



National Transportation Safety Board Aviation Accident Final Report

Location:	Armonk, NY	Accident Number:	NYC05FA075
Date & Time:	04/23/2005, 1517 EDT	Registration:	N61AF
Aircraft:	Cessna 172R	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The flight instructor was conducting an instrument training flight with a student pilot. At 1513:45, the airplane was on the ILS Runway 16 approach, when the pilot contacted the air traffic control tower. The airplane was subsequently cleared to land, and the controller also informed the flight instructor that the pilot of a landing Cessna Citation reported that he "broke out" at 200 feet. At 1517:25, the controller observed the airplane's radar target at 900 feet. He then issued the pilot a low altitude alert and provided the current altimeter setting. The pilot acknowledged the transmission, read back the altimeter setting, and reported that he was at an altitude of 800 feet. There were no further communications from the pilot, and the airplane's last radar target was observed at 1517:39, at an altitude of 600 feet. The airplane impacted trees and came to rest in a wooded area, about 1 mile from the approach end of runway 16. Examination of the airplane did not reveal any pre-impact malfunctions. A weather observation taken at the airport around the time of the accident, reported: wind from 190 degrees at 12 knots, gusting to 16 knots; visibility 1/2 statute mile in fog; ceiling 200 feet overcast; temperature and dew point both 12 degrees C; altimeter 29.51 in/hg. Review of the approach diagram for the ILS Runway 16 approach revealed a decision height of 639 feet msl (200 feet agl), and an approach minimum of 1,800 feet runway visual range (RVR), or 1/2-mile visibility. The flight instructor had accumulated about 815 hours of total flight experience. He had logged about 80 hours of flight time as "actual instrument conditions," which included about 7 hours of flight time, and 6 instrument landing system approaches during the preceding 90 days. The student pilot had accumulated about 32 hours of total flight experience.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor's failure to maintain the proper altitude\clearance during the approach, which resulted in an in-flight collision with trees. Factors in this accident were low ceilings, fog, and gusty wind conditions.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: APPROACH

Findings

1. (F) WEATHER CONDITION - LOW CEILING
2. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. (F) WEATHER CONDITION - FOG
4. (F) WEATHER CONDITION - GUSTS

Factual Information

HISTORY OF FLIGHT

On April 23, 2005, about 1517 eastern daylight time, a Cessna 172R, N61AF, was destroyed when it impacted terrain in Armonk, New York; while on approach to the Westchester County Airport (HPN), White Plains, New York. The certificated flight instructor (CFI) and student pilot were fatally injured. Instrument meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed for the flight that departed Albany International Airport (ALB), Albany, New York. The instructional flight was conducted under 14 CFR Part 91.

The airplane was operated by Aviation Training Enterprises of New York (d.b.a. American Flyers) flight school, and utilized for flight training conducted under 14 CFR Part 61. The airplane was based at HPN.

According to information obtained from the Federal Aviation Administration (FAA), at 1111, the pilot contacted the New York automated flight service station (AFSS) by telephone to file two flight plans. One from HPN to ALB, and one from ALB to HPN. According to the respective flight plans, the flights were for the purpose of "IFR training." The pilot and student pilot departed HPN, about 1210, and flew to ALB. They then departed ALB about 1345, to return to HPN. At 1513:45, the airplane was on the ILS Runway 16 approach, when the pilot contacted the HPN air traffic control tower. The airplane was cleared to land at 1514:15. The controller also informed the accident pilot that the pilot of a landing Cessna Citation reported that he "broke out" at 200 feet. At 1517:25, the controller observed the airplane's radar target at 900 feet. He then issued the pilot a low altitude alert and provided the current altimeter setting. The pilot acknowledged the transmission, read back the altimeter setting, and reported that he was at an altitude of 800 feet. There were no further communications from the pilot, and the airplane's last radar target was observed at 1517:39, at an altitude of 600 feet.

The accident occurred during the hours of daylight, located approximately 41 degrees, 05.214 minutes north latitude, and 73 degrees, 43.531 minutes west longitude.

PERSONNEL INFORMATION

The CFI held a commercial pilot certificate with ratings for airplane single engine land, and instrument airplane. He also held a flight instructor certificate for airplane single engine land and instrument airplane, which was issued on March 22, 2004. At the time of the accident, he had accumulated about 815 hours of total flight experience, which included about 615 hours in Cessna 172 series airplanes. According to logbook records, the CFI had logged about 80 hours of flight time as "actual instrument conditions," which included about 7 hours of flight time, and 6 instrument landing system approaches during the preceding 90 days.

The CFI's most recent FAA second class medical certificate was issued on March 7, 2003.

The student pilot held a student pilot certificate. According to training records, the student pilot had accumulated approximately 31.9 hours of total flight experience, which included about 30 hours in the same make and model as the accident airplane, since April 6, 2005. The student pilot had not accumulated any "solo" flight experience.

The student pilot held an FAA second class medical certificate, which was issued on March 24, 2005.

AIRCRAFT INFORMATION

The airplane had been operated for about 4,265 total hours since new, and the engine had accumulated about 200 hours since it was overhauled. The airplane had been operated for about 72 hours since its most recent 100-hour inspection, which was performed on April 5, 2005.

According to fueling records, the airplane had been "topped off," with 17 gallons of 100-low-lead aviation gasoline at ALB.

METEOROLOGICAL INFORMATION

Flight school personnel had access to a "WSI" weather terminal for flight planning purposes. After the pilot filed the two flight plans with the New York AFSS, he asked the briefer if there were any pilot reports. The briefer told the pilot that there were no pilot reports and provided the "Airmets" and "Convective Sigments" for the routing.

Airman's Meteorological Information (AIRMET) Sierra update 2 for IFR conditions and mountain obscuration was issued at 0945 and was valid until 1600. The AIRMET called for occasional ceilings below 1,000 feet with 3 statute mile visibility in precipitation and mist. The AIRMET also reported the possibility of mountain obscuration due to clouds, precipitation and mist. The conditions were forecast to continue until 2200.

AIRMET Tango update 2 for turbulence and low level wind shear was issued at 0945 and was valid until 1600. The AIRMET called for occasional moderate turbulence below 12,000 feet due to increasing low level winds ahead of a developing low pressure. The AIRMET also reported the possibility of wind shear below 2,000 feet due to strong low level winds. The conditions were expected to continue until 2200.

Both AIRMETS encompassed the accident site.

A weather observation taken at HPN, at 1456, reported: wind from 190 degrees at 12 knots, gusting to 16 knots; visibility 1/2 statute mile in fog; ceiling 200 feet overcast; temperature and dew point both 12 degrees C; altimeter 29.51 in/hg.

AERODROME INFORMATION

The Westchester County Airport was located at an elevation of 439 feet msl. Runway 16 was 6,548-feet-long, 150-feet-wide, and constructed of grooved asphalt. In addition, runway 16 was equipped with a medium intensity approach lighting system, with runway alignment indicator lights.

A post accident check of the approach lighting system did not reveal any malfunctions.

Review of the approach diagram for the ILS Runway 16 approach revealed a decision height of 639 feet msl (200 feet agl), and an approach minimum of 1,800 feet runway visual range (RVR), or 1/2-mile visibility.

WRECKAGE INFORMATION

The airplane impacted trees and came to rest in a wooded area, about 1 mile from the approach end of runway 16. The terrain around the accident site sloped upward from the Kensico Reservoir, and contained trees that were about 65 feet tall. A debris path, which measured

about 150 feet long, and was oriented on a magnetic course of about 145 degrees extended from a freshly broken tree. All major portions of the airplane were located at the accident site. Both wings, the left horizontal stabilizer, and the left elevator were separated from the fuselage and located along the debris path. A 9-foot portion of the left wing was observed about 40 feet from the initial tree strike. The fuselage came to rest inverted, about 115 feet from the initial tree strike. A post crash fire destroyed the fuselage from the engine firewall, through the aft end of the baggage compartment. In addition, the fire also destroyed the inboard portion of the left wing. A 10-foot-long, 5-foot-wide ground scar was observed near the fuselage. The right wing was separated at the wing root, and was located about 35 feet beyond the fuselage. The inboard portion of the right wing was fire damaged.

Flight control continuity was confirmed from the rudder and elevator control surfaces to the forward cockpit area. In addition, both the left and right aileron cables remained attached to their respective control surfaces, and were intact up to their respective wing separation. The flap actuator jackscrew was in the flap retracted position.

The engine was crushed back into the firewall. The engine was rotated via an accessory drive gear. Crankshaft continuity was observed through the accessory section. In addition, valve train continuity and thumb compression was attained on all cylinders. A borescope inspection of all cylinders piston heads and valves also did not reveal any mechanical malfunctions. The accessory section was destroyed by fire, and both magnetos could not be sparked. All spark plugs were removed. With the exception of the bottom No. 2 spark plug, which was impact damaged, all electrodes were intact. The oil filter and oil suction screen were absent of debris. The fuel injector servo was fire damaged; however, the fuel inlet screen was absent of debris. All four fuel injectors were absent of contamination.

The propeller separated from the crankshaft, and was located buried in an impact crater, near the fuselage. The outboard 15 inches of one propeller blade was curled forward about 90 degrees, and the other propeller blade was bent forward slightly. Both propeller blades contained chordwise scratches.

The engine was equipped with dual vacuum pumps. The right vacuum pump was removed and disassembled. The drive coupling was melted; however, the pump vanes and rotor were intact. The left vacuum pump was destroyed.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies were performed on the flight instructor and student pilot, on April 24, 2005, by the Westchester County Medical Examiners Office, Valhalla, New York.

The toxicological testing report from the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma, was negative for drugs and alcohol for the flight instructor and student pilot.

ADDITIONAL INFORMATION

Wreckage Release

The airplane wreckage was released on May 17, 2006, to a representative of the owner's insurance company.

Flight Instructor Information

Certificate:	Flight Instructor; Commercial	Age:	45, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	03/01/2003
Occupational Pilot:		Last Flight Review or Equivalent:	03/01/2004
Flight Time:	815 hours (Total, all aircraft), 613 hours (Total, this make and model), 722 hours (Pilot In Command, all aircraft), 101 hours (Last 90 days, all aircraft), 36 hours (Last 30 days, all aircraft)		

Student Pilot Information

Certificate:	Student	Age:	23, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	03/01/2005
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	32 hours (Total, all aircraft), 30 hours (Total, this make and model), 0 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N61AF
Model/Series:	172R	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	17281047
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	04/01/2005, 100 Hour	Certified Max Gross Wt.:	2450 lbs
Time Since Last Inspection:	72 Hours	Engines:	1 Reciprocating
Airframe Total Time:	4193 Hours at time of accident	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	IO-360-L2A
Registered Owner:	Aviation Training Enterprises of Illinios	Rated Power:	160 hp
Operator:	American Flyers	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	HPN, 439 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1456 EDT	Direction from Accident Site:	
Lowest Cloud Condition:		Visibility	0.5 Miles
Lowest Ceiling:	Overcast / 200 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	12 knots / 16 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	190°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.51 inches Hg	Temperature/Dew Point:	12°C / 12°C
Precipitation and Obscuration:			
Departure Point:	Albany, NY (ALB)	Type of Flight Plan Filed:	IFR
Destination:	White Plains, NY (HPN)	Type of Clearance:	
Departure Time:	1348 EDT	Type of Airspace:	

Airport Information

Airport:	Westchester County (HPN)	Runway Surface Type:	Asphalt
Airport Elevation:	439 ft	Runway Surface Condition:	Unknown
Runway Used:	16	IFR Approach:	ILS
Runway Length/Width:	6548 ft / 150 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	41.086944, -73.725556

Administrative Information

Investigator In Charge (IIC):	Luke Schiada	Report Date:	10/03/2006
Additional Participating Persons:	Roy Alberti; FAA Farmingdale FSDO; Farmingdale, NJ Henry J Soderlund; Cessna Aircraft Company; Wichita, KS Aaron Spotts; Textron Lycoming; Williamsport, PA		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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