

AVIATION OCCURRENCE REPORT

A95Q0090

COLLISION WITH TERRAIN

CESSNA U206F C-GJGM

BAIE-SAINT-PAUL, QUEBEC 10 MI SW

13 MAY 1995

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

The pilot and sole occupant departed Sept-Îles Airport, Quebec, at 0742 eastern daylight saving time (EDT) on a visual flight rules (VFR) flight to Jean Lesage International Airport, Quebec. At 1005, search and rescue (SAR) services at Trenton, Ontario, received an emergency locator transmitter (ELT) signal, and a search aircraft was dispatched immediately.

The aircraft was located at 1203. It had struck some trees and crashed on the side of a mountain about 42 nautical miles north-east of its destination. The pilot had sustained fatal injuries.

Ce rapport est également disponible en français.

¹All times are EDT (coordinated universal time [UTC] minus four hours) unless otherwise stated.

Other Factual Information

The pilot was certified and qualified for the flight in accordance with existing regulations. He was experienced and had over 2 200 flying hours. He was very familiar with the route, having flown it over 200 times. He did not hold a Canadian instrument flight rating.

The pilot filed a flight notification prior to the flight, but he did not request a weather briefing from the Sept-Îles Flight Service Station (FSS). While taxiing, he informed the tower controller that his planned en route altitude was 4 500 feet above sea level (asl).

The pilot's most recent civil aviation medical examination was a few weeks before the occurrence. He was required to have his vision examined every year. His last examination, which he passed, was on 02 February 1995. The medical investigation revealed no sign that incapacitation or physiological factors affected the pilot's performance. The autopsy revealed that the aircraft struck the ground at high speed.

The accident occurred at an altitude of 2 650 feet asl on the north-west side of Liguori Mountain, Quebec, elevation 2 725 feet asl. The aircraft was proceeding south-west, which is roughly the correct heading for its route, when it struck some trees over 100 feet in height, on a horizontal trajectory. Several trees were severed or broken. The aircraft left a swath about 400 feet long on a heading of 236 degrees magnetic. There was severe propeller damage to the trees. Both wings separated from the fuselage and the other sections of the aircraft were heavily damaged in the impact with the trees and ground.

Examination of the aircraft at the accident site revealed no pre-impact failure or malfunction that could have degraded the performance of the aircraft. The flaps were up and the altimeter setting was correct. The weight and centre of gravity of the aircraft were within the prescribed limits, and the aircraft carried sufficient fuel to complete the flight. The aircraft was equipped for instrument flight.

The direct route from Sept-Îles to Québec requires the pilot to proceed in a south-westerly direction on the west side of the St. Lawrence River. The minimum obstruction clearance altitude (MOCA) for instrument flights in the portion of the air route between Charlevoix and Québec is 5 300 feet asl. An altitude of 4 300 feet, referred to as the obstruction clearance altitude, is published on the VFR navigation chart for the sector where the accident occurred. This altitude, indicated in the quadrangle bounded by the lines of latitude and longitude, is in thousands and hundreds of feet above sea level, and represents the highest terrain altitude plus 328 feet (100 metres) or the altitude of the highest known obstruction, whichever is higher.

An analysis by Environment Canada indicates that the forecast for the area where the flight was to take place reported an upper-level trough extending from 60 miles north-west of Sept-Îles to Montréal. This upper-level trough was expected to drift slowly east at a speed of 5 to 10 knots. The flight route ran along the front of this upper-level trough in an area where low broken clouds were forecast between 1 500 and 2 500 feet asl with a solid layer of altocumulus above them. Stratus ceilings of 200 to 1 000 feet above ground level (agl) in places and reduced visibility of two to five miles in rain, drizzle and/or fog were also forecast. The forecast for Sept-Îles indicated that VFR conditions would continue; however, the forecast for Baie-Comeau

called for overall conditions until noon of ceiling 200 feet and visibility one mile in rain, drizzle and fog. For Québec, the main condition forecast was a ceiling of 600 feet with no restriction on visibility.

Two automatic stations, at Île Rouge at the mouth of the Saguenay River and at Rivière-du-Loup, although providing no ceiling information, reported reduced visibility in fog. The satellite photograph shows the extent of the clouds along the planned route.

Meteorological conditions on take-off from Sept-Îles were 6 000 feet scattered, ceiling 8 000 feet overcast and visibility 30 miles. At 0820, while over the Godbout area, the pilot requested and received the latest sequences for Mont-Joli, Baie-Comeau, and Québec from the Mont-Joli FSS, as well as the forecast for the next two hours for Québec. The data indicated ceilings of 2 000 feet at Mont-Joli, 200 feet at Baie-Comeau, and 600 feet at Québec, with visibilities of five miles, two miles, and five miles, respectively, in rain, mist and fog.

The analysis also indicates that at the accident site the cloud base was very probably below 1 000 feet, and possibly much lower than that level, with reduced visibility. One witness observed an aircraft flying at low altitude below the clouds a few seconds before the occurrence. Other witnesses, who were at the base of the mountain and near the site, indicated that until about 1300 visibility was near zero in thick fog and the mountain was obscured by fog. Even road conditions were affected by the thick fog. However, no one heard any unusual sounds.

Analysis

Since there was no evidence of any pre-impact failure or malfunction that could have degraded aircraft performance, the analysis focuses on the meteorological conditions, flight preparation, and pilot decision making.

The weather forecasts and observations indicate that the weather along the planned route was not favourable for the flight. Low stratus accompanied by precipitation, drizzle and fog, as indicated in the forecasts, were present on the route and in the mountainous area. Even if the pilot did not request a weather briefing from the FSS before the flight and the conditions at the departure aerodrome were favourable for VFR flight, it was clear from his radio messages en route that he was aware of the adverse weather along the planned route. The pilot nevertheless continued the flight, having flown this route many times in the past.

Given the weather conditions at the time of the accident, all indications are that the pilot descended the aircraft in mountainous terrain below the safe altitude for instrument flight and the obstruction clearance altitude specified on the VFR navigation chart, in the hope that he could continue the flight. The observed damage to the aircraft indicates that it struck the trees at high speed in a horizontal attitude. It is highly probable that the pilot did not realize his situation when the Cessna struck the mountain.

In 1990, a TSB safety study on VFR flight in adverse weather conditions stated that this type of accident represents about 23 per cent of all fatal accidents. The study also indicated that experienced pilots tend to be involved in accidents related to decision making rather than a lack of flying skill.

Findings

1. The pilot did not ask the FSS for a weather briefing for the flight.
2. The weather conditions on the planned route were unfavourable for VFR flight.
3. The pilot encountered adverse weather conditions en route and continued the flight.
4. The mountain on which the aircraft crashed was obscured by fog all morning.
5. The aircraft showed no evidence of pre-impact failure.
6. The aircraft struck the trees at high speed.

Causes and Contributing Factors

The pilot continued visual flight in adverse weather conditions. Contributing to the accident was the fact that he did not request weather information for the planned route prior to departure.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairman John W. Stants and member Zita Brunet, authorized the release of this report on 02 October 1995.