

**AVIATION OCCURRENCE REPORT**

**CONTROLLED FLIGHT INTO TERRAIN**

**CARGAIR LTEE  
CESSNA 172N C-GBZG  
ST. PAULS INLET, NEWFOUNDLAND  
22 JULY 1996**

**REPORT NUMBER A96A0134**

The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

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**Summary**

C-GBZG was one of four aircraft that departed Natashquan, Quebec, at 1839 Coordinated Universal Time (UTC) on a visual flight rules (VFR) flight to Stephenville, Newfoundland. C-GBZG was last observed flying into clouds as it approached the Newfoundland shore at St. Pauls Inlet. Attempts to contact the pilot were unsuccessful. A search and rescue satellite picked up an emergency locator transmitter (ELT) signal in the vicinity of St. Pauls Inlet. Because of poor weather at the site, search and rescue was delayed and the aircraft wreckage was located the next morning. The aircraft struck rising terrain at about 1,100 feet above sea level (asl) at approximately 2010 UTC (1740 local time). The three people on board were fatally injured, and the aircraft was destroyed.

Ce rapport est également disponible en français.

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<sup>1</sup> For Quebec times, subtract four hours from UTC.  
For Newfoundland times, subtract two and one-half hours from UTC.

### Other Factual Information

C-GBZG was one of four airplanes rented by a group of foreign tourists for a Canadian flying vacation. Each pilot was appropriately licensed as per Transport Canada requirements, and all of the flying was to be carried out under visual meteorological conditions. The group members had not previously flown in the Canadian maritime region.

The group had spent the night in Sept-Îles, Quebec, and was en route to Stephenville, Newfoundland, with a refuelling stop at Natashquan, Quebec. Prior to departure, the group discussed the proposed route of flight and one of the pilots, the group organizer, telephoned the Sept-Îles Flight Service Station (FSS) about 1300 UTC and received a weather briefing. A transcript of the telephone conversation indicates that the group could expect some rain showers along the route of flight with ceilings between 800 and 3,000 feet above ground level (agl). The pilot was told of a low pressure system situated about 120 nautical miles southwest of Stephenville and moving northeasterly. Ceilings of 100 to 1,000 feet and visibilities of 1/4 to 3 miles in drizzle and fog could be expected where the low resulted in an onshore, southwesterly flow.

At the airport, the group organizer spoke in person with the FSS weather specialist, filed the group flight plan, and received a weather printout which was shown to the group. The FSS specialist suggested that, upon reaching Natashquan, the group organizer call for updated weather information before continuing en route. The group organizer stated that they did not request or receive updated weather information after their briefing in Sept-Îles.

The terminal forecast for Stephenville issued 22 July 1996 at 0909 UTC, valid for the 24-hour period 1000 to 1000 UTC was as follows:

Wind 070 degrees true at 10 knots, visibility greater than 6 statute miles, scattered cloud at 1,500 agl, and broken cloud at 3,000 feet agl. Temporary overcast ceiling at 1,500 feet agl between 1000 and 2200 UTC; wind becoming 030 degrees true at 10 knots between 1400 and 1500 UTC. After 2200 UTC: wind 310 degrees true at 10 knots; visibility greater than 6 statute miles; broken cloud at 3,000 feet agl.

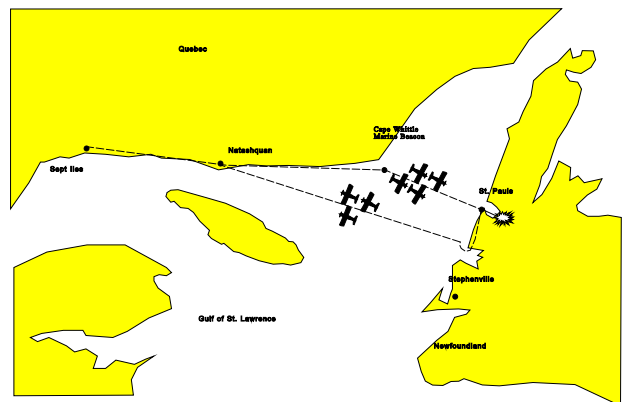
The terminal forecast for Stephenville issued 22 July 1996 at 1524 UTC, valid for the 24-hour period 1600 to 1600 UTC was as follows:

Wind variable at 3 knots, visibility greater than 6 statute miles in rain showers, a few clouds at 800 feet agl, broken clouds at 1,500 feet agl and overcast cloud at 3,000 feet agl. Temporary, rain with broken cloud at 600 feet agl and overcast ceiling at 1,200 feet agl between 1600 and 1900 UTC. After 2000 UTC: wind 330 degrees true at 15 knots, visibility greater than 6 statute miles; broken cloud at 800 feet and 6,000 feet agl.

The four aircraft departed Sept-Îles at 1600 UTC, arriving at Natashquan at 1741 UTC. The weather at Natashquan was sunny and warm with good visibility. At about 1839 UTC, after refuelling, the four aircraft departed Natashquan on a flight-planned route via the "whiskey" non-directional beacon at Cape Whittle, Quebec, direct Cow Head, Newfoundland. Each pilot had a VFR navigation chart on board and a personal global positioning system computer for navigating.

The group of four aircraft crossed the Gulf of St. Lawrence at altitudes between 1,000 and 3,000 feet asl, maintaining visual reference with one another; C-GBZG was the last aircraft in the group. As the group approached the Newfoundland coast, increased cloud formation made it increasingly difficult to maintain constant visual reference with the ground and with each other. The pilots discussed the change in weather, but none of them made a radio call to an FSS for the latest weather information.

The aircraft in the group used the radio frequency 122.9 MHz as a common communication frequency. The last radio contact with the pilot of C-GBZG was about 30 miles west of St. Pauls Inlet, when he responded to a general remark made by another aircraft group member on their communication frequency. Ten miles from shore, the pilot of the lead aircraft announced his position and stated that he would be descending. The group organizer, who was piloting the aircraft in third position, reported that, as he descended below 1,000 feet asl over St. Pauls Inlet, he could see steeply rising terrain just beyond the inlet that became obscured by cloud cover. He turned his aircraft to the right, to a southerly heading following the first two aircraft. He then observed C-GBZG enter cloud, on what appeared to be the en route heading and at an altitude about 500 feet higher than his aircraft.



He called the pilot, instructing him to turn immediately; however, repeated attempts to contact the aircraft were unsuccessful. The three remaining aircraft continued to within 33 miles of Stephenville where the ceiling deteriorated to 500 feet agl. They executed a turn to the north, over the water, and returned to Natashquan.

C-GBZG struck rising terrain at about 1,100 feet asl on the approximate en route heading. The landing flaps were fully retracted at impact. The engine and propeller separated from the aircraft, and there was major compression and buckling in the cabin area.

An examination of the engine and flight instruments by the TSB Engineering Branch in Ottawa revealed the following: the engine tachometer displayed 2,600 rpm; the vertical speed indicator showed a descent rate of 1,300 feet per minute; and electrical power was being supplied to the aircraft at the time of impact. A calculation of the aircraft's weight and balance indicated that the aircraft was within approved limits at impact. The aircraft had undergone a 100-hour inspection on 15 July 1996, at an airframe time of 6,549.4 hours, and had flown about 18 hours since the inspection. There were no recorded aircraft deficiencies. Examination of the wreckage did not identify any pre-impact failure.

The pilot had about 1,341 hours total flight time, all on single-engine aircraft. He did not have an instrument rating, although he had received extensive instrument flight training during the previous year. On board C-GBZG with the pilot were his wife, who occupied the rear seat, and a non-flying pilot in the right front seat. The non-flying pilot was recently licensed, had about 74 hours total flight time, and had been pilot-in-command (PIC) during some of the Canadian flights.

Another member of the group had observed the occurrence pilot fly C-GBZG into cloud during a previous flight. The non-flying pilot had told a group member that the PIC intentionally entered cloud on occasion and demonstrated aircraft control with reference to the aircraft flight instruments. The non-flying pilot had enjoyed the experience and had expressed confidence in the PIC's piloting skills.

A review of the pilot's medical records provided no evidence of prior medical conditions that would have adversely affected his performance. A post-accident pathological examination provided no evidence of pre-existing disease or conditions which could have led to pilot incapacitation prior to impact.

Toxicological tests revealed that the pilot had a blood-alcohol concentration (BAC) of 99 milligrams per 100 millilitres (0.099%w/v). The blood used for testing was taken from the body cavity, a location that can result in less accurate BAC results than blood sampled from a vein or artery. Post-mortem changes in the alcohol level of samples can occur as a result of putrefaction and contamination. The blood sample analyzed revealed that putrefaction may have taken place. As a result, the reported alcohol level may have increased or decreased from the alcohol concentration present at the time of death.

### **Analysis**

The group was on vacation, and there were no time constraints that should have pressured them to complete the flight even if deteriorating weather conditions were expected. They were unaccustomed to flying in eastern Canada, where rapidly changing weather conditions could be expected. The good weather at Natashquan and the group's inexperience with local weather patterns probably led them to believe there was no need to request a weather update.

When the pilot of C-GBZG last communicated with the group, about 30 miles west of St. Pauls Inlet, there was no indication that he was having any aircraft difficulties. The aircraft's last observed flight characteristics and the accident site examination indicate that the aircraft was in controlled flight prior to and at the time of impact. Results of the pathological examination provided no evidence of pre-existing disease or conditions which could have led to pilot incapacitation prior to impact.

The weather at St. Pauls Inlet had not deteriorated to below VFR limits, and the pilot should have had visual reference with the aircraft in front of him. He had a VFR navigation chart, and the visibility below cloud was sufficient to identify the coast and rising terrain beyond the inlet.

The group organizer was unsuccessful in contacting the pilot of C-GBZG after the aircraft was observed entering cloud. It is possible that C-GBZG hit the terrain before the pilot received the radio transmission "turn immediately" or that the transmission was received too late for him to take evasive action.

The pilot of C-GBZG, although not IFR rated, was an experienced pilot, had received a considerable amount of IFR flight training, and was known to have previously entered into instrument meteorological conditions during VFR flight. It is probable that the pilot

intentionally entered cloud, unaware of his proximity to the rising terrain. Based on the vertical speed indication of 1,300 feet per minute down, it is probable that the pilot was descending the aircraft to regain visual reference with the ground when the aircraft hit the terrain.

Toxicological testing showed that there was alcohol in the blood sample taken from the pilot's body. However, because of the possibility that the percentage of alcohol in the blood was affected by putrefaction and contamination, the level of alcohol in the pilot's blood at the time of his death cannot be determined precisely.

The following Engineering Branch report was completed:

LP 99/96 - Instrument Examination.

### **Findings**

1. The aircraft was maintained in accordance with Transport Canada requirements, and the weight and balance was within approved limits at the time of impact.
2. There was no evidence of any aircraft system failure prior to the accident.
3. The aircraft was in controlled flight prior to and at the time of impact.
4. The pilot was licensed in accordance with Transport Canada regulations.
5. The pilot was not instrument rated; however, he had received extensive instrument flight training during the past year.
6. The pilot had intentionally entered cloud on a previous flight.
7. The group organizer indicated that they neither requested nor received updated weather information after their briefing in Sept-Îles.
8. The en route and destination weather deteriorated as the flight progressed.
9. It is probable that the pilot intentionally entered cloud, unaware of his proximity to rising terrain.

10. No firm conclusions could be made regarding the pilot's blood-alcohol concentration.

#### **Causes and Contributing Factors**

When the pilot encountered deteriorating weather, he did not alter course to avoid entering cloud, apparently being unaware of the high ground in his path; the aircraft struck terrain while in controlled flight.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson Benoît Bouchard, and members Maurice Harquail, Charles Simpson and W.A. Tadros, authorized the release of this report on 05 March 1997.*