



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

September 14, 2015

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Medical Officer

A. ACCIDENT: CEN14FA278 Duluth, Minnesota

On June 7, 2014, at about 1123 central daylight time, an experimental, amateur-built Lancair IV, N86NW, was destroyed when it impacted Lake Superior after departing from the Duluth International Airport (KDLH), Duluth, Minnesota. The pilot, the sole occupant, received fatal injuries. The airplane was registered to A.O. Engineering Inc. and operated by the pilot under the 14 Code of Federal Regulations Part 91 as a ferry flight. Marginal visual meteorological conditions prevailed at the time of the accident, and an instrument flight rules (IFR) flight plan was filed. The airplane departed KDLH about 1115, and was en route to Goose Bay (CYJR), Newfoundland, Canada.

B. GROUP IDENTIFICATION:

No group was formed for the medical evaluation in this accident.

C. DETAILS OF INVESTIGATION

Purpose

This investigation was performed to evaluate the pilot's medical conditions, use of medications/illicit drugs, and the presence of any toxins.

Methods

The FAA medical case review, toxicology and autopsy reports, and the investigator's reports were reviewed.

FAA Medical Case Review

According to the FAA medical case review, the pilot was 47 years old, 71 inches tall, weighed 235 pounds, and reported he had accrued 2500 flight hours at the time of his most recent FAA medical certification examination dated October 16, 2013. He reported no medications or medical problems. The FAA Aviation

Medical Examiner issued the pilot a third class medical certificate with this limitation: Must wear corrective lenses.

Autopsy

The Saint Louis County Medical Examiner determined that the cause of death was multiple severe impact injuries and the manner of death was accident. In addition, the autopsy identified mild cardiomegaly with a 450 gram heart (average for a man of his weight is 403 grams, range 305 to 531 grams) and left ventricular hypertrophy with the left ventricle measuring 15 mm thick (average is 13.6 mm with a standard deviation of 2.0 mm).¹ The pathologist described “grade 2 atherosclerosis in both the right and left coronary arteries” and later confirmed by email that the occlusion was 30-40% in these areas. There was no evidence of acute thrombosis or scarring of the heart muscle.

Toxicology

Toxicology testing performed by the FAA’s Civil Aerospace Medical Institute identified diphenhydramine in cavity blood at 0.146 ug/ml.

Diphenhydramine is a sedating antihistamine used to treat allergies and as a sleep aid. It is available over the counter under various names including Benadryl and Unisom. Diphenhydramine carries the following warning: may impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery). The therapeutic range for the drug is 0.0250 to 0.1120 ug/ml.²

D. SUMMARY OF FINDINGS

The pilot’s FAA medical certification examinations did not identify any medical concerns or natural disease. His autopsy identified mild cardiomegaly with left ventricular enlargement and mild coronary atherosclerosis, but no evidence of heart muscle damage or other natural disease. Toxicology testing detected diphenhydramine in the cavity blood at 0.146 ug/ml.

References

¹ Kitzman DW, Scholz DG, Hagen PT, Ilstrup DM, Edwards WD. Age-related changes in normal human hearts during the first 10 decades of life. Part II (Maturity): A quantitative anatomic study of 765 specimens from subjects 20 to 99 years old. Mayo Clinic Proc., 1988. 63(2): p. 137-46.

² Federal Aviation Administration. Forensic Toxicology Drug Information. Diphenhydramine. <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=50> Accessed 9/22/2014.