

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



WPR23FA034

MEDICAL

Specialist's Factual Report

March 15, 2023

A. ACCIDENT

Location: Snohomish, Washington
Date: November 18, 2022
Time: 10:19 Local
Airplane: Cessna 208B EX Caravan; N2069B

B. MEDICAL SPECIALIST

Specialist Michelle Watters, MD, PhD, MPH
National Transportation Safety Board, RE-1
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C. DETAILS OF THE INVESTIGATION

Purpose

This investigation was performed to evaluate the flight crew for medical conditions, the use of medications/illicit drugs, and the presence of toxins.

Methods

The Federal Aviation Administration (FAA) medical case review and the flight crew's autopsy and FAA Forensic Sciences Laboratory toxicology reports¹ were reviewed. Other relevant medical and regulatory issues were reviewed.

D. FACTUAL INFORMATION

1.0 Test Pilot

1.1 FAA Medical Case Review

According to the FAA medical case review, at the time of the accident, the 67-year-old male test pilot held a second class medical certificate with the limitation that he must wear corrective lenses. At his most recent FAA medical certification examination on 3/3/22, he reported 11,659 total flight hours and was 63 inches tall and weighed 183 pounds. He reported taking no medications or having any medical conditions.

¹ The FAA Forensic Sciences Laboratory has the capability to test for more than 1,000 substances including toxins, common prescription and over-the-counter medications, and illicit drugs. <https://jag.cami.jccbi.gov/toxicology/>

1.2 Autopsy

According to the autopsy report from the Snohomish County Medical Examiner, Everett, Washington, the cause of death of the test pilot was multiple blunt injuries, and the manner of death was accident. No significant natural disease was identified by the chief medical examiner.

1.3 Toxicology

Toxicology testing performed by the FAA Forensic Sciences Laboratory detected the antihistamine brompheniramine at 15 nanograms per milliliter (ng/mL) in the test pilot's cavity blood and at 458 nanograms per gram in his liver tissue. The non-steroidal pain medication ibuprofen and the cough suppressant dextromethorphan and its metabolite dextrorphan were detected in the test pilot's cavity blood and liver tissue; these three compounds are generally considered non-impairing.²

Brompheniramine is a sedating antihistamine available over the counter to treat allergy or common cold symptoms; it is sometimes marketed under the brand name Dimetapp. Brompheniramine and *dextromethorphan* are often sold in combination in over-the-counter cough and cold remedies. The therapeutic range of brompheniramine is 5 to 22 ng/mL, and it has a half-life of 12 to 35 hours. The medication carries the warning that use may impair the mental and physical ability to perform potentially hazardous tasks such as driving or operating heavy machinery.³ FAA provides guidance on wait times before flying after using these medications.⁴

2.0 Co-Pilot

2.1 FAA Medical Case Review

According to the FAA medical case review, at the time of the accident, the 52-year-old male co-pilot held a second class medical certificate with the limitation that he must wear corrective lenses and possess glasses for near/intermediate vision. At his most recent FAA medical certification examination on 3/21/22, he reported

² FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs.

Ibuprofen. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=77>

Dextromethorphan. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=42>

Dextrorphan. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=43>

³ FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs. Brompheniramine. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=19>

⁴ FAA. 11/13/19. What over-the-counter (OTC) medications can I take and still be safe to fly? OK-20-0302

https://www.faa.gov/licenses_certificates/medical_certification/media/OTCMedicationsforPilots.pdf

10,600 total flight hours and was 67 inches tall and weighed 178 pounds. He reported taking no medications and having a history of hay fever.

2.2 Autopsy

According to the autopsy report from the Snohomish County Medical Examiner, Everett, Washington, the cause of death of the co-pilot was multiple blunt force injuries, and the manner of death was accident. The examination was limited by the injuries, the brain was not available for examination. No significant natural disease was identified by the chief medical examiner.

2.3 Toxicology

Toxicology testing performed by the FAA Forensic Sciences Laboratory did not detect ethanol or tested-for drugs in the co-pilot's cavity blood.

3.0 Test Director

3.1 FAA Medical Case Review

According to the FAA medical case review, at the time of the accident, the 49-year-old male test director did not have a pilot certificate. At his only FAA medical certification examination in 2010, he was not issued an FAA medical certificate.

3.2 Autopsy

According to the autopsy report from the Snohomish County Medical Examiner, Everett, Washington, the cause of death of the test director was multiple blunt force injuries, and the manner of death was accident. No significant natural disease was identified by the chief medical examiner.

3.3 Toxicology

Toxicology testing performed by the FAA Forensic Sciences Laboratory did not detect ethanol in the test director's cavity blood or tested-for drugs in his urine.

4.0 Instrumentation Lead

4.1 FAA Medical Case Review

According to the FAA medical case review, at the time of the accident, the 33-year-old male instrumentation lead held a first class medical certificate without limitation. At his most recent and only FAA medical certification examination on 3/16/19, he reported 7 total flight hours and was 75 inches tall and weighed 155 pounds. He reported taking no medications and having no medical conditions.

4.2 Autopsy

According to the autopsy report from the Snohomish County Medical Examiner, Everett, Washington, the cause of death of the instrumentation lead was multiple blunt force injuries, and the manner of death was accident. No significant natural disease was identified by the chief medical examiner.

4.3 Toxicology

Toxicology testing performed by the FAA Forensic Sciences Laboratory did not detect ethanol or tested-for drugs in the instrumentation lead's cavity blood.

E. SUMMARY OF MEDICAL FACTS

The 67-year-old male test pilot held a second class medical certificate with the limitation that he must wear corrective lenses. At his most recent FAA medical certification examination on 3/3/22, he reported taking no medications or having any medical conditions. According to the autopsy report, the cause of death of the test pilot was multiple blunt injuries, and the manner of death was accident. No significant natural disease was identified.

Toxicology testing detected the antihistamine brompheniramine at 15 nanograms per milliliter (ng/mL) in the test pilot's cavity blood and in his liver tissue. The non-impairing substances ibuprofen, dextromethorphan, and dextropropion were detected in the test pilot's cavity blood and liver tissue.

The 52-year-old male co-pilot held a second class medical certificate with the limitation that he must wear corrective lenses and possess glasses for near/intermediate vision. At his most recent FAA medical certification examination on 3/21/22, he reported taking no medications and having a history of hay fever. According to the autopsy report, the cause of death of the co-pilot was multiple blunt force injuries, and the manner of death was accident. While the examination was limited by injuries, no significant natural disease was identified. Toxicology testing did not detect ethanol or tested-for drugs in the co-pilot's cavity blood.

The 49-year-old male test director did not have a pilot certificate. At his only FAA medical certification examination in 2010, he was not issued an FAA medical certificate. According to the autopsy report, the cause of death of the test director was multiple blunt injuries, and the manner of death was accident. No significant natural disease was identified. Toxicology testing did not detect ethanol in the test director's cavity blood or tested-for drugs in his urine.

The 33-year-old male instrumentation lead held a first class medical certificate without limitations. At his most recent and only FAA medical certification examination

on 3/16/19, he reported taking no medications and having no medical conditions. According to the autopsy report, the cause of death of the instrumentation lead was multiple blunt injuries, and the manner of death was accident. No significant natural disease was identified. Toxicology testing did not detect ethanol or tested-for drugs in the instrumentation lead's cavity blood.

Submitted by:

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