Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

AVIATION INVESTIGATION REPORT
A07O0165

COLLISION WITH TERRAIN

PIPER CUB J3C-65 C-FIUH
ESSEX, ONTARIO
30 JUNE 2007

Canada

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 privately owned Piper Cub J3C-65 (registration C-FIUH, serial number 15482) departed a privately owned, grass-covered runway under visual meteorological conditions near Essex, Ontario. This was the first flight following the annual maintenance inspection of the aircraft. Shortly after departure, the aircraft made a planned low pass parallel to the runway in an easterly direction. The aircraft then climbed to approximately 1500 feet above ground level in a northerly direction. Shortly afterwards, the aircraft was observed in a gradual descent, flying in a southeasterly direction. At approximately 1420 eastern daylight time, the aircraft struck the ground in a nearby field. The aircraft was destroyed by impact forces and a post-crash fire. The pilot, who was the sole occupant, did not survive.

Ce rapport est également disponible en français.

Other Factual Information

The aircraft was manufactured in 1946 and had accumulated approximately 4153 total hours since manufacture. Records indicate that the aircraft was certified, equipped, and maintained in accordance with existing regulations and approved procedures. There was nothing found to indicate that there was any airframe, engine, or system malfunction before or during the flight.

The nearest aviation routine weather observation (METAR) station is located in Windsor, Ontario, eight nautical miles northwest. The 1400 eastern daylight time hourly weather observation indicated that, at the time of the occurrence, there were a few clouds at 5000 feet above ground level, the wind was from the east at 6 knots and the temperature was 25°C. Weather conditions were ideal for visual flight rules (VFR) flight and were not considered a factor in the occurrence.

The 80-year-old pilot had obtained his pilot licence in February 1955 and since that time had accumulated approximately 10 000 hours of flight time including 685 hours in the occurrence aircraft. He also held a current Group 1 instrument rating. His last aviation medical examination was completed in June 2006, his last resting electrocardiograph (ECG) test was completed in October 2003, and his Category 3 medical certificate was valid until 01 July 2008. The pilot, who was also a retired physician, was active in many business ventures which involved piloting aircraft on a regular basis. He had accumulated approximately 105 hours of flying time during the previous year.

The pilot had a history of chronic arterial fibrillation and therefore underwent periodic cardiovascular assessments. These assessments included exercise electrocardiography tests, the latest of which was conducted in April 2006. The results of these assessments did not reveal any significant reduction in his heart functions. The pilot met Transport Canada criteria for a Category 3 medical certification.

The post–mortem examination revealed that the pilot had underlying asymptomatic atherosclerotic coronary artery disease. This put him at risk for a sudden coronary event.

The development of cardiovascular disease in licensed aviation personnel is a major concern among aviation medical practitioners. To address this concern, Transport Canada has developed a set of cardiovascular guidelines intended to assist in the medical assessment of cardiovascular fitness of licensed aviation personnel. These guidelines are published in Transport Canada's *Handbook for Civil Aviation Medical Examiners* (TP 13312E).

Major risk factors associated with cardiovascular disease are age, family history, hypertension, obesity, diabetes, abnormal blood lipids, and cigarette smoking. The aim of monitoring these risk factors and applying the cardiovascular guidelines is to ensure that the risk of asymptomatic coronary artery disease causing sudden incapacitation of a pilot remains extremely low.

The Transport Canada requirement for a Category 3 medical certificate is that the candidates undergo a routine ECG at the first examination after age 40, and then subsequently within the four years preceding examination. However, in up to 50 per cent of people with advanced

coronary artery disease, a routine ECG may not show indications of coronary artery disease. An exercise stress test increases the likelihood the disease will be detected. However, it is not part of the required screening process, but may form part of the medical assessment in those candidates with major risk factors.

Individuals with arterial fibrillation who have two or more of the five major risk factors, including age over 65 years, structural heart disease, diabetes, high blood pressure, and previous thromboembolism, are considered above the risk threshold limit for medical certification. The pilot was over the age of 65, with no indication that any of the other five risk factors were present at the time of the occurrence. Therefore, the applicant was deemed fit for medical certification.

Analysis

The aircraft, which had just undergone its annual inspection, was observed in controlled flight before it began a slow descending turn which ended when it struck the ground. There were no mechanical deficiencies found that could have contributed to the accident. It can be concluded that the gradual descent was not the result of an airframe or control system failure. Based on the manner in which the aircraft descended to the ground and the post-mortem examination which revealed well-established coronary artery disease, it is probable that the pilot suffered an acute coronary event during the flight. This resulted in incapacitation and the loss of control of the aircraft.

Finding as to Causes and Contributing Factors

1. The pilot most likely suffered an incapacitating medical event due to well-established, underlying coronary artery disease that resulted in the loss of control of the aircraft.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 23 July 2008.

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