuel tank to the wing tanks. The engine stopped producing power, and the pilot then carried out a forced landing in a snow-covered frozen bog. The aircraft nosed over during the landing roll and came to rest in a nose-down attitude. The pilot was not injured.

An overflying aircraft received the MAYDAY call sent out by the pilot, proceeded to the given coordinates, located the occurrence aircraft, and reported one person standing outside the aircraft. The Halifax rescue co-ordination centre (RCC) requested an AS350 helicopter, which was on a training flight, to proceed to the crash site for pickup. The helicopter arrived at the crash site approximately one hour after the accident, picked up the pilot, and transported him to Deer Lake, N.L.

#### *Findings as to causes and contributing factors*

1. Water contamination in the fuel system led to internal corrosion and solid particle contamination of the fuel screens. The contamination and water/ice led to a complete blockage of fuel flow to the engine, and the engine stopped.
2. The operator dismissed the fuel transfer problem on the initial ferry flight attempt as being caused by improper operation of the fuel system. The operator did not ask the maintenance company, which was contracted only to carry out specific tasks, to do a thorough inspection of the ferry tank fuel system.
3. An adequate examination of the fuel system after the initial ferry flight attempt would probably have revealed discrepancies (such as an improperly operating fuel system or fuel contamination) that would have been corrected before the second ferry flight attempt.

### TSB Final Report A03P0239—Collision with Terrain



On August 10, 2003, a Cessna 210A aircraft with a pilot and one passenger aboard was on a visual flight rules (VFR) flight from Prince George, B.C., to Princeton, B.C. On reaching Princeton, the pilot joined a left-hand downwind pattern for Runway 03 and intercepted the final approach path at approximately 5 NM from the aerodrome. Approximately 3 NM from the aerodrome, the aircraft was slightly high and the pilot selected idle power and extended the landing gear. When the throttle was selected to idle, the pilot smelled fuel fumes. On final approach for Runway 03, the pilot advanced the throttle to correct the descent, but the engine (Teledyne Continental Motors IO 470-E) did not respond, even at full throttle.

The pilot checked that the fuel selector valve was in the left-tank detent, confirmed that the propeller was in fine pitch, and that the mixture control was selected to rich. Before he could turn on the auxiliary fuel pumps, the aircraft's landing gear contacted the tops of a stand of trees. The aircraft continued its descent, struck an unoccupied house and a large pine tree, and came to rest less than 1/2 NM short of the runway. The aircraft remained wings-level before and after the aircraft struck the trees. The accident occurred at approximately 16:38 Pacific Daylight Time (PDT). The pilot and the passenger suffered serious injuries; both were wearing seat belts and shoulder harnesses. There was no fire following the accident.

#### *Findings as to causes and contributing factors*

1. On approach, when the pilot attempted to add power, the engine did not respond and the aircraft struck trees before the pilot could identify and correct the situation. The engine stopped for undetermined reasons.
2. The deteriorated condition of the O-ring installed in the left-tank supply port prevented the fuel

selector from operating normally, such that it could allow fuel to be supplied to the engine when the selector was in the OFF position.

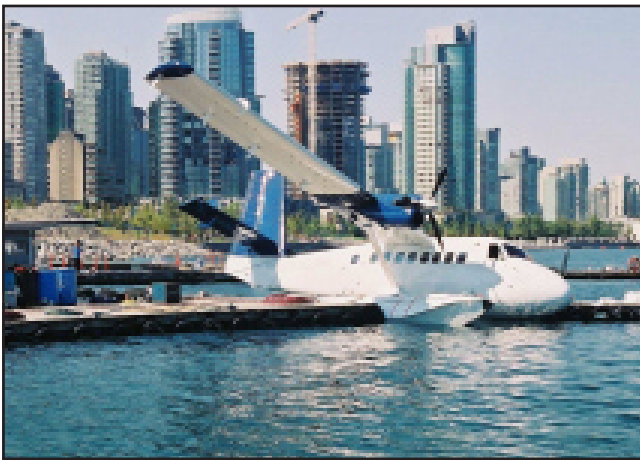
#### *Other findings*

1. No fault was found that would be expected to prevent the engine from producing power.
2. It is unlikely that either fuel tank venting, fuel starvation, or fuel exhaustion of one tank precipitated this event.

### **TSB Final Report A03P0268—Collision with Dock**

On September 3, 2003, a de Havilland DHC-6 (Twin Otter) floatplane, with 2 pilots and 11 passengers on board, was at the dock preparing for a charter flight from Vancouver Harbour, B.C., to Victoria, B.C. The No. 2 (right-hand) engine was started normally and the pilot-in-command (PIC) signalled to the dockhand to untie the aircraft. The dockhand responded by disconnecting the auxiliary power unit (APU), confirming the untie signal, and untying both mooring lines from the dock.

The PIC then initiated the start of the No. 1 (left-hand) engine. During start, the unsecured aircraft drifted free and swung right to a position approximately perpendicular to the dock. As the No. 1 engine spooled up, and with reverse selected on the No. 2 engine, the aircraft began to accelerate forward and veer in a left-hand arcing turn toward an adjacent dock. The PIC attempted to stop the forward motion of the aircraft by applying full reverse with both engines. Unbeknownst to the PIC, a mechanical fault did not allow the propellers to go into reverse, and the increase in power accelerated the aircraft toward the dock; the PIC shut the engines down using the fuel control levers. The aircraft struck the dock and the left float was ripped from its mounts, allowing the aircraft to tip to the left as the float sank. The 13 people aboard the aircraft escaped onto a maintenance float; there were no injuries. The accident occurred at 10:20 PDT.



#### *Findings as to causes and contributing factors*

1. The PIC deviated from the normal start and untie procedure used at the company's home base, and the PIC did not fully brief either the first officer or the involved dockhand on the departure procedure. As a result, the aircraft was not securely tied to the dock during the left engine start.
2. An isolated wire bundle from an unused glow plug ignition system blocked the operation of the power-lever microswitch and restricted the propellers from moving into reverse pitch range.
3. The PIC's attempt to retard the forward movement of the aircraft by applying increased reverse power had the opposite effect and accelerated the aircraft forward until it struck the adjacent dock.

#### *Findings as to risk*

1. Moving parts of the power-lever-controlled microswitch are exposed in an area where adjacent wires may impede normal operation of the microswitch.

#### *Other findings*

1. The PIC had insufficient time to respond to the abnormal control situation.

#### *Safety action taken*

Following this occurrence, the company involved inspected all of the aircraft in its fleet to ensure there were no similar risks to the operation of the microswitch; none was found.

Transport Canada reviewed Bombardier *Service Bulletin* (SB) 6/527 with Bombardier Aerospace and is currently working with the company to incorporate additional instructions with regard to isolating and stowing unused wires in the vicinity of the power-lever microswitch. Transport Canada is of the opinion that these additional instructions will help reduce the likelihood of interference.

### **TSB Final Report A03W0202—Controlled Flight into Terrain (CFIT)**

On September 23, 2003, a Cessna 414A departed Cranbrook, B.C., at approximately 19:10 Mountain Daylight Time (MDT) on a VFR cargo flight to Calgary, Alta. The aircraft disappeared from the Calgary area radar at 19:36 MDT, at an indicated altitude of 9 000 ft ASL in the Highwood Range mountains, approximately 49 NM southwest of Calgary. The aircraft wreckage was found on a mountain ridge at 8 900 ft ASL some 40 hr later. The flight was in controlled descent to Calgary when the impact occurred. There was a total break-up of the aircraft, and the pilot, the lone occupant, was fatally injured. There was a brief fireball at the time of impact.

### *Findings as to causes and contributing factors*

1. The pilot lost situational awareness, most likely believing he was over lower terrain.
2. The aircraft was very likely flown into cloud during a day VFR flight, which prevented the pilot from seeing and avoiding the terrain.

### *Findings as to risk*

1. The aircraft was not required by regulation to have terrain avoidance equipment installed, leaving the pilot with no last defence for determining the aircraft's position relative to the terrain. This is a risk for all aircraft operated in similar conditions.

### *Other findings*

1. The flight plan was prematurely closed by NAV CANADA, which caused the early stoppage of search and rescue (SAR) activities and delayed the recommencement of those searches by 2 hr.

### *Safety action taken*

The operator has received approved amendments to its *Operations Manual* that require higher/further clearances from obstacles on all day and night VFR flights. It has also implemented additional training on clearances for VFR flights and CFIT awareness.

Since the occurrence, NAV CANADA has increased the ability of Calgary tower and Edmonton flight information centre (FIC) personnel to search computer records for positive information on aircraft arrival and departure, with options for search by registration or time frame. This increased ability will reduce reliance on memory. In addition, the Edmonton area control centre (ACC) shift managers and the Edmonton air traffic operations specialist, located in the Edmonton ACC, now have access to the same computer records for search capabilities. A similar system is being beta tested in two centres and will be considered for national deployment.

### **TSB Final Report A03W0210—Loss of Control / Stall**

On October 4, 2003, a float-equipped Piper PA-18-150 departed Tootsie Lake, B.C., at 11:19 PDT on a day VFR flight to Linda Lake, B.C. The purpose of the flight was to transport moose meat, antlers, and camp materials located at the outfitter's camp at Linda Lake to the outfitter's base camp at Tootsie Lake.

The aircraft was not heard from after it departed Tootsie Lake. At 12:28 PDT, the SAR Satellite System received an ELT signal, and the aircraft was subsequently reported overdue. A helicopter was chartered out of Watson Lake, Y.T., to conduct a search; the wreckage was found on the shoreline of Linda Lake at 16:02 PDT. The aircraft was substantially damaged, and the pilot, the lone occupant, sustained fatal injuries. There was no post-impact fire.

The aircraft weight at the time of the accident exceeded the maximum allowable take-off weight by at least 162 lbs. Combined with the effects of the moose antlers being carried externally, this would have reduced the aircraft's flight performance; adversely affecting the stability and slow flight characteristics, and increasing the stall speed. The lack of a stall warning system may have delayed the pilot's recognition of the approaching stall. Carriage of external loads, such as moose antlers, is considered an acceptable practice by outfitters and other float plane operators. The risks associated with the carriage of external loads require that consideration be given to the performance degradation.



### *Findings as to causes and contributing factors*

1. The aircraft stalled at low altitude, which precluded an effective recovery; the aircraft was not fitted with a stall warning system, which may have delayed the pilot's recognition of the impending stall.
2. The combination of the aircraft being at least 162 lbs above the maximum seaplane weight of 1 760 lbs and the moose antlers being carried externally degraded the performance of the aircraft. △

## **IPAT Success: Canada Airport Manoeuvring Surfaces (CAMS)**

Following the release of their respective and comprehensive runway incursion studies in 2000 and 2001, Transport Canada (TC) and NAV CANADA joined forces to oversee the joint implementation of several aviation safety recommendations related to

the prevention of runway incursions. Representatives from both organizations created the Inursion Prevention Action Team (IPAT), a working group that improved data collection, monitoring processes and trend analysis on runway incursions across the

nation. IPAT also produced an extensive promotional campaign, which included a new video, several newsletter articles, regional awareness material and six new posters. One of the recommendations was to provide, at little or no cost, diagrams of airport manoeuvring surfaces to general aviation pilots.

VFR pilot groups overwhelmingly supported this recommendation and lobbied for its implementation. The Canadian Owners and Pilots Association (COPA), in particular, was asking TC and NAV CANADA to facilitate the release of airport taxi diagrams to the Internet, free of charge, similar to such an initiative in the U.S., to help reduce runway incursions. COPA argued that most VFR pilots do not carry the *Canada Air Pilot* (CAP), and therefore do not have access to the detailed taxi diagrams that are in it. COPA also argued that the small aerodrome diagrams in the *Canada Flight Supplement* (CFS) are inadequate for accurate taxiing, and that it would not be reasonable to expect VFR pilots to purchase the CAP just to get the airport diagrams. Senior managers at TC and NAV CANADA agreed, and tasked IPAT to pursue the effort through the working group.

As a result, NAV CANADA, as the office responsible for the publication and distribution of aeronautical information, decided to make aerodrome diagrams readily available to general aviation pilots through their Web site. NAV CANADA will produce a new product titled ***Canada Airport Manoeuvring Surfaces*** (CAMS). CAMS will contain all aerodrome, taxi, low visibility and parking charts published in all volumes of the CAP. Charts will be listed by aerodrome in alphabetical order. For each aerodrome, charts will be listed in the same sequence used in the CAP. CAMS is expected to be available on the NAV CANADA Web site by mid-March 2005.

We believe that placing aerodrome diagrams in the hands of general aviation pilots is an enhancement to aviation safety and that it will mitigate some of the risks associated with runway incursions. This is in direct support of *Flight 2005*: “Promoting a shared commitment to enhancing aviation safety in Canada and internationally.” Congratulations to NAV CANADA, in particular, for making this happen and for hosting CAMS on their Web site. △

## **More Thoughts on a “Non-Punitive” Reporting Policy**

*Blackfly Air* managers are back; this time briefly exposing their limited understanding of a “non-punitive” reporting policy on page 6. Here are some expanded thoughts on this important safety management system (SMS) component. All companies should strive to develop a non-punitive, disciplinary policy as part of their SMS.

Employees are more likely to report events, and cooperate in an investigation, when some level of immunity from disciplinary action is offered. When considering the application of a non-punitive disciplinary policy, companies might want to consider whether the event involved wilful intent on the part of the individual involved, and the attendant circumstances. For example, has the individual been involved in an event like this before, and did the individual participate fully in the investigation.

A typical non-punitive reporting policy might include the following statements:

- *Safe flight operations are ABC Airlines’ most important commitment. To ensure this commitment, it is imperative that we have uninhibited reporting of all incidents and occurrences that compromise the safety of our operations.*
- *We ask that each employee accept the responsibility to communicate any information that may affect the integrity of flight safety. Employees must be assured that this communication will never result in reprisal, thus allowing a timely, uninhibited flow of information to occur.*

- *All employees are advised that ABC Airlines will not initiate disciplinary action against an employee who discloses an incident or occurrence involving flight safety. This policy cannot apply to criminal, international or regulatory infractions.*
- *ABC Airlines has developed safety reports to be used by all employees for reporting information concerning flight safety. They are designed to protect the identity of the employee who provides information. These forms are readily available in your work area.*
- *We urge all employees to use this program to help ABC Airlines continue its leadership in providing our customers and employees with the highest level of flight safety.*

Such a policy should be clearly laid out and communicated to all staff. Some operators communicate this policy to their staff by having it printed on the hazard reporting forms. In order to encourage a healthy reporting culture in a company, there should really be only three reasons to discipline an employee. They are:

1. wilful negligence;
2. criminal intent; and
3. use of illicit substances.

For further information, consult Transport Canada’s *Safety Management Systems for Small Aviation Operations—A Practical Guide to Implementation* (TP 14135), and *Safety Management Systems for Flight Operations And Aircraft Maintenance Organizations—A Guide to Implementation* (TP 13881). △



## Floatplane takeoff too close for comfort

Dear Editor,

I was working on the balcony of the New Edinburgh Club boathouse, on the Ottawa River near downtown Ottawa, Ont., when I heard a floatplane start a takeoff in the distance. After a few seconds, the rising engine noise made me look across to see a floatplane just lifting off, heading southwest parallel to the shore. I was surprised that it immediately started a gentle left turn towards the south bank of the river. The river at this point is about 2 000 ft wide, and the wind was from the northwest at 5 kt.

After a few seconds, it was heading directly towards me, still below the level of the balcony in a 20-degree bank. It was close enough that I moved to an open doorway, prepared to dive inside if things got more interesting! The aircraft, which I recognized as an Aeronca, increased its bank slightly, and I realized it would miss the building by only a small margin. The plane passed the boathouse going east, still below roof-level, about 50 yd from the balcony. The safety margin was slim, to say the least.



Artist's impression of the event.

I calculated that a turn radius for 60 mph and 20 degrees of bank requires about 750 ft. A 135-degree turn (southwest to east) would need 1 300 ft. If the aircraft started 100 ft from the north bank of the river, and flew the turn for 25 s with a 5 kt drift to the southeast, we see that the remaining clearance is about 300 ft, since the boathouse is built on foundations 100 ft out into the river. For 65 mph, a more realistic speed for best climb, the turn needs 1 500 ft and the clearance at the boathouse shrinks to 100 ft; close to my estimate of 50 yd for the closest approach.

If there had been slightly more tailwind, the plane, the pilot, and this 100 year-old historic wooden building would have been toast or ashes, with another case of a floatplane failing to clear an obstacle. If this pilot was not scared by the close call, then he or she is in need of guidance.

John Firth, Ottawa, Ont.

*Thank you, John, for this story. It should raise awareness for floatplane pilots who depart in congested areas, such as the confines of the Ottawa River near Rockcliffe, or many other similar spots. I would argue the possibility that this pilot intended to avoid the downtown core, and expedited a left-hand turn back east, rather than intentionally buzzing the boathouse. You are, nevertheless, correct that this was a very questionable manoeuvre, turning downwind at such a low altitude over water. A climbing right turn, into wind, to the north and over Gatineau would likely have been a much safer path. —Ed.*

## Revenue passenger in co-pilot seat

Dear Editor,

After reading your latest *Aviation Safety Letter*, I felt I had to write to you regarding a concern that I have. As a company pilot for a land developer based in British Columbia, I spend most of my time in my own cockpit. However, at times I must make the shuttle between Vancouver, B.C., and Victoria Harbour, B.C., to facilitate aircraft pickup, etc. My question and concern is with regard to some single-pilot operations that are allowed to have a revenue passenger sit in the vacant co-pilot position, with full access to the dual flight controls.

With a commercial carrier, I feel that seat should be left empty, occupied by company personnel or jump-seating pilots. At the very least, please remove the co-pilot controls! How quickly the fears of 9/11 have abated. At one time, even these harbour-to-harbour aircraft were considered for reinforced cockpit doors. Now they allow a complete stranger to sit up front, whom they know nothing about, mental or physical condition, and are allowed direct access to aircraft controls.

Even during my commercial flying of a Cessna 185, the right-hand control was removed and pedals stowed. Why should this situation be different? I feel this is a serious matter and that the extra revenue from that co-pilot seat should be forfeited in the name of increased safety of all the paying passengers in the rear who trust that all is being done correctly.

Adam Welch, Victoria, B.C.

*Dear Mr. Welch, I looked into this matter and was informed that the department does not currently have, nor does it plan to have, regulations that would prohibit the carriage of a revenue passenger in the "co-pilot" seat of an aircraft not required to be flown by two pilots. —Ed.*

**Invest a few minutes into your safe return home this summer...**

by reviewing your fuel requirements in A.I.P. RAC 3.13.

## **Delayed Search and Rescue Response**

*An Aviation Safety Advisory from the Transportation Safety Board of Canada (TSB)*

On August 26, 2004, a privately registered Piper Cherokee PA-28-235 aircraft crashed near Lake Manitoba Narrows, Man., during a night VFR flight in adverse weather conditions, and the pilot sustained fatal injuries. The pilot had filed a flight itinerary with a friend at his destination. When the pilot became overdue, the friend did not know what to do, and took no action to initiate search and rescue (SAR). The investigation (A04C0162) is ongoing.

The pilot had filed flight plans with NAV CANADA for the first two legs of his trip from Olds-Didsbury, Alta., to Kindersley, Sask., and Yorkton, Sask. At Yorkton, he filed a flight itinerary with his friend at his final destination, Gimli, Man., for the remainder of his trip from Yorkton to Gimli. The pilot diverted to Roblin, Man., while en route, and phoned his friend from Roblin to advise of the diversion and of his intention to continue onward to Gimli. The friend had no aviation experience, was unaware of the flight itinerary SAR notification requirements, and was not briefed by the pilot regarding the notification requirements.

The accident was witnessed by drivers on an adjacent highway who immediately contacted emergency response services, which in turn contacted the Trenton rescue co-ordination centre (RCC). However, had the accident occurred in a more

remote location without witnesses and the pilot survived, it is likely that SAR response would have been delayed because the pilot's friend did not know what action was required when the aircraft became overdue. A review of TSB investigations from 1989 to 2004 revealed six other occurrences in which SAR response was or could have been delayed because the flight itinerary responsible person was inadequately briefed.

In occurrence A89O0058, the pilot had told his wife he would be returning the same night, but no action was taken when the aircraft became overdue. In occurrence A90W0091, the pilot had filed a flight itinerary with a relative, but the flight itinerary was so vague that it was ineffective for SAR purposes. In occurrence A91P0265, the pilot had filed a flight itinerary with his wife, and later advised his son of a revision to the flight itinerary; SAR notification occurred one day later than it should have. In occurrence A92P0212, the pilot filed a flight itinerary with his son; SAR notification occurred one day later than it should have.

In each of these occurrences, the pilots did not ensure that the person with whom the flight itinerary was filed clearly understood the SAR notification requirements. The results were that SAR response was delayed or did not occur. The TSB has not issued any previous safety communications regarding this safety deficiency.

Procedures are in place to activate SAR response for overdue aircraft. *Canadian Aviation Regulation (CAR) 602.73(2)* requires pilots to file a flight plan or flight itinerary for VFR flights conducted more than 25 NM from the departure aerodrome. A flight itinerary may be filed with a responsible person who has agreed with the person filing the flight itinerary to ensure that air traffic services (ATS) or an RCC are notified within a time specified by the pilot, or within 24 hr after the last reported estimated time of arrival (ETA), that the aircraft is overdue.

Regulations regarding flight itineraries place the onus to notify SAR of an overdue aircraft on persons who have agreed to take specific action, but who may not fully understand their obligations. Failure of a pilot to properly brief the flight itinerary responsible person regarding SAR notification requirements creates a risk that SAR response will be delayed in the event the aircraft becomes overdue. Such delay could result in fatalities due to lack of timely evacuation and medical care in otherwise survivable accidents.

Transport Canada may wish to consider action to improve awareness among pilots of the need to ensure the flight itinerary responsible persons understand their obligations concerning SAR notification. *(Done. —Ed.)* △

### **SARSCENE 2005**

The fourteenth annual search and rescue (SAR) workshop will be held in Charlottetown, P.E.I., October 5–8, 2005. It includes four days of presentations, demonstrations, a tradeshow, SAR games, training sessions and an awards banquet. Co-hosted by the National Search and Rescue Secretariat and the P.E.I. Emergency Measures Organization, SARSCENE 2005 kicks off on October 5 with the ninth annual SARSCENE games. The workshop is a unique opportunity for SAR personnel to share their expertise and ideas, with over 600 participants from air, ground and marine organizations across Canada, and around the world. Drive, cruise or fly in to P.E.I., voted the number one island in North America by *Travel and Leisure* magazine. Don't miss the early registration deadline of August 31. For more information, visit the Web site at [www.nss.gc.ca](http://www.nss.gc.ca), or call 1 800 727-9414, fax 613 996-3746 or e-mail [sarscene2005@nss.gc.ca](mailto:sarscene2005@nss.gc.ca) △



# TAKE FIVE...

for safety  
Five minutes reading  
could save your life !

## NOTAM

Every pilot planning a flight knows that it is necessary to check for aviation weather information. An equally important part of flight planning is to obtain all pertinent NOTAMs. Which NOTAMs should be checked? Is it sufficient to verify only the NOTAMs for the departure and destination aerodromes? Some believe it is enough; however, it is not.

An example is the visit of the American President, 30 November to 1 December 2004. Pilots planning to depart from or land at the Ottawa/Rockcliffe airport (CYRO) were not aware of the large areas of restricted airspace in the Ottawa region if they only checked the NOTAMs for CYRO. The information regarding the restricted airspace was disseminated and stored under the NOTAM files for the Montréal FIR (CZUL), the Toronto FIR (CZYZ) and the Ottawa/MacDonald Cartier Airport (CYOW). A NOTAM issued under NOTAM file CYND, for Ottawa/Rockcliffe and other aerodromes in the area, made reference to the Montréal FIR NOTAM.

*Canadian Aviation Regulation (CAR)* 602.71 requires that, “the pilot-in-command of an aircraft shall, before commencing a flight,

be familiar with the available information that is appropriate to the intended flight.” Further, *A.I.P. Canada (AIP)* section RAC 3.3 indicates there are three categories of NOTAM files: National NOTAMs, FIR NOTAMs and aerodrome NOTAMs. In addition, AIP section MAP 5.6.8, titled NOTAM Files, describes the type of information disseminated in each category. Before commencing a flight, pilots must ensure that each NOTAM file category has been reviewed in order to be familiar with all NOTAM information appropriate to the intended flight.

So what is the big deal if all pertinent NOTAMs are not checked?

Aside from breaking the law, going against the statements in the AIP and poor flight planning practices, in some instances where the restricted airspace is patrolled by armed interceptor aircraft, an unwary pilot who violates the airspace just might experience a “close encounter” of the worst kind. Think about it!!

Where can you find the NOTAM file for an aerodrome? In the *Canada Flight Supplement*, (CFS) Aerodrome/Facility Directory, Section B. See example below:

**NOT FOR NAVIGATION**

<b>OTTAWA / HULL (EXPRESSAIR) QC (Heli)</b>		CTH4 ← 1
REF	N45 27 52 W75 44 12 14°W UTC-5(4) Elev 180' A5000 A5002	
OPR	102662 Canada Inc (Expressair) 819-778-2112 Cert PPR	
PF	B-1 C-2,3,5,6	
2 → FLT PLN	(bil) NOTAM FILE CYND ← 3	
FIC	Québec 866-GOMÉTÉO or 866-WXBRIEF	
PAD DATA	65' x 65' 80' x 80'	
RCR	No win maint	
COMM	ATF Monitor Gatineau rdo 122.3	
PRO	Arr/dep btwn 010°-060° & btwn 260°-320°	

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1. Aerodrome location indicator
2. Flight planning section
3. NOTAM file



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# UNRAR costs are UNREAL...



## Which one is real?

An UNSAR is an unnecessary search and rescue alert. To prevent an UNSAR, immediately report any accidental ELT activation to the NAV CANADA National Operations Centre (NOC) by calling (toll-free) 1 866 651-9053.



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