

AVIATION INVESTIGATION REPORT

A00W0072

LOSS OF CONTROL

ROTORWAY EXEC 90 (HELICOPTER) C-GZXE

INNISFAIL AIRPORT, ALBERTA

23 MARCH 2000

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 owner of the amateur-built Rotorway Exec 90 helicopter, serial number 19638, departed from the Innisfail, Alberta, airport on 23 March 2000, on a solo cross-country training flight. At 1230 mountain standard time, the pilot indicated to another person that he was not planning to fly. It is unknown when the decision was made to go flying and when the pilot took off. Because nothing was heard from the pilot by 1800, the airport was checked. His truck was parked near his hangar, and the ground handling wheels for the helicopter were outside the hangar. A search of the airport and environs by the Royal Canadian Mounted Police before dark and an infrared search by a Canadian Air Forces C-130 Hercules aircraft after dark were unsuccessful in locating the helicopter. The emergency locator transmitter had been removed for servicing and was not on board the helicopter. The pilot's cellular phone was found on the seat of his truck. On 25 March 2000, a search team located the wreckage just outside the Innisfail Airport boundary, after a local farmer reported seeing smoke and fire at the site on the afternoon of the occurrence. The helicopter had crashed and burned, and the pilot had been fatally injured.

Ce rapport est également disponible en français.

Other Factual Information

The Innisfail Airport is municipally operated, with three paved runways in a triangular pattern. Each runway is 3025 feet long by 100 feet wide. No air traffic services are provided at the airport; however, weather reporting and flight planning are conducted at the Red Deer Airport, seven nautical miles northeast of the Innisfail Airport. The pilot did not file a flight plan or leave a flight itinerary with anyone. There is no record of the pilot receiving a weather briefing. No witnesses observed his departure from the airport.

Around the time of the occurrence, the flight service station at the Red Deer Airport was reporting the following conditions: scattered cloud at 2000 feet above ground level (agl), broken cloud at 8000 feet agl, overcast cloud at 25 000 feet agl, wind from the north at seven knots, and visibility 15 miles. Weather was not considered to have been a factor in this occurrence.

The helicopter struck the ground at a corner of a farm field where two lines of trees intersect. From the angle that one of the blades cut down through the trees, terminating in a six-inch-deep slash in the frozen soil, the roll attitude was determined to have been about 135 degrees to the right. Pitch angle at impact was not determined, and the aircraft did not bounce or skid after initial impact. There was no indication of any airframe failure or system malfunction before or during the flight. All of the aircraft components were accounted for at the site except for one of the tail-rotor blades, found about 60 feet behind the main wreckage.

The amateur-built helicopter was issued a special certificate of airworthiness in March 1997 after its construction was completed. Since then, the aircraft had been flown about 105 hours. Logbooks, construction files, and all other aircraft documents were reported to have been in a folder on board the aircraft; therefore, it is assumed they were destroyed in the fire.

The pilot received his Private Pilot Licence–Aeroplane (PPL–A) in 1975. He had owned a Cessna 150 but sold it in October 1983. He accumulated about 210 hours' total aeroplane time during that period and had not flown aeroplanes since. The pilot purchased the helicopter in October 1999 and, beginning in November 1999, began ground school and dual flight training at the Rotorway factory in Arizona. The training was being conducted in three phases. Following each phase, the pilot would conduct solo training flights on his own helicopter in the Red Deer area. Shortly before the occurrence, the pilot had the helicopter ferried to the Innisfail Airport, where all subsequent flights were to have been made. The pilot had flown 23 dual hours and 12 solo hours since purchasing the helicopter.

The pilot had a United States Federal Aviation Authority (FAA) Student Pilot Certificate endorsed for solo cross-country flights in the Rotorway Exec 90 helicopter. However, according to section 61.89 of the *Federal Aviation Regulations*, a student pilot may not act as pilot-in-command of an aircraft on an international flight. Therefore, to operate the helicopter on a solo cross-country flight in Canada, the occurrence pilot was required to hold a valid Canadian student pilot permit or a Canadian pilot licence; he had neither. His PPL–A was not valid because he did not meet the recency requirements of the *Canadian Aviation Regulations* (CARs).

The pilot's solo training flights were not supervised by a certified flight instructor as required under CARs. Section 405.31 pertains to the requirement for preflight briefings and instruction, and section 405.32 pertains to the authorization, by a flight instructor, of a solo training flight.

The pilot had a Class III FAA medical certificate issued on 17 November 1999. His Transport Canada Class 3 medical certificate was renewed on 27 September 1999, and his last electrocardiogram was on 01 October 1997.

Autopsy results revealed multiple blunt injuries and burns. The autopsy also revealed severe narrowing of the pilot's coronary arteries. Of the five main arteries, three were narrowed by 90 per cent, the fourth was narrowed by 75 per cent, and the fifth was narrowed by 50 per cent. This is considered significant, even after the tissues had been exposed to high heat. The severity of the coronary artery disease could result in a decreased level of consciousness or even death, at any time, due to myocardial ischemia (decreased oxygen in the heart muscle). It could not be determined whether the pilot was conscious or even alive immediately before impact.

Analysis

The helicopter struck the ground in an almost-inverted, nose-down attitude, with considerable engine power being produced. Nothing was found to indicate that any airframe or system malfunction led to the loss of control. The circumstances of the accident are consistent with previous occurrences in which aircraft control was lost because of pilot incapacitation. The autopsy results indicated advanced coronary artery blockage, with the possibility of myocardial ischemia. However, it is not possible to conclude that incapacitation was a factor in the accident.

Although the pilot's training program was sanctioned by the Rotorway factory, it was not strictly in accordance with the CARs. Because of recency requirements, the pilot's licence was not valid, and the pilot was not being properly supervised during solo flights. Supervision is required for safety and by regulations. However, compliance with the recency requirements and supervision by an instructor probably would not have affected the outcome of this occurrence.

The wreckage was not found for two days despite an intensive search. Possible reasons for this difficulty include the following: the pilot did not file a flight plan or leave a flight itinerary, he was not supervised by an instructor, no one had observed his departure, and the aircraft did not have an emergency locator transmitter.

Findings as to Causes and Contributing Factors

1. The pilot lost control of the helicopter for undetermined reasons. The helicopter subsequently crashed.

Other Findings

1. The pilot did not conduct his solo training flights under the supervision of a flight instructor.
2. The pilot had severe coronary artery disease, which might have resulted in myocardial ischemia before the loss of control.
3. The emergency locator transmitter was not installed in the aircraft, which probably delayed the discovery of the wreckage.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 08 May 2001.