



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Bennington, Vermont	Accident Number:	ERA18FA148
Date & Time:	May 20, 2018, 14:23 Local	Registration:	N1101X
Aircraft:	Piper PA34	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After receiving commercial and flight instructor certificates with a designated pilot examiner (DPE), the instrument-rated commercial pilot planned to fly back to his home airport the following day. The DPE reviewed weather with the pilot and advised him to delay the flight 2 days due to poor weather; however, the following day, the pilot attempted the visual flight rules flight in instrument meteorological conditions with mountain obscuration. Before departing on the flight, the pilot received three weather briefings and all three contained information regarding instrument flight rules conditions with mountain obscuration.

The pilot was receiving flight following services from air traffic control, while proceeding southeast, in clouds, below the minimum vectoring altitude, near mountainous terrain. The controller suggested a westbound turn for lower terrain and continued radar coverage. The airplane briefly turned to a westbound heading, then turned back to a southeast heading. About 4 miles later, the controller again advised the pilot that, if he continued on the present heading, radar coverage would be lost. The pilot asked again what heading he should fly and the controller responded westbound, to which the pilot responded, "westbound heading 270." Radar and radio contact were lost during the second westbound turn. The last radar target indicated an altitude of 3,500 ft msl and groundspeed of 218 knots about 1,000 ft from the accident site, which was located at an elevation about 2,625 ft msl.

Examination of the accident site revealed a 60-ft debris path on a 265° course through trees, consistent with a 45° nose-down attitude at impact. Examination of the wreckage did not reveal any preimpact mechanical malfunctions. The pilot had entered clouds and was trying to fly clear of clouds. The conditions were conducive to the development of spatial disorientation; however, the extent to which spatial disorientation played a role could not be determined as the descent could have also been the result of an uncoordinated turn or distraction.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The pilot's improper decision to attempt a visual flight rules flight in instrument meteorological conditions, which resulted in a loss of control during a turn.

Findings

Personnel issues	Decision making/judgment - Pilot
Aircraft	(general) - Not attained/maintained
Environmental issues	Below VFR minima - Decision related to condition

Factual Information

History of Flight

Enroute-cruise	VFR encounter with IMC
Enroute-cruise	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On May 20, 2018, about 1423 eastern daylight time, a Piper PA34-200T, N1101X, was destroyed during impact with wooded mountainous terrain and a postcrash fire while maneuvering near Bennington, Vermont. The commercial pilot was fatally injured. The airplane was privately owned by the pilot who was operating it under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed near the accident site, and no flight plan was filed for the personal flight to Waterbury-Oxford Airport (OXC), Oxford, Connecticut. The flight originated from Burlington International Airport (BTV), Burlington, Vermont, about 1345.

According to a Federal Aviation Administration (FAA) designated pilot examiner (DPE) at BTV, the pilot had obtained a commercial pilot certificate and flight instructor certificate with multiengine land ratings on May 17 and May 19, respectively. They then reviewed weather together on May 19 for the pilot's return flight to his home airport, OXC, and the DPE advised the pilot to return on May 21 due to weather. The DPE stated that he was surprised to learn that the pilot attempted to return home on May 20.

Review of air traffic control information from the FAA revealed that the pilot was receiving flight following from Albany Approach Control. The controller advised the pilot of the location of precipitation and mountainous terrain nearby. The controller subsequently solicited a pilot report from the pilot regarding cloud bases. The pilot reported that the cloud bases were at 3,000 ft; at that time, radar indicated that the accident airplane was at 3,400 ft mean sea level (msl), flying southeast. The controller then asked the pilot if he was in the clouds, and the pilot responded that he was coming out of them. The controller suggested a westbound turn for lower terrain and continued radar coverage. At that time, the accident airplane was flying between 3,200 ft and 4,000 ft msl, but the minimum vectoring altitude for that area was 5,000 ft msl. The airplane briefly turned to a westbound heading, but then turned back to a southeast heading. About 4 miles later, the controller again advised the pilot that, if he continued on the present heading, radar coverage would be lost. The pilot asked again what heading he should fly, and the controller responded westbound, to which the pilot responded, "westbound heading 270." Radar and radio contact were subsequently lost during the second westbound turn. The last radar target was recorded at 1423:41, indicating an altitude of 3,500 ft msl and groundspeed of 218 knots about 1,000 ft from the accident site, which was located on Bald Mountain, at an elevation of about 2,625 ft msl.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	31, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine	Toxicology Performed:	Yes
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	March 5, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	May 19, 2018
Flight Time:	256 hours (Total, all aircraft), 30 hours (Total, this make and model)		

The pilot held a commercial pilot certificate with ratings for airplane multiengine land and instrument airplane. He also held a private pilot certificate with a rating for airplane single-engine land. He held a flight instructor certificate with a rating for airplane multiengine land. His most recent FAA first-class medical certificate was issued on March 5, 2018. At that time, he reported a total flight experience of 227 hours. The pilot's logbook was not located and was presumed destroyed in the accident. Review of the pilot's application for a commercial pilot certificate, dated May 17, 2018, revealed a total flight experience of 256 hours, of which 45 hours were instrument experience; however, the application did not specify simulated or actual instrument experience or recency.

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N1101X
Model/Series:	PA34 200T	Aircraft Category:	Airplane
Year of Manufacture:	1975	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	34-7570208
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	September 30, 2017 Annual	Certified Max Gross Wt.:	4570 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	7603 Hrs as of last inspection	Engine Manufacturer:	CONT MOTOR
ELT:	C91 installed, not activated	Engine Model/Series:	TSIO-360-EB
Registered Owner:		Rated Power:	215 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

The six-seat, low-wing, retractable tricycle-gear airplane was manufactured in 1975. It was

powered by one Continental TSIO-360-EB and one Continental LTSIO-360-EB (counter rotating) engine, both of which were 215 horsepower and equipped with constant-speed, two-blade Hartzell propellers. The airplane's maintenance logbooks were not located and presumed destroyed in the accident. According to an airplane status sheet completed on May 19, the airplane's most recent annual inspection was completed on September 30, 2017. At that time, the airplane had accumulated 7,306 total hours.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	DDH, 827 ft msl	Distance from Accident Site:	5 Nautical Miles
Observation Time:	14:15 Local	Direction from Accident Site:	245°
Lowest Cloud Condition:	Few / 1700 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 3600 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	230°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.9 inches Hg	Temperature/Dew Point:	21°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Burlington, VT (BTV)	Type of Flight Plan Filed:	None
Destination:	Oxford, CT (OXC)	Type of Clearance:	VFR flight following
Departure Time:	13:45 Local	Type of Airspace:	

In addition to reviewing and discussing weather with the DPE on May 19, the pilot obtained three weather briefings via Foreflight on the day of the accident. The briefings were obtained at 1204, 1216, and 1226. All three briefings contained information about instrument flight rules conditions and mountain obscuration along the planned route of flight.

William H Morse State Airport (DDH), Bennington, Vermont, was located about 5 miles west-southwest of the accident site. The recorded weather at DDH at 1415 included wind from 230° at 8 knots; 10 miles visibility; few clouds at 1,700 ft, broken ceiling at 3,600 ft, overcast ceiling at 4,600 ft; temperature 21°C; dew point 17°C; and an altimeter of 29.91 inches of mercury.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	42.923889,-73.139167

A debris path was observed beginning with freshly-cut tree branches descending at an approximate 45° angle and extending about 60 ft on a magnetic heading of 265° to the main wreckage. Several of the branches exhibited cuts with black paint transfer. The main wreckage came to rest upright and was oriented about a 265° magnetic heading, with the empennage canted over the cockpit area. The left propeller separated from the left engine flange and one propeller blade separated from the hub. The blade exhibited s-bending, chordwise scratching, leading edge gouging, and tip curling, and was fractured near the blade root. The other left propeller blade was not located and presumed buried beneath the engine. The right propeller separated from the right engine flange; however, both right propeller blades remained attached to the hub. Both blades exhibited s-bending and leading-edge gouging.

The landing gear and flaps were retracted. The cockpit was consumed by fire and no readable instruments were recovered. The emergency locator transmitter was recovered, and its switch was found in the off position. The attitude indicator was recovered; its face sustained impact damage. When the attitude indicator was disassembled, its gyroscope and housing exhibited rotational scoring consistent with rotation at the time of impact.

The right wing was partially consumed by fire and exhibited impact damage. The right flap remained attached; the right aileron separated and was located about 2 ft from the right wing. The left wing sustained fire damage, but exhibited less impact damage than the right wing. The left flap and left aileron remained attached to the left wing. The empennage, rudder, and stabilator remained attached. Control continuity was confirmed from the left and right wing aileron bellcranks to the mid-cabin area. Stabilator control continuity was confirmed from the stabilator to the cockpit. Rudder control continuity was confirmed from the rudder to the empennage area. Measurement of the stabilator and rudder trim jackscrews each corresponded to an approximate neutral setting.

Both engines were examined following recovery of the wreckage. Due to impact and fire damage, the crankshaft could not be rotated on either engine; however, visual examination of the engines' core components through the fractured oil sumps and borescope examination of the cylinders revealed no preimpact mechanical malfunctions. Additionally, no preimpact anomalies were noted with either engine's fuel and ignition systems.

Medical and Pathological Information

The Vermont State Department of Health's Office of the Chief Medical Examiner, Burlington, Vermont, performed the autopsy on the pilot. The FAA's Bioaeronautical Sciences Research Laboratory,

Oklahoma City, Oklahoma, performed toxicological testing of the pilot. The results were negative for drugs and alcohol.

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Daniel Jockett; FAA/FSDO; Portland, ME Kathryn Whitaker; Piper Aircraft; Vero Beach, FL Nicole Charnon; Continental Motors; Mobile, AL Damian Galbraith; Piper Aircraft; Vero Beach, FL
Original Publish Date:	November 6, 2019
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=97285

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).