



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

May 23, 2017

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Chief Medical Officer

A. ACCIDENT: ERA16FA035, Climax, GA

On December 6, 2015, about 1407 Pacific standard time, an Aero Vodochody L-39C, N39AY, was destroyed when it impacted terrain during takeoff from Apple Valley Airport (APV), Apple Valley, California. The airline transport pilot and pilot-rated passenger were fatally injured. Visual meteorological conditions prevailed and no flight plan was filed for the local flight. The airplane was registered to and operated by Jettran LLC as a Title 14 Code of Federal Regulations Part 91 personal flight.

B. GROUP IDENTIFICATION

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

C. DETAILS OF INVESTIGATION

1. Purpose

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

2. Methods

The FAA medical case review, toxicology results, autopsy reports, and the investigator's reports were reviewed for the pilot/owner and the pilot rated passenger.

Pilot/Owner

FAA Medical Case Review

According to the FAA medical case review, the 40 year old male pilot reported 1,150 total flight hours as of his last medical exam, dated 5/07/2013. At that time, he was 75 inches tall and weighed 195 pounds. He had reported no chronic medical conditions and no medications to the FAA. He was issued a third class medical certificate without limitations.

Autopsy

According to the autopsy performed by the Division of Forensic Sciences, Georgia Bureau of Investigation, State of Georgia, the cause of death was blunt force trauma of head, torso, and extremities and the manner of death was accident.

Examination of the body for natural disease was limited by the severity of the pilot's injuries; the brain was not available for examination. However, no significant natural disease was identified.

Toxicology

Toxicology testing performed by the FAA's Bioaeronautical Research Sciences Laboratory identified 0.203 gm/dl of ethanol, N-propanol, amphetamine, 0.6 ug/g of tramadol and its active metabolite O-desmethyltramadol in muscle tissue. In addition, tetrahydrocannabinol (THC, the active compound in marijuana) and its metabolite tetrahydrocannabinol carboxylic acid were found in lung tissue. Cetirizine and tetrahydrocannabinol carboxylic acid were identified in kidney tissue. Finally, 0.044 gm/dl of ethanol, doxylamine, 1.976 ug/g of tramadol, O-desmethyltramadol, and tetrahydrocannabinol carboxylic acid were found in liver tissue.

Ethanol is the intoxicant commonly found in beer, wine, and liquor. It acts as a central nervous system depressant. After ingestion, at low doses, it impairs judgment, psychomotor functioning, and vigilance; at higher doses it can cause coma and death. The effects of ethanol on aviators are generally well understood; it significantly impairs pilots' performance, even at very low levels.¹ Federal Aviation Regulations, Section 91.17 (a) prohibits any person from acting or attempting to act as a crewmember of a civil aircraft while having 0.040 gm/dl or more ethanol in the blood.² Because ingested alcohol is distributed throughout the body, levels from different post mortem tissues are usually similar. Ethanol may also be produced in body tissues by microbial activity after death.³ N-propanol is another type of alcohol that is produced in body tissues after death.

Amphetamine is a Schedule II controlled substance available by prescription for the treatment of attention deficit/hyperactivity disorder and narcolepsy. It is often marketed with the name Adderall. Because of the high likelihood for abuse, it carries a boxed warning regarding this

¹ Cook, C.C., Alcohol and aviation. *Addiction* (Abingdon, England), 1997. 92(5): p. 539-555.

² US Government Printing Office .eCFR- Code of Federal Regulations. 91.17. <http://www.ecfr.gov/cgi-bin/text-idx?rgn=div8&node=14:2.0.1.3.10.1.4.9>. Accessed 6/16/2016.

³ Federal Aviation Administration. Forensic Toxicology Drug Information. Ethanol. <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=60> Accessed 12/02/2016

risk.⁴ Tramadol is an opioid analgesic and Schedule IV controlled substance available by prescription, commonly marketed with the name Ultram. O-desmethyltramadol is created in the body by the metabolism of tramadol and also has psychoactive effects.⁵ Tetrahydrocannabinol, also called THC, is the active compound in marijuana. Tetrahydrocannabinol carboxylic acid is an inactive metabolite of THC.⁶ Cetirizine and doxylamine are both sedating antihistamines available in a number of over the counter products. Doxylamine is so sedating it is primarily used as a sleep aid. Common names are Zyrtec and Unisom, respectively. Tramadol, cetirizine, and doxylamine all carry warnings regarding somnolence and hazards to driving safety.

Pilot Rated Passenger

FAA Medical Case Review

According to the FAA medical case review, the pilot rated passenger was a 58 year old male who had reported 9,500 total flight as of his last medical exam, dated 12/04/2014. At that time he was 69 inches tall and weighed 205 pounds. He had reported no chronic medical conditions or medications to the FAA. He was issued a second class medical certificate limited by a requirement to have available glasses for near vision.

Autopsy

According to the autopsy performed by the Division of Forensic Sciences, Georgia Bureau of Investigation, State of Georgia, the cause of death was blunt force trauma of head, torso, and extremities. and the manner of death was accident.

Examination of the body for natural disease was limited by the severity of the pilot rated passenger's injuries; the brain was not available for examination. No significant natural disease was identified.

Toxicology

Toxicology testing performed by the FAA's Bioaeronautical Research Sciences Laboratory did not identify any tested-for substances.

D. SUMMARY OF MEDICAL FINDINGS

According to the medical investigation (see the Medical Factual Report for complete information) the 40 year old male pilot had reported no chronic medical conditions and no chronic medication use to the FAA. The cause of death was determined to be blunt

⁴ National Institutes of Health. US National Library of Medicine. DailyMed. Amphetamine/dextroamphetamine. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=72ddd1c9-ddbd-4c95-acd9-003189a353a3> Accessed 3/20/2017.

⁵ National Institutes of Health. US National Library of Medicine. DailyMed. Tramadol. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=ae7c54b1-b440-4cca-97e8-e5b825413d32> Accessed 3/20/2017.

⁶ CAMI toxicology Drug Information: tetrahydrocannabinol. <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=194> Accessed 3/20/2017.

force trauma of the head, torso, and extremities and the manner of death was accident. Post accident toxicology testing identified 0.203 gm/dl of ethanol, N-propanol, amphetamine, 0.6 ug/g of tramadol, and its active metabolite O-desmethyltramadol in muscle tissue. In addition, tetrahydrocannabinol (THC, the active compound in marijuana) and its metabolite tetrahydrocannabinol carboxylic acid were found in lung tissue. Cetirizine and tetrahydrocannabinol carboxylic acid were identified in kidney tissue. Finally, 0.044 gm/dl of ethanol, doxylamine, 1.976 ug/g of tramadol, O-desmethyltramadol, and tetrahydrocannabinol carboxylic acid were found in liver tissue.

The 58 year old male pilot rated passenger had reported no chronic medical conditions and no medications to the FAA. Post accident toxicology testing did not identify any tested-for substances.