



Aviation Investigation Final Report

Location:	CECILIA, Kentucky	Accident Number:	NYC99FA085
Date & Time:	April 3, 1999, 13:20 Local	Registration:	N4159Q
Aircraft:	Cessna 310N	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The airplane was destroyed during a multi-engine instructional flight, when it impacted terrain while maneuvering after takeoff. The two pilots had flown together the previous day, as well as earlier that same day. During the accident flight, the airplane was observed flying low. The engine noise stopped, then started up again. The airplane entered a steep bank, 'cartwheeled,' then rapidly nosed down into a wet, untilled cornfield. Propeller blades exhibited slight s-bending, some minor leading-edge damage, and light chordwise scoring. The landing gear drive mechanism indicated that the landing gear was down, while wing flap actuator chain positions indicated the flaps were extended 8 to 10 degrees. The flight instructor had about 1,809 hours of total flight time, 264 hours of multi-engine time, and 603 hours as a flight instructor, with 24 hours being in multi-engine airplanes. In addition, he had accumulated about 32 hours in the accident airplane, and 10 hours instructing in the accident airplane, which was acquired 3 months earlier. A notepad found among the wreckage listed the procedures for an engine failure, and also for a Vmc demonstration.

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 control of the airplane. A factor was the flight instructor's inexperience instructing in the accident airplane.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: MANEUVERING

Findings

1. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND(CFI)
2. (F) LACK OF EXPERIENCE - PILOT IN COMMAND(CFI)

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On April 3, 1999, about 1320 Eastern Standard Time, a Cessna 310N, N4159Q, was destroyed when it impacted terrain in Cecilia, Kentucky, while maneuvering after takeoff from Addington Field (EKX), Elizabethtown, Kentucky. The certificated flight instructor and the certificated private pilot were fatally injured. Visual meteorological conditions prevailed at the time of the accident. No flight plan was filed for the local instructional flight, which was conducted under 14 CFR Part 91.

According to one witness, the private pilot was receiving multi-engine and instrument flight training from the flight instructor. A notebook found in the wreckage indicated that the two had flown together for 3.2 hours the previous day. Another witness stated that the pilots had also flown together earlier, on the day of the accident. They had flown a number of VOR instrument approaches, then landed to top off the fuel tanks and eat lunch. Prior to the accident flight, the witness overheard the pilots discussing "engine out" procedures and unusual attitude maneuvers. Just prior to takeoff, he heard one of the pilots on the radio report: "Departing Runway Two Three," but heard nothing from the airplane after that.

A third witness observed the accident. He stated that a thunderstorm had passed through the area 20 to 30 minutes earlier, but that it was not raining when the accident occurred. He had been standing outside, about 1/4 mile south of the accident site, when he heard the sound of the airplane. Initially, he thought nothing of it because the airport was close, and the engines were "definitely running." Then, the engine noise stopped. Then, it started up again, but the engines sounded like they "were laboring real hard." The witness looked up and saw the airplane as it was "entering a steep left bank - it was probably only a couple hundred feet off the ground. It looked like when you had a leash on a dog - like the left wing was being pulled by the leash. Like it [was being] yanked back. It was real fast, real quick, and then the nose went fast into the ground. The airplane cartwheeled right before it hit the ground; it almost did a flip." When the airplane hit the ground, a cloud went up from the impact area.

A fourth witness was proceeding westbound in her car, when the accident airplane flew across the road toward a field to the south. She did not hear the airplane's engines. The airplane looked like it was going to land. It then veered to the left, like it was entering a bank, and "looked like it turned over and over in the air. It looked like it somersaulted in the air." She then saw a wing hit the ground, and a cloud of smoke or dust rose into the air.

The accident occurred during the hours of daylight, near 37 degrees, 38.9 minutes north, 85 degrees, 56.7 degrees west.

PERSONNEL INFORMATION

The flight instructor possessed an airline transport pilot certificate for single and multi-engine land airplanes, and a "gold seal" certified flight instructor rating for single and multi-engine land airplanes, and instrument-airplane. His most recent FAA class two medical certificate was issued in November 1997. He had accumulated about 1,809 hours of total flight experience, of which 264 hours were in multi-engine airplanes, and 603 hours were as a flight instructor. He received his multi-engine flight instructor rating on April 18, 1998, and had logged about 24 hours as a multi-engine instructor. He also had accumulated about 32 hours in the accident airplane, and 10 hours as a flight instructor in it.

The private pilot, who was issued his certificate in November 1998, was the pilot's second multi-engine student in the accident airplane. The first student, who was also a single-engine flight instructor, decided during his training that he did not wish to continue with the accident instructor.

AIRCRAFT INFORMATION

The accident airplane was purchased by the flight instructor and a partner in January 1999.

WRECKAGE AND IMPACT INFORMATION

Prior to the arrival of Safety Board personnel, approval was given to document the airplane's condition as found, and then move it, to remove the pilots' remains. According to that documentation, the private pilot was found in the left seat, and the flight instructor was found in the right seat. The cockpit was almost upside-down, and the nose area had about a 45-degree crush angle on the right side. The left wing was still attached, and upside down, off the ground. The right wing was on the ground, right-side up, facing aft, and minimally attached to the fuselage by wires and sheet metal. The empennage was twisted, and canted to the right. The throttles were mid-range, the mixtures were full rich, and the propellers were full forward.

On-scene examination by Safety Board personnel revealed that the airplane had crashed in a wet, untilled cornfield, about 2 nautical miles southwest of Addington Field. All major airplane components were found at the accident site. The most-distant ground scar from the main wreckage was located at 37 degrees, 38.95 minutes north, 85 degrees, 56.69 minutes west. The majority of the main wreckage was found upside down, 354 degrees magnetic, and approximately 162 feet from the beginning of the ground scar. About 24 feet from the beginning of the ground scar, along the 354-degree axis, was a 1-foot deep, 6-foot by 2 1/2-foot hole, followed by another ground scar. Following that, and commencing about 45 feet along the 354-degree axis, and 2 feet to the right of it, there was another hole, 7 feet long by 3 feet wide, and 1 1/2 feet deep. It was followed by a third ground scar, which contained remnants of red lens material.

The left engine was found about 6 feet to the left of the 354-degree axis, 80 feet from the

beginning of the most-distant ground scar, while the right engine was found 22 feet left of the axis, 106 feet from the beginning of the most-distant ground scar. On the left engine, one propeller blade was found bent backwards about 90 degrees, toward the left side rocker boxes. Another blade was bent backwards about 30 degrees, toward the right side rocker boxes. The third blade was sticking up in the air, was bent backwards about 20 degrees, and exhibited slight s-bending. The propeller blades also exhibited some minor leading edge damage, and some light chordwise scoring.

One propeller blade on the right engine was bent backwards about 90 degrees, toward the left side rocker boxes. Another blade was found bent backwards about 20 degrees, toward the right side rocker boxes. The third blade was found sticking up in the air with the trailing edge facing forward, and exhibited s-bending. The propeller blades exhibited some minor leading edge damage, and some light chordwise scoring.

The fuel tanks were destroyed, and the tip tanks had separated from the wings. In an area roughly defined as from the most-distant ground scar to the main wreckage, and about 60 degrees to the left of the 354-degree axis, to about 20 degrees right of the axis, the vegetation had turned brown. The left fuel selector handle was found in the "Left Aux" position, while the fuel valve in the left wing was pulled beyond the stop pin, with damage to the pin. The right fuel selector handle was found in the "Left Main" position, while the right wing fuel valve was found in the "right main" position. Approximately 1 ounce of fuel was recovered from the right fuel filter, and 1/2 ounce from the left. The fuel was blue in color, and clear of water and debris. A fuel sample was taken from the in-ground fuel farm at Addington Field, and also found to be blue in color, and clear of water and debris.

The engines were examined, and crankshaft continuity was established. Compression was obtained on all cylinders. All four magnetos produced spark, and the top spark plugs were gray in color. The flow dividers were checked, and found to be absent of water and debris. Both engines' exhaust manifolds exhibited bending and folding.

The turn and bank indicator was found with the miniature airplane set in a fixed position, with its right wing pointed down towards the "R."

The landing gear drive mechanism beneath the cabin floor was examined, and found it to be in the position that corresponded to the landing gear being down. The elevator trim actuator was found extended 1.3 inches, which equated to 10 degrees tab down. The aileron trim actuator was extended 1.7 inches, or 0 degrees deflection. The rudder trim tab was in a neutral position. The wing flap actuator chain positions equated to the flaps being extended 8 to 10 degrees.

A notepad was found on a kneeboard. The top page listed the procedures for engine failure, and also the procedure for a Vmc demonstration.

RADAR INFORMATION

Radar information was requested. However, no radar information was obtained due to the airplane being below the lowest altitude for radar coverage at the time of the accident.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies were conducted on both pilots by the Commonwealth of Kentucky, Office of the Chief Medical Examiner, Louisville, Kentucky.

Toxicological testing was conducted on both pilots by the Commonwealth of Kentucky, Office of the Chief Medical Examiner, Louisville, Kentucky, and additionally, on the flight instructor by the Federal Aviation Administration Toxicology and Accident Research Laboratory, Oklahoma City, Oklahoma, all with negative results.

ADDITIONAL INFORMATION

On April 4, 1999, the wreckage was released to the Vice President, Phoenix Aviation Managers, Incorporated, Dallas, Texas.

Pilot Information

Certificate:	Airline transport	Age:	55, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	November 4, 1997
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	1809 hours (Total, all aircraft), 32 hours (Total, this make and model), 36 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N4159Q
Model/Series:	310N 310N	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	310N-0059
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	June 1, 1998 Annual	Certified Max Gross Wt.:	5200 lbs
Time Since Last Inspection:	55 Hrs	Engines:	2 Reciprocating
Airframe Total Time:	4706 Hrs	Engine Manufacturer:	Continental
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	IO-470
Registered Owner:	JAMES E. LUCAS, PARTNER	Rated Power:	260 Horsepower
Operator:		Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	LOU ,500 ft msl	Distance from Accident Site:	35 Nautical Miles
Observation Time:	13:54 Local	Direction from Accident Site:	20°
Lowest Cloud Condition:	Scattered / 9000 ft AGL	Visibility	6 miles
Lowest Ceiling:	Overcast / 15000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	180°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	19°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	ELIZABETHTOWN , KY (EKX)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	13:20 Local	Type of Airspace:	Class E

Airport Information

Airport:	ADDINGTON FIELD EKX	Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	37.659492,-85.949501(est)

Administrative Information

Investigator In Charge (IIC):	Cox, Paul
Additional Participating Persons:	LAWRENCE VONDERSCHMIDT; LOUISVILLE, KY JOSEPH HUTTERER; WICHITA, KS DALE CARTER; MOBILE, AL
Original Publish Date:	April 18, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=46057

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