Transport Canada Transports Canada

Aviation Safety

Vortex

Learn from the mistakes of others; you'll not live long enough to make them all yourself . . . **Issue 1/2004**

Air Ambulance Strikes Terrain After Takeoff in Fog

In issue 3/2003, we profiled an accident involving an air ambulance in Australia. This time, it's another fatal ambulance mishap involving a Sikorsky S-76A that struck a hillside less than two minutes after takeoff in bad weather. No, I'm not picking on air ambulances, but this occurrence highlights issues of crew coordination and cockpit procedures, training standards and maintenance, and given the similarity of the scenario to some of our operations here in Canada, I thought many of you could relate.—Ed.

At 22:08 local time on June 14, 1999, a Sikorsky S-76A helicopter, operated as an air ambulance for the University of Kentucky Medical Center (37KY) at Lexington, Kentucky, USA, collided with terrain in instrument meteorological conditions (IMC) during departure from Jackson, Kentucky. The helicopter was destroyed, and all four people in the helicopter—two pilots and two medical crewmembers—were killed.

The U.S. National Transportation Safety Board (NTSB) said, in its final report, that the probable cause of the accident was "the failure of the PIC [pilot-in-command] to adequately supervise the SIC [second-in-command] and maintain a positive climb." The report indicated that factors in the accident were fog and dark-night conditions.

The 49-year-old PIC held a commercial pilot certificate with rotorcraft-helicopter and instrument-helicopter ratings. He had accumulated 6 859 flight hours, including 2 319 flight hours in S-76As. His instrument flight experience totalled 382 flight hours, including 111 hours in simulators and 39 flight hours in actual IMC. The report revealed that his initial checkout in an S-76A was as an SIC in February 1990. During a March 1996 six-month recurrent instrument flight check, one item—"stabilized approach concept"—initially was recorded as unsatisfactory and later recorded as satisfactory. The check pilot's written remarks said that the pilot failed to call for a missed approach "with the airspeed 25 kt slow."

In September 1991, the pilot was upgraded to PIC. In March 1997, he failed a six-month recurrent instrument flight check. The report found that the PIC was rated unsatisfactory in the use of checklists, emergency procedures, flight planning, instrument landing system (ILS) and VHF omnidirectional range (VOR) approaches and missed approach. The check pilot made a number of written remarks, including (in reference to flight planning) that "he did not understand the operations manual with regard to IFR take-off minimums." The next day, the PIC repeated the check ride and passed all items. He also passed

TP202E
ISSN 0823-5554

Canada

check rides in September 1997 and April 1998.

He received training in the Bell 412 in 1998 and passed an SIC check ride. The report said that training records "noted several areas of deficiency found during the training," and included the following remarks: "unstabilized ILS at middle marker," and "before takeoff IFR, nav and com radios—airman was confused about [a functional] check and what radios were displayed where." The pilot re-qualified in the S-76A as PIC in September 1998 and passed a six-month recurrent instrument flight check in February 1999.

The 46-year-old SIC held a commercial pilot certificate with ratings for airplane, single-engine land; airplane multi-engine land; and rotorcraft-helicopter. He also held instrument ratings for airplanes and helicopters and a mechanic certificate with an airframe rating and a powerplant rating. He had accumulated 7 739 flight hours, including 6 574 flight hours in helicopters. His instrument flight experience totalled 181 flight hours, including 92 flight hours in actual IMC. Company records showed that he was hired as a maintenance technician in 1976 and subsequently participated in a company program to become a pilot. He began flying single-engine helicopters in 1982. His initial checkout in the S-76A occurred in May 1997, and he passed two subsequent six-month recurrent instrument flight checks. In May 1998, he failed an oral exam required to become an S-76A PIC; the flight check was not conducted.

Training records indicated that the SIC was "weak in several areas related to instrument procedures and flight planning." Another oral examination was administered in June 1998, and he re-qualified as an S-76A SIC. He subsequently passed two six-month recurrent instrument flight checks.

In post-accident interviews, other pilots from the operator's Lexington base mentioned that the two pilots often flew together. According to the report, "Both pilots were reported to have demonstrated varying degrees of assertiveness in the cockpit. No negative comments were generated for either pilot. However, one pilot did report that the SIC told him he felt uncomfortable flying with the PIC under IFR conditions. No specifics were given for the reported statement of the SIC."

The S-76A is type-certificated for two pilots when operated under IFR. The accident helicopter was one of two medical helicopters operated from 37KY. Installed equipment included three sets of attitude indicators and directional indicators, dual VOR receivers, distance measuring equipment (DME), an IFR-approved global positioning system (GPS) receiver, and a cockpit voice recorder (CVR) with continually energized lip microphones at both pilot stations. The helicopter did not have an autopilot.

During the six months before the accident, two attitude indicators and three vertical gyros on the accident helicopter had been replaced. At the time of the accident, the operator's records showed that, during the same six-month period, 40 vertical gyros on 15 helicopters and 11 attitude indicators on 7 helicopters had been replaced.

The morning of the accident, the flight crew reported for duty at 11:00 at 37KY. They were on the fourth day of a seven-day rotation, and their shift was to end 12 hours later, at 23:00.

At 13:56, the crew began a flight to reposition the helicopter to Julian Carroll Airport (JKL), an uncontrolled airport at the top of a hill at 1 381 ft in Jackson, Kentucky, about 67 NM southeast of Lexington. JKL had no published take-off criteria for Runway 19, which was equipped with medium-intensity runway edge lights. There was a VOR/DME and GPS approach to Runway 01.

The helicopter was landed at JKL at 14:26, and fuelled with 132 litres of Jet-A fuel with an anti-icing fuel additive. The crew had access to a lounge area, equipped with a direct user access terminal system (DUATS), which could be used to check weather and file flight plans. Records from the U.S. Federal Aviation Administration (FAA) showed that the PIC had used DUATS three times in preparation for their night flight to reposition the helicopter to 37KY. The third time was at 21:21, about 45 min before the flight, when he requested an abbreviated weather briefing for the state of Kentucky, including aviation routine weather reports (METAR) and aerodrome forecasts (TAF). JKL weather at that time included calm winds and visibility of 0.5 SM, with the sky obscured, vertical visibility of 100 ft and fog. The temperature and dew point were both 18°C. The flight to 37KY was planned to take 30 min.

The airport manager at JKL told investigators that he observed the crew in the lounge, planning an IFR flight to Lexington, and that "they had a manual out and were talking about maintaining a 250-feet-per-minute rate of climb to 3 000 ft."

According to the report, "The airport manager observed the flight crew walk to the helicopter. He reported that visibility was reduced by fog, and he could not recognize the pilots but only saw vague shapes as they boarded the helicopter."

At 21:54, after boarding the aircraft and starting both engines, the crew checked the JKL automated surface observations system (ASOS). The ASOS information, which was recorded several times by the CVR, said that visibility at JKL was less than 0.25 SM in fog, the sky was overcast with a ceiling of 200 ft, and the temperature and dew point were 18°C.

The CVR did not record any comments by the crew about the visibility being less than 0.25 SM. Although the flight was conducted under the U.S. *Federal Aviation Regulations* (FARs) Part 91, which does not specify IFR take-off minimums for Part 91 operators, the chief pilot said that he expected company pilots to always follow the

continued on page 7

Transport Canada Transports Canada

The **Aviation Safety Vortex** is published quarterly by Civil Aviation, Transport Canada, and is distributed to all Canadian licensed helicopter pilots. The contents do not necessarily reflect official policy and, unless stated, should not be construed as regulations or directives. Letters with comments and suggestions are invited. Correspondents should provide name, address and telephone number. The Vortex reserves the right to edit all published articles. Name and address will be withheld from publication at the writer's request.
Address correspondence to:
Editor, Brad Vardy
Aviation Safety Vortex
Transport Canada System Safety AARQ
Place de Ville, 7th Floor, Tower C
330 Sparks St.
Ottawa ON Canada K1A 0N8
Tel.: 613 990-5444 Fax: 613 991-4280
E-mail: **vardyb@tc.gc.ca**
Internet: http://www.tc.gc.ca/vortex

Brad Vardy

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

Sécurité aérienne — Vortex est la version française de cette publication.

Agreement Number 40063845

Did You Know?

Canadian Aviation Regulation Advisory Council (CARAC)

In the previous issue of *Vortex* we described the basic CARAC process. In this issue I am providing information on the organizational structure, the various technical committees, and information on how to become a member of CARAC.

Organization Structure

Civil Aviation Regulatory Committee (CARC)

The CARC, composed of Transport Canada Safety and Security senior executives, identifies and prioritizes regulatory issues, and considers and directs the implementation of recommendations made to it. The CARC also provides advice and recommendations to the Transport Canada Assistant Deputy Minister, Safety and Security.

Technical Committees

Technical Committees, with representation from both Transport Canada and the aviation community, review and analyze the issues assigned by the CARC and make regulatory recommendations.

The mandate of a Technical Committee is to provide advice, recommendations and, if required, draft rules with respect to regulatory issues under the written mission statement provided by the CARC. There are ten standing Technical Committees, that generally relate to the *Canadian Aviation Regulations* (CARs) Parts I to VIII, as follows:

Technical Committee Title	CAR
General	Part I
Fees	Part I
Identification, Registration and Leasing of Aircraft (IRLA)	Part II
Aerodromes and Airports (A&A)	Part III
Personnel Licensing and Training (PL&T)	Part IV
Aircraft Certification (AC)	Part V
Maintenance and Manufacturing (M&M)	Part V
General Operating and Flight Rules (GO&FR)	Part VI
Commercial Air Service Operations (CASO)	Part VII
Air Navigation Services and Airspace (ANS&A)	Part VIII

In This Issue

In addition to the activities assigned to these Technical Committees, the CARC will also consider requests for establishing other Technical Committees to advise on regulatory issues that relate to other or more specific subject areas, or which do not fall within the mandate of industry or government/industry committees already established. Such requests should be made in writing and may be submitted to the CARAC Secretariat (see "Information" below for the address) or to the CARC Chair at the following address:
Transport Canada Safety and Security
Attn.: Director General, Civil Aviation (AAR)
Ottawa, Ontario K1A 0N8

Working Groups

Working Groups, composed of specialists representing both government and the aviation community, develop proposals and recommendations for the assigned tasks, and implement those that are approved. Working Groups are formed by, and report to, Technical Committees, as required, and are limited to the period required to complete the assigned task.

Secretariat

A Secretariat has been established and is responsible for the management of CARAC, on behalf of the TC Regulatory Committee.

Project Resources

Apart from the full-time Secretariat, resource support is solicited from within Transport Canada and the aviation community, as required. Participation of individuals is sought through contact with the CARC and Technical Committees. Agreements are negotiated with the nominees' parent organizations with regard to the area of assignment, role and responsibilities, and the duration of the assignment.

Costs incurred by organizations outside Transport Canada are expected to be borne by those organizations. However, Transport Canada will provide, where available, meeting facilities and secretarial support such as record keeping.

Requests for Regulatory Action

The following information is required when requesting a regulatory change proposal:

- the file number of the request;
- the regulatory reference;
- the subject title;
- the name of the petitioner;
- a description of the general nature of the request;
- a justification (as presented in the request for instituting rule-making procedures);
- the current text; and
- the proposed new regulatory text to meet intent of the change (where possible).

Communication and External Relationships

Comprehensive and timely communications are to be given top priority. The extensive participation of representatives from the aviation community and from within Transport Canada in every facet of CARAC ensures a high level of communication with the aviation community.

The Secretariat's communication strategy includes:

- distribution of bulletins, newsletters and reports, as required; and
- a Web site.

The CARAC Web site can be viewed by accessing the Transport Canada home page at: www.tc.gc.ca

Periodic updates on the activities of the CARAC will be published as *A.I.P. Canada* Aviation Notices.

Information

The information presented here is published in greater detail in, *CARAC Management Charter and Procedures* (TP 11733E). People interested in becoming CARAC members or wishing to obtain more information concerning CARAC may contact:

Transport Canada
Attn.: Chief, Regulatory Affairs (AARBH)
Ottawa, Ontario K1A 0N8
Tel.: 613 990-1184
Fax.: 613 990-1198

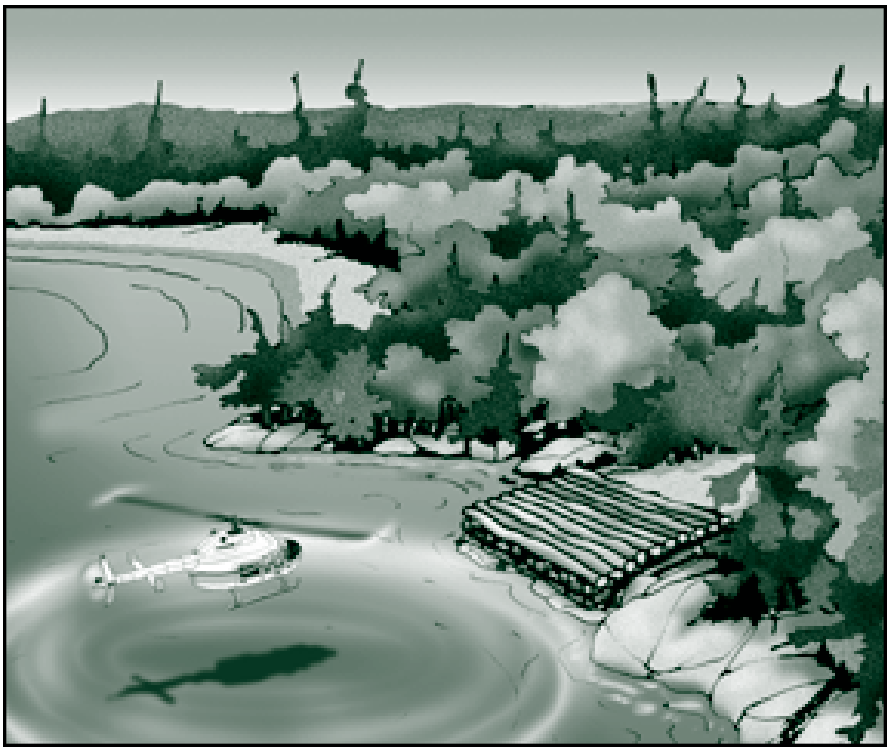
Next issue I will discuss the process for introducing a new aircraft type into service in Canada.

Mike Laughlin
Program Manager
Rotorcraft & Aerial Work
Commercial & Business Aviation
Tel.: 613 990-1093
Fax: 613 954-1602
Cell: 613 297-9017
E-mail: laughlm@tc.gc.ca

Sergei Sikorsky to Speak at CASS 2004

The 16th annual Canadian Aviation Safety Seminar (CASS) will be held in beautiful Toronto, Ontario, April 19–21, 2004. CASS is an international event hosted annually by Transport Canada for all sectors of the aviation community. The theme for CASS 2004 is "The Future of Aviation Safety," which calls for nothing less than gazing into the crystal ball to get a sense of the safety issues the industry and regulatory authorities will face between now and the end of the decade. On April 20, come hear Sergei Sikorsky speak about life with his famous father, Igo, at the delegate banquet. For further information, visit http://www.tc.gc.ca/CASS.

No Tilt!



You are the pilot of a Bell Jet Ranger transporting three surveyors to a remote site. At the site you land on a log helipad built on the shoreline. The passengers disembark and as the front seat passenger exits the aircraft, you feel the nose of the aircraft pitch up and the aircraft tilts back. As the pilot, what would you do?

The following is taken directly from an accident synopsis: "The pilot landed the helicopter on a wooden helipad. During engine shutdown, the helicopter toppled backwards off the pad."

Unfortunately, this type of accident is relatively common, and a significant proportion of them involve light helicopters flown by inexperienced pilots. Prematurely reducing the throttle to ground idle after landing may exacerbate the problem and make recovery impossible.

It often happens when the helicopter is being unloaded on the helipad, which usually results in the aircraft center of gravity (C of G) shifting aft. A helipad with a slight up slope, and/or not having the entire length of skid tube firmly on the pad, sets up the perfect condition for a helicopter to pitch up and tilt back when it is being unloaded.

A pilot's normal reaction to pitch up is to push forward on the cyclic. Using cyclic only can cause significant damage in the form of mast bumping, dislocation of the spike plate in a Bell Jet Ranger, damage to the head, etc., with no change in aircraft attitude. Further damage may result if during the tilt back the tail rotor comes in contact with water, ground, trees etc.

The recovery from tilt back/pitch up is a healthy application of up collective followed by smooth and measured forward cyclic. Keep in mind that when applying collective there may be a passenger straddling the skid gear. A good briefing and training in embarking and disembarking is essential.

There are many examples of accidents where too much up collective and forward cyclic have caused the helicopter to become airborne and impact trees at the edge of the helipad. On several occasions, over-controlling has caused the tail rotor to come in contact with the helipad. Being aware of the pitch up potential and smooth control is paramount in helipad operations. In addition, over-controlling around helipads or unprepared sites can result in dynamic rollover.

Should the aircraft tilt back when it is at ground idle, there may not be enough time to advance the throttle and apply collective. If the aircraft has gone beyond the recovery point, there is nothing left to do but shut off the fuel and battery, and wait for the turning parts to come to rest before exiting the aircraft.

Temporary bush helipads have inherent risks. There is no standard that mandates how they are built or maintained. I recommend that all bush helipads be treated as career limiting opportunities.

To be safe a helipad it must be:

- sufficient in size to accommodate the type of aircraft.
- free of debris, to prevent foreign object damage (FOD).
- built of and on materials that will support the weight of the helicopter under static and dynamic (aircraft running) conditions.
- stable under static and dynamic loads.
- level so that the helicopter does not slide, tilt, tip or drop off the helipad.

When a pilot first arrives at a site with a temporary log helipad they have no way of knowing whether the helipad is acceptable.

Here are a couple of survival strategies that I've used to mitigate the risks:

- If there is a better place to land other than the temporary landing pad (i.e. beach, field, etc.), land there.
- Helipads are often built on shorelines and hillsides and therefore there is a tendency for the helipad to have a natural upslope.

- If you must land on an unfamiliar helipad, keep on enough power (up collective) to keep the aircraft light on the skids.
- Brief your passengers that when exiting they should smoothly transfer their weight from the helicopter to the helipad, as in a hover exit. This will allow the pilot to compensate for the weight change and adjust collective and cyclic accordingly.
- Never bring the throttle back to idle unless you are 100% sure that the helipad will support the aircraft. Once the throttle is at idle, you are committed.

As an observation, inexperienced pilots have a tendency to bring the throttle to ground idle as soon as they can after landing. Remember, regardless of experience, bringing the throttle to idle commits you to the surface that you have landed on.

Robert Laporte | Regional Safety Officer-Helicopter
807 474-2596 | fax 807 475-5816
laportr@tc.gc.ca
Transport Canada | Thunder Bay T.C.C.,
100 Princess Street, Suite 210 (PAB),
Thunder Bay ON P7E 6S2
Government of Canada

In Memoriam

Colin Sullivan

Colin "Sully" Sullivan passed away suddenly on July 17th and on this day the helicopter industry—and in particular the flight-training sector—lost a very valued player and great friend to many.

When we think of the Canadore College Helicopter Flight Program, most of us remember the small, long-standing group of flight instructors that included Colin Sullivan. They were a highly experienced group of bush pilots, dedicated to teaching students the necessary skills to succeed in an unforgiving business. Collectively they had a major influence on a generation of helicopter pilots, and the helicopter industry as a whole in this country.

Sully decided to leave work as a police officer with the Ontario Provincial Police in the early 1970s for a more glorious life in the helicopter industry. His school of choice was Canadore College and he enrolled in the early years of the combined flight and maintenance program in 1972. After graduation, he landed a job with Trans Quebec and paid his dues bush flying in Quebec, the high arctic, and Newfoundland. Colin then returned to Canadore to embark on a career as a flight instructor, and pass on his experiences to aspiring young pilots. The rest is history, as he touched the lives of hundreds of pilots and engineers in this industry.

Those instructors at Canadore were very successful in creating a working helicopter pilot in a 9-month period, as countless men and women out there will testify. I too was engaged in this often rigorous schedule as we pushed hard to get students up to speed (coming in off the street to solo slinging in a Bell 47 in 4 months) in time for Winter Bush Camp in early February. It was this bush camp and the winter survival course that will remain a vivid memory to all of those Canadore grads that spanned a 30-year period.

Sully loved the outdoors and engaged the students in a lesson on snowshoe jogging every winter afternoon after the covers were put on the machines. I recall the odd occasion when, after a couple weeks of pounding the trail, a student could actually keep up to him.

When the students weren't practicing winter flying techniques, pad landings and more advanced confined area work, they were slinging supplies into White Lake or long lining logs to be split later (after jogging) for firewood. The tents were replaced with cabins in 1999.

I admired my friend for so many reasons, such as his ongoing efforts to maintain the integrity of the program and continually improve on the curriculum, and his devotion to the much-revered occupation of teaching. Sometimes, when I went looking for Colin just before lunch, I would find him in the classroom still talking with students after two and a half hours.

His quiet and patient manner in dealing with students and in treating them with respect was an outstanding quality that not all instructors possess. And once the barn doors were closed on a Friday night there wasn't a better guy to socialize with.

After Sully's tragic and unexpected passing, Canadore suspended the Helicopter Flight Program—a program made so outstanding by the efforts of all of the instructors in North Bay over a 26-year period. It looks like the end of an era to me.

My life was never the same after I first met Sully in 1978, and I am sure that goes for many of the graduates of Canadore College who were touched by this great man.

Rick Kirkwood

Air Ambulance Strikes Terrain After Takeoff in Fog (continued from page 2)

guidance contained in the company *Air Taxi Operations Manual* for Part 135 flights. The manual indicated that "one-quarter statute mile or touchdown zone RVR of 1 200 may be used if either HIRL (high-intensity runway lights), CL (centerline lights), RCLM (runway centerline markings), or adequate visual reference to continuously identify the take-off surface of the runway and maintain directional control throughout the take-off run is available."

Subsequent interviews with the pilots at the Lexington base confirmed that they all believed that the IFR section of the *Air Taxi Operations Manual*, including take-off minimums, applied to flights conducted under Part 91. Several pilots mentioned that this requirement was discussed as a regular part of their recurrent training.

At 21:59, the flight crew contacted Indianapolis Air Route Traffic Control Center (ARTCC) and requested activation of their flight plan and an IFR clearance. ARTCC asked if the helicopter was in the air, and the crew replied that they were "sitting on the ramp at Julian Carroll," and would be "ready to go in five minutes." ARTCC issued the clearance and told the crew to climb to and maintain 4 000 ft.

The CVR recorded the sounds of the crew conducting a checklist; checking radios, instruments and other equipment; and setting the radar altimeter to 500 ft before beginning to taxi the helicopter. Soon after 22:00, the airport manager heard the PIC say on the UNICOM that the helicopter was taking off on Runway 19. The PIC said, "We'll be a, uh … south departure, right turn, we, be, uh, west out of the area." The crew then lifted the helicopter to a hover.

A certified weather observer at JKL, who had just completed an hourly observation, observed the take-off. "When they rolled onto the runway, I walked out to watch them take off," he said. "At the runway/taxiway intersection, they turned left for Runway 19 and pulled up into a hover about 20 ft above the runway. They then proceeded down Runway 19. I lost [sight of] them in the fog about half-way between the taxi/runway intersection and the end of the runway. As a certified weather observer, I concur with the ASOS visibility of less than one-quarter mile. I estimate that the visibility was about one-eighth of a mile, or slightly more."

At 22:06:18, the CVR recorded the SIC saying, "I'm gonna lift to a hover, and we'll get 60 kt before we get solid in it, I guess. Try to keep it with the lights down here."

The PIC acknowledged the SIC's statement.

At 22:06:28, the SIC said on interphone, "Here we go." This was followed by a sound similar to transient main-rotor droop (the temporary decrease in main-rotor speed after an application of power).

At 22:06:51, the PIC said, "Airspeed's alive, positive rate of climb … You're at 30 (kt) … heading one nine zero. … I'm gonna kill the landing (lights)." The SIC acknowledged the statement.

At 22:07:22, the PIC said, "You're at 80 … wanna hold 80, or V_{broc} [velocity best rate of climb]." [In an S-76A, V_{broc} is 74 kt at sea level.]

At 22:07:32, the PIC said, "Indy Center, Sikorsky two seven four three echo. We're, ah, passing one thousand six hundred for four thousand."

At 22:07:51, the PIC said on the interphone, "Go ahead and stay on your heading."

At 22:08:03, the PIC said, "OK, you're in a right-hand turn and descending."

The SIC replied at 22:08:05 "OK, I think my gyro just quit." There was no acknowledgement from the PIC.

At 22:08:10, the SIC asked, "You have the controls?"

The PIC did not answer the question but said, "You're in a left-hand turn and descending … turn … turn back and level, level us off." There was no acknowledgement from the SIC.

At 22:08:16, the CVR recorded an increase in ambient noise.

At 22:08:18, the PIC said, "right-hand turn … right-hand turn." There was no acknowledgement from the SIC.

At 22:08:24, the CVR recorded the initial sound of the impact and then stopped functioning.

The aircraft struck terrain 116 seconds after departure from JKL. ARTCC radar data showed that the helicopter was initially flown to 1 600 ft, then, while in a left turn, began to descend. The final radar contact at 22:08:14 showed the helicopter at 1 300 ft.

A witness who lived near the accident site said that he heard the helicopter while he was inside his home and that he went outside and "heard a pop, saw a bright flash, then—silence." He told investigators that about 30 seconds to 45 seconds later, he "saw and heard a large explosion" at the accident site and called law enforcement authorities.

The burned wreckage was found on a tree-covered slope approximately 1 000 ft above mean sea level (AMSL), or 381 ft below the elevation of the departure airport, which was about 2 NM northwest of the accident site.

In its report on this accident, the NTSB noted that in the *Air Taxi Operations* section of the company operations manual, the following was found:

Transfer of Controls

Transfer of aircraft control will be positive with the statement, 'You have the controls', 'I have the controls'. Do not use the phrase, 'I have it.'

Air Ambulance Strikes Terrain After Takeoff in Fog (continued from page 7)

Crew Cross-Checking

The PNF [pilot not flying] must, without hesitation, call attention to deviations outside given tolerances or procedures. The PF [pilot flying] must invite and accept cross-monitoring, and cross-checking. The keys to advanced crew coordination are mutual confidence, early detection, immediate verification, and correction of error. The crew must work together, avoiding overconfidence or complacency.

In the *IFR Operations* section, *Stabilized Approach Concept*, the following was found:

…any time two unstabilized missed approach callouts are unanswered, the PNF shall assume that the PF is incapacitated and shall take the controls and execute the missed approach.

The concept of taking the controls after two unanswered callouts was only found in the stabilized approach section.

After the accident, the operator wrote a letter to the NTSB saying that the company, which already provided initial training and recurrent training in crew resource management (CRM), had "enhanced our crew concept procedures" to include mandatory use of CRM principles and expansion of the stabilized-approach concept to other phases of flight. The chief pilot reported that the company had begun using line-oriented simulations (LOS) during simulator training to include CRM debriefings that were designed to challenge the CRM abilities of the flight crew. If the LOS sessions reveal "serious shortcomings in procedure or CRM," crewmembers receive additional training, he said.

Adapted from the article *Air Ambulance Strikes Terrain After Takeoff in Fog,* from the March/April 2003 edition of Flight Safety Foundation's *Helicopter Safety* newsletter.

The NEW Transportation Appeal Tribunal of Canada (TATC)

The TATC was established in June 2003 and replaces the Civil Aviation Tribunal, which was established under Part IV of the *Aeronautics Act* in 1986. The TATC is a quasi-judicial body created to provide an independent review process of administrative and enforcement actions—including the suspension and cancellation of licences, certificates and other documents of entitlement, and the imposition of administrative monetary penalties—taken under various federal transportation Acts. The Tribunal's jurisdiction, extending to the rail sector, is expressly provided for under the *Aeronautics Act* and the *Railway Safety Act* (section 2 of the *Transportation Appeal Tribunal of Canada Act*). The Tribunal reports to Parliament, and its key feature is its independence from any government department.

In accordance with the *TATC Act*, the Governor in Council has appointed a full-time Chairperson and a full-time Vice-Chairperson of the Tribunal. The other members of the Tribunal are drawn from across Canada and are appointed as full- or part-time members by Order in Council on the basis of their expertise in relevant transportation sectors and in medicine. The Chairperson has supervision over, and the direction of, the work of the members and staff of the Tribunal. The Tribunal provides a system within which hearings can be scheduled and conducted promptly, fairly and informally.

Any person who has been given notice of a decision by the Minister of Transport to suspend, cancel or refuse to issue or renew a document of entitlement, or to impose an administrative monetary penalty, may request a review hearing by the Tribunal. A request for a review must be filed in writing with the Tribunal, on or before the date specified in the notice, to arrange for a review hearing. For more details on TATC and how to submit an application, contact the TATC Registry at: The Transportation Appeal Tribunal of Canada, 333 Laurier Ave. W, Room 1201, Ottawa ON K1A 0N5; fax 613 990-9153; e-mail: cattac@smtp.gc.ca.

Letter to the Editor

I found the article *Australian Air Ambulance Loses Engine Power During Approach in Dense Fog* (*Vortex* 3/2003) to be very interesting and thought provoking. In addition to the points brought forward in the article, I question the wisdom of sending a non-IFR rated pilot on a single-pilot night MEDEVAC flight. When I flew for a MEDEVAC operator, we always used two IFR-rated pilots and an IFR aircraft, even if we flew the mission night VFR. I really don't think that single pilot night MEDEVAC flights are a smart way to stay alive—too many complications, pressures and ways for things to go wrong for one pilot to handle. I am glad we don't do them here in Canada! Just my thoughts.

Name withheld upon request