



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Lumberport, WV	<b>Accident Number:</b>	ERA14FA138
<b>Date &amp; Time:</b>	03/01/2014, 1215 EST	<b>Registration:</b>	N7203E
<b>Aircraft:</b>	BEECH F33	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Miscellaneous/other	<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The private pilot was conducting a local personal flight. Radar data indicated that the airplane took off from its home airport and flew westbound for about 23 minutes and then reversed course back toward the airport. Radar data indicated no major course deviations after the turn, but the data did indicate that the airplane's altitude deviated many times. Toward the end of the flight, the airplane started to descend, and the last two recorded altitudes indicated that the airplane reached a descent rate of 9,600 ft per minute. The airplane subsequently impacted a ridgeline, during which the airplane was highly fractured, with debris coming to rest on the downslope beyond the ridgeline. No preexisting mechanical anomalies were found that would have precluded normal operation, and propeller blade signatures were consistent with the engine producing power at the time of impact.

The pilot had a history of hypertension, depression, and anxiety and had experienced a stroke 6 years before the accident. His personal physician at that time, who was also a Federal Aviation Administration (FAA) designated aviation medical examiner (AME), prescribed multiple medications for these conditions during visits for personal medical care 5 and 6 years before the accident, including two medications the FAA considered disqualifying for use by pilots. Neither the pilot nor the AME reported these conditions or their treatment to the FAA when the pilot obtained aviation medical certificates 4 and 2 years before the accident. The AME only provided medical records up to 5 years before the accident.

The pilot's autopsy was limited by the degree of damage to his body. The local medical examiner identified mirtazapine and ethanol in the muscle, and subsequent testing at the FAA Civil Aerospace Medical Institute identified amlodipine, mirtazapine, and valsartan but no ethanol.

Mirtazapine is an antidepressant whose mechanism is unknown. Although the pilot had been diagnosed and treated for depression and anxiety, there were no available records describing the effectiveness of the treatment or the extent of the pilot's symptoms around the time of the accident. Although mirtazapine can be sedating, the pilot had apparently been using it for several years. The family reported that the pilot had planned to travel in the weeks following

the accident, and there were no reports of new or increased stressors. The ethanol identified by the medical examiner likely resulted from postmortem production rather than ingestion and did not contribute to the accident. Amlodipine and valsartan are used to lower blood pressure, and although the pilot's hypertension and its treatment likely did not contribute directly to the accident, it increased his risk of recurrent stroke or other cardiovascular event.

There were no records provided nor any reports from the family about who prescribed the pilot's current medications or who might have been treating him in the 5 years before the accident if not his personal physician/AME. Current recommendations for treatment following strokes are designed to decrease the likelihood of a recurrent event. Guidelines include ongoing treatment with antiplatelet medications, such as aspirin or clopidogrel, evaluation and aggressive treatment of cholesterol, and careful management of hypertension and diabetes. However, there was no evidence from available records or the toxicology results indicating that the pilot was using antiplatelet medication or a cholesterol-lowering agent.

If the pilot and his AME had fully reported the pilot's medical conditions and medications to the FAA, additional testing, such as brain imaging and neuropsychiatric and neurocognitive testing, would have been required for FAA issuance of a medical certificate. Without further testing, the extent of any impairment from the pilot's illnesses or their treatment could not be determined. According to the available evidence, the pilot's stroke risks were inadequately treated and put him at a high risk for a recurrent stroke or a cardiovascular event. These risks likely led to the pilot's acute impairment or incapacitation, which resulted in his flight into terrain.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A stroke or cardiovascular event, which resulted in the pilot's acute impairment or incapacitation and his subsequent flight into terrain.

### Findings

Aircraft	Altitude - Not attained/maintained (Cause)
Personnel issues	Cardiovascular - Pilot (Cause)

## Factual Information

### HISTORY OF FLIGHT

On March 1, 2014, about 1215 eastern standard time, a Beech F33A, N7203E, was destroyed when it collided with trees and terrain near Lumberport, West Virginia. The private pilot was fatally injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local personal flight, which departed Fairmont Municipal Airport (4G7), Fairmont, West Virginia, and was conducted under the provisions of 14 Code of Federal Regulations Part 91.

A witness, who was standing in a valley just beyond a small mountain where the accident occurred, stated that he did not see the airplane prior to the accident, but heard an engine sputtering, then go to full power. He subsequently heard trees and branches breaking, and metallic sounds, then looked up to see trees and branches falling and airplane debris descending down the side of the mountain. The witness then proceeded up the side of the mountain where he saw the remnants of the airplane.

Radar information revealed that the airplane departed 4G7, elevation 1,032 feet msl, about 1140. It subsequently headed west-southwest, initially climbing to cruising altitudes of 3,500 to 3,600 feet msl by 1143, but after 1148, continued outbound at 3,300 to 3,400 feet.

At 1203, and nearing the Ohio border, the airplane turned right and reversed course, tracking eastbound, back toward 4G7 and almost directly over the outbound course. It generally maintained altitudes between 3,300 feet and 3,400 feet until 1210, when it climbed to 3,500 feet. By 1211:40, the airplane had climbed to 4,000 feet, and by 1212:51, it had descended to 3,100 feet. The airplane then climbed again, to 3,500 feet by 1213:52, but then descended and maintained between 3,400 feet and 3,200 feet until 1214:49, when it had climbed again to 3,600 feet. It subsequently began a final descent; at 1215:08, the airplane was at 2,800 feet, at 1215:12, it was at 2,600 feet, and at 1215:17, at last radar contact, the airplane was at 1,800 feet. There were no major course deviations noted during the airplane's descent.

### PERSONNEL INFORMATION

The pilot, age 68, held a private pilot certificate with airplane single engine land and instrument-airplane ratings. His latest FAA third class medical certificate was issued on November 1, 2012. At the time, the pilot indicated 1,550 total hours of flight time, with 30 hours in the previous 6 months. No logbook was located at the accident site, and the logbooks provided to the Federal Aviation Administration (FAA) by the pilot's family only listed flights through 1997.

### AIRPLANE INFORMATION

The single engine metal airplane was powered by a Continental IO-520-series engine driving a three-bladed metal propeller. The latest annual inspection was completed on January 4, 2014. At the time, the airplane had operated 1,995.7 hours, and the engine 897.0 hours since new.

### METEROROLOGICAL INFORMATION

The weather, recorded at an airport 9 nm to the south, included winds from 040 degrees true at 15, gusting to 24 knots, overcast skies at 7,500 feet, 10 miles visibility, temperature 45 degrees F, dew point 27 degrees F, and an altimeter setting of 30.18 inches Hg.

### WRECKAGE AND IMPACT INFORMATION

The impact sequence commenced in trees just west of a ridgeline in the vicinity of 39 degrees, 25.44 minutes north latitude, 080 degrees 26.78 minutes west longitude at an elevation of about 1,370 feet. Severed hardwoods, some up to 18 inches in diameter, were sheared in an approximately 15-degree descending path after the first tree strikes. The downward path, heading about 130 degrees magnetic, ended in a large ground scar on the ridgeline. Beyond the ground scar, and descending beyond the ridgeline, were the scattered remnants of the highly fractured airplane, with the largest piece, part of the cabin roof attached to the right wing, wrapped around a tree about 100 feet below the ridgeline. The most distant object, the engine, came to rest about 150 yards from the initial impact point, and 150 feet below the ridgeline.

The majority of the airplane was accounted for at the accident the site; however, due to an incoming winter storm, documentation was suspended. Prior to departure, all three propeller blades were located separate from the propeller hub, with one exhibiting torsional bending, leading edge damage and a separated tip, one exhibiting torsional bending and leading edge damage near the tip, and the last exhibiting a lesser degree of bending. The separated panel containing the three engine controls was also located; the mixture was in, and the propeller rpm and throttle were mostly pulled out; however, due to the extent of damage to the airplane, the actual control positions at impact could not be determined.

The wreckage was recovered after sufficient snow melt and was taken to a storage facility for further documentation. There, evidence of all flight controls surfaces was confirmed. Flight control continuity could not be completely determined due to the fractured nature of the wreckage. The rudder control cables were continuous from the cockpit to the aft rudder bellcrank that was separated. The aileron flight control cables were continuous from the cockpit to each respective wing aileron outboard bellcrank, but the left and right aileron pull cables were separated from their respective aileron control bellcrank, separated in the cockpit area, and the aileron balance cable was separated at the right aileron outboard bellcrank and at the rear spar carry-through. The cable separations exhibited splayed ends and individual filaments consistent with tensile overload. Elevator flight control cable continuity could not be determined.

The engine was severely impact damaged, and the exhaust system exhibited bending and folding, consistent with heat having been applied at impact. Crankshaft continuity was confirmed, and top spark plugs were gray in color. Neither magneto was recovered.

The fuel pump was rotated freely by hand. The fuel manifold valve diaphragm was intact. The retaining nut and plunger were tight and secure. The fuel screen exhibited a minor amount of dirt and the fuel manifold valve cavity had impacted dirt. Three of the fuel nozzles were fractured or bent, and could not be removed. The other three were removed and noted to be free of debris.

The throttle body/metering unit exhibited impact damage. The throttle and mixture control arms were bent but moved freely by hand from stop to stop. The throttle plate was moved freely by hand, and the fuel screen was free of debris.

The oil pump was disassembled with no preexisting anomalies were noted, and the internal element oil filter was absent of metal.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot at West Virginia University, Morgantown, West Virginia, where the cause of death and manner of death were noted as "Undetermined." The autopsy was limited by the degree of damage to the body; specifically, no heart or brain was available for examination.

Toxicological testing was hampered by a lack of blood or other body fluids available for testing. Initial testing by the medical examiner revealed the presence of mirtazapine and ethanol in muscle at 0.07%.

Subsequent toxicological testing was performed at the FAA's Civil Aerospace Medical Institute, Oklahoma City, Oklahoma, where amlodipine, mirtazapine, and valsartan were found, but no ethanol in tissue specimens.

A Medical Factual Report was produced by the NTSB Chief Medical Officer. The basis for the report included the pilot's medical certification file, the accident's FAA medical case review, the pilot's toxicology results, autopsy report, personal medical records, and witness statements and observations from the investigator in charge. The complete report can be found in the public docket for this accident investigation.

Personal medical records were subpoenaed from the pilot's physician, who was also the pilot's FAA-designated Aviation Medical Examiner (AME), and who produced only five pages of records through October 12, 2009. In summary, the pilot had a history of hypertension, depression, and anxiety, and had suffered a stroke in 2008. The physician prescribed multiple medications for those conditions during visits for personal medical care in 2008 and 2009, including two medications the FAA considered disqualifying for use by pilots. Neither the pilot nor the AME reported these conditions or their treatment to the FAA when the pilot obtained aviation medical certificates from the same physician/AME in 2010 and 2012.

As noted in the Medical Factual Report, "In a study that followed patients after a stroke that left them with no or minimal disability, the risk of recurrent major stroke was 14% and the risk of death from any cause was 32% by 10 years later. Recurrent minor stroke, diabetes, heart attack, and hypertension significantly increased the risk of recurrent major stroke. In a more recent study, the combined risk of recurrent stroke or death from any cause was 10% at one year, 26% at five years, and 45% at 10 years following a stroke. These rates are about double the risk of the stroke-free population. Risk of both stroke and death was increased by having had a heart attack, diabetes, or hypertension.

Current recommendations for treatment following transient ischemic attacks and ischemic strokes are designed to decrease the likelihood of a recurrent event. Guidelines include ongoing treatment with antiplatelet medications such as aspirin or clopidogrel, evaluation and aggressive treatment of cholesterol, and careful management of hypertension and diabetes."

There were no records provided or any indication from the family as to who prescribed the pilot's current medications, or who might have been treating him if not the personal physician /AME.

Witnesses also reported that the pilot was slurring his speech within the 2 weeks preceding accident. Witnesses further indicated his possibly having suffered mini-strokes at that time, but family members denied any knowledge of them. They also noted that the pilot had recently retired and was looking forward to moving south in the near future.

## History of Flight

Enroute	Miscellaneous/other (Defining event) Altitude deviation Collision with terr/obj (non-CFIT)
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## Pilot Information

Certificate:	Private	Age:	68, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 With Waivers/Limitations	Last Medical Exam:	01/04/2010
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 1550 hours (Total, all aircraft), 50 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	BEECH	Registration:	N7203E
Model/Series:	F33 A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Utility	Serial Number:	CE-1041
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	01/04/2014, Annual	Certified Max Gross Wt.:	3412 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	1995 Hours	Engine Manufacturer:	Continental
ELT:	C91A installed, activated, did not aid in locating accident	Engine Model/Series:	IO-520-BB
Registered Owner:	On file	Rated Power:	285 hp
Operator:	On file	Air Carrier Operating Certificate:	None

## Meteorological Information and Flight Plan

Observation Facility, Elevation:	CKB, 1203 ft msl	Observation Time:	1153 EST
Distance from Accident Site:	13 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	130°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:		Temperature/Dew Point:	7° C / -3° C
Lowest Ceiling:	Overcast / 7500 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	15 knots/ 24 knots, 240°	Visibility (RVR):	
Altimeter Setting:	30.18 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fairmont, WV (4G7)	Type of Flight Plan Filed:	None
Destination:	Fairmont, WV (4G7)	Type of Clearance:	None
Departure Time:	1140 EST	Type of Airspace:	Class G

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal		

## Administrative Information

Investigator In Charge (IIC):	Paul R Cox	Adopted Date:	05/16/2016
Additional Participating Persons:	Jerry Morgan; FAA/FSDO; Charleston, WV Ernest Hall; Textron Aviation; Wichita, KS Chris Lang; Continental Motors; Mobile, AL		
Publish Date:	05/16/2016		
Note:	The NTSB traveled to the scene of this accident.		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=88863">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=88863</a>		

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