



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report **July 5, 2022**

Michelle Watters, MD, PhD, MPH
Medical Officer

A. ACCIDENT: ERA20LA314 – Boaz, Alabama

Date/Time: September 10, 2020; 12:43 p.m. (EDT)
Aircraft: Zenair CH750 CRUZER, N656BN
Injuries: 1 Fatal
Flight Conducted under Part 91 personal flight.

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 for medical conditions, the use of medications/illicit drugs, and the presence of toxins.

Methods

The pilot's autopsy and Federal Aviation Administration (FAA) Forensic Sciences Laboratory toxicology¹ reports were reviewed. Other pertinent scientific and regulatory issues were reviewed. Since the pilot was a light sport pilot, there were no FAA certification medical records.

Autopsy

According to the Alabama Department of Forensic Sciences, Huntsville, Alabama autopsy report, the cause of death of the pilot was blunt force injuries and the manner of death was accident. The 76-year-old pilot weighed 219 pounds and was 73 inches tall.² The medical examiner reported that the pilot had an enlarged heart (510 grams) and 50% atherosclerosis of his left anterior descending artery.

¹ The FAA Forensic Sciences Laboratory has the capability to test for more than 1,300 substances including toxins, common prescription and over-the-counter medications, and illicit drugs. <https://jag.cami.jccbi.gov/toxicology/>

² The first page of the autopsy report reports the pilot's height as 73 inches, the narrative reports the height as 76 inches.

Toxicology

Toxicology testing performed by the FAA Forensic Sciences Laboratory detected ethanol in the pilot's cardiac blood at 0.027 grams per deciliter (gm/dL), ethanol was not detected in his urine. N-propanol was detected in his cardiac blood. The medication tamsulosin, commonly marketed as Flomax and prescribed to treat an enlarged prostate, was detected in his cardiac blood and urine; this medication is generally considered non-impairing.³

Ethanol is a social drug commonly consumed by drinking beer, wine, or liquor. It acts as a central nervous system depressant; it impairs judgment, psychomotor functioning, and vigilance. Ethanol is water soluble, and after absorption it quickly and uniformly distributes throughout the body's tissues and fluids. The distribution pattern parallels water content and blood supply of the tissue. Post-absorption, the ethanol concentration in urine is about 25% higher than blood. There is a one-to-two-hour delay in the balance between urine and blood. Ethanol can be produced after death by microbial activity; sometimes in conjunction with other alcohols such as propanol; urine does not suffer from postmortem production to any significant extent. Extensive trauma increases the spread of bacteria and raises the risk of ethanol production after death.^{4,5,6}

D. SUMMARY OF MEDICAL FINDINGS

The 76-year-old male pilot was a sport pilot and had not undergone FAA medical certification examinations. According to the autopsy, the cause of the pilot's death was blunt force injuries and the manner of death was accident. Autopsy findings for the pilot included enlarged heart (510 grams) and 50% atherosclerosis of his left anterior descending artery.

Toxicology testing detected ethanol in the pilot's cardiac blood at 0.027 gm/dL; ethanol was not detected in his urine. N-propanol was detected in his cardiac blood. The non-impairing enlarged prostate medication tamsulosin was detected in his cardiac blood and urine.

³ National Institutes of Health (NIH). U.S. National Library of Medicine (NLM). Updated 3/30/21. [DailyMed - TAMSULOSIN HYDROCHLORIDE capsule \(nih.gov\)](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?id=20222)

⁴ Canfield, DV, TC Kupiec, and EF Huffine. July 1992. Postmortem alcohol production in fatal aircraft accidents. U.S. Department of Transportation. FAA. Washington, D.C. Report # DOT/FANAM-92/24.

⁵ Ioan, BG, V Jitaru, R Damian, and SI Damian. 2015. Study on the relationship between the concentration of ethanol in the blood, urine, and vitreous humor. *Rom J. Leg Med* 23:211-216.

⁶ Kugelberg, FC and AW Jones. 2007. Interpreting results of ethanol analysis in postmortem specimens: a review of the literature. *Forensic Science International* 165(1):10-29.