

AVIATION INVESTIGATION REPORT

A01P0010

LOSS OF CONTROL

CESSNA 172M CFFJF

VICTORIA, BRITISH COLUMBIA 6 nm S

20 JANUARY 2001

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 Cessna 172M, C-FFJF, departed Victoria International Airport, British Columbia, at 0808 Pacific standard time with the pilot and one passenger on board for a local sightseeing trip. The aircraft climbed on a southbound heading to 1500 feet above sea level (asl), and the pilot reported level at that altitude. Five minutes after take-off, while operating inside the Victoria control zone, the aircraft descended from 1500 feet to 300 feet asl in about 10 seconds. Observers on the ground saw the aircraft recover from a steep, nose-down, spiral dive to a near-level flight attitude before striking trees. The engine noise was loud, and the general impression was that the engine was operating at high power. When the aircraft first struck trees, it was in a level pitch attitude with slight right bank. After initial contact, the aircraft travelled about 130 yards before contacting a mature cedar tree; the secondary impact caused the aircraft to decelerate rapidly and break apart. The pilot of the aircraft died in the crash; the passenger suffered serious injuries.

Ce rapport est également disponible en français.

Other Factual Information

At the time of the accident, the weather at the Victoria airport was as follows: wind calm, a few clouds at 2000 feet above ground level (agl), overcast cloud at 9500 feet agl, visibility 30 miles, temperature 4 degrees Celsius, dew point 3 degrees Celsius, and altimeter setting 30.08 inches.

The aircraft was registered for commercial operation and was rented by the pilot. It had a valid certificate of airworthiness and, based on a review of the aircraft documentation, was being maintained and operated in accordance with approved procedures and regulations. A review of available records indicated that the aircraft weight and centre of gravity were within the approved limits at take-off.

All major components of the aircraft were found at the accident site. A subsequent examination revealed that all damage to the aircraft's control systems and aerofoil sections were a result of the crash. The aircraft was not equipped, nor required to be equipped, with either flight data or voice recording devices and, as a result, no information was available to determine the activities in the cockpit immediately before the descent.

The pilot held an Airline Transport Pilot Licence and had been issued a Category 1 medical certificate with a restriction that glasses must be available. A review of the pilot's records showed that he suffered a number of medical conditions that are generally accepted as being cardiovascular risk factors. No increased medical monitoring was being applied to this pilot, beyond a routine aviation medical screening.

A post-mortem examination confirmed that the pilot had cardiovascular problems that would have increased his risk of sudden incapacitation or cardiac death. Results of a toxicology examination were negative for alcohol or drugs.

Cardiovascular Guidelines

The development of cardiovascular disease in licensed aviation personnel is a major concern among aviation medical practitioners. To address this concern, Canada has adopted a set of cardiovascular guidelines that are intended to assist in the medical assessment of cardiovascular fitness of licensed aviation personnel. These guidelines rely on the active monitoring of cardiovascular risk factors to identify aviation personnel having a higher likelihood of coronary artery disease.

Major risk factors associated with cardiovascular disease are family history, hypertension, obesity, diabetes, abnormal blood lipids, and cigarette smoking. The aim of monitoring these risk factors and applying the accepted cardiovascular guidelines is to ensure that the risk of asymptomatic coronary artery disease causing sudden incapacitation is below internationally accepted levels, for risk management purposes.

Analysis

A sudden, unexplainable descent from 1500 feet asl immediately preceded the aircraft's impact with the terrain. The aircraft recovered from a steep, nose-down, spiral dive to a near-level attitude just before impact; such a recovery would require the integrity of the aircraft control system and the airframe structure. All of the aerofoil surfaces were at the crash site, and all failures of structural and control components were overload failures. It can, therefore, be concluded that the rapid descent was not the result of an airframe or control system failure.

The rapid descent that preceded the crash could have been caused by an intentional act on the part of the pilot. However, it would be unusual for a pilot to change his altitude that abruptly, without clearance, while operating in a control zone and being actively monitored by radar systems and air traffic control personnel.

Results of a post-mortem examination confirmed that the pilot had advanced coronary artery disease and that he had other cardiovascular problems that would have increased his risk of sudden incapacitation or cardiac death. These medical indicators, the rapid and unexplained descent, and the lack of any radio coordination with air traffic control make it likely that the pilot suffered physiological distress or incapacitation, which precipitated the rapid descent and the subsequent crash.

Procedures and protocols are in place to evaluate and monitor the medical status of pilots. Despite the presence of known cardiovascular risk factors, the pilot was not subject to related restrictions or increased medical monitoring.

Findings as to Causes and Contributing Factors

1. It is likely the pilot suffered some form of physiological distress or incapacitation that resulted in his losing control of the aircraft.

Findings as to Risk

1. The pilot had advanced coronary artery disease and suffered a number of other cardiovascular problems that would have increased the risk of sudden incapacitation or cardiac death.
2. Despite the presence of known cardiovascular risk factors, no increased medical monitoring or related restrictions were being applied to this pilot.

Safety Action Taken

On 08 May 2001, the TSB sent Aviation Safety Advisory No. 615-A010023-1 to Transport Canada regarding the effectiveness of administrative procedures for the monitoring and follow-up of pilot medical assessments. Transport Canada's response, received 21 June 2001, indicates that it is taking action to address the issues. *This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 19 December 2001.*