



National Transportation Safety Board Aviation Accident Final Report

Location:	Bessemer, AL	Accident Number:	ATL07FA038
Date & Time:	02/02/2007, 0800 CST	Registration:	N7109G
Aircraft:	CESSNA 172K	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

Radar tracking showed the airplane heading in a southerly direction at an altitude of 1,100 feet mean sea level (msl), transmitting on a visual flight rules transponder code of 1200. The airplane impacted heavily wooded terrain at a 45-degree nose-down angle. The elevation was 644 feet msl. Instrument meteorological conditions prevailed. The pilot did not file a flight plan and was not instrument rated. Examination of the wreckage did not reveal evidence of a mechanical malfunction or failure.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The non-instrument-rated pilot's continued visual flight rules flight into instrument meteorological conditions.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CRUISE

Findings

1. WEATHER CONDITION - LOW CEILING
2. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND
3. LACK OF CERTIFICATION - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: CRUISE

Findings

4. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On February 2, 2007, approximately 0800 Central Standard Time, a Cessna 172K, N7109G, registered to and operated by the pilot, was destroyed when it collided with a mountain ridge near Bessemer, Alabama. Instrument meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under the provisions of Title 14 CFR Part 91 without a flight plan. The commercial pilot and passenger were killed. The flight originated from Hornersville Memorial Airport, Hornersville, Missouri, approximately 0600, and was en route to Troy, Alabama.

According to Birmingham Approach Control, the airplane was transmitting on a VFR transponder code of 1200, and was heading in a southerly direction at an altitude of 1,100 feet. The pilot was not in radio communication with controllers. The airplane began a descent and made a turn to the north. Radar contact was lost at an altitude of 900 feet. On February 4, 2007, a family member contacted the Federal Aviation Administration (FAA) and reported that the airplane was overdue at its destination. An Alert Notice (ALNOT) was issued for the missing airplane and the Civil Air Patrol (CAP) was notified. On February 5, 2007, at 1345, CAP located the wreckage on a mountain ridge 11 miles west of Bessemer, Alabama. At 1600, the Jefferson County Sheriff's Department search and rescue (SAR) team arrived at the accident site and made positive identification of the airplane.

PERSONNEL INFORMATION

According to FAA documents, the 63-year-old pilot held a commercial pilot certificate with an airplane single-engine land rating, dated March 31, 2003. He was not instrument rated. His pilot certificate contained the restriction, "Carrying passengers in airplanes for hire is prohibited at night and on cross-country flights of more than 50 nautical miles." The pilot also held a second-class medical certificate, dated April 21, 2006, with a limitation for corrective lenses. FAA records revealed that the pilot had a total flight time of 7,000 hours. The pilot's logbooks were not recovered for review.

AIRCRAFT INFORMATION

The airplane was manufactured by the Cessna Aircraft Company in 1970. It was equipped with a Lycoming O-320-E2D engine, rated at 150 horsepower, driving a McCauley 2-blade, all-metal, fixed-pitch propeller.

Maintenance records indicated the engine had accrued 2,493.7 total hours since a major overhaul. Lycoming recommends 2,000 hours time-between-overhaul, and if the engine does not accumulate the hourly period of time between overhauls as specified, the recommended overhaul is in the 12th year.

METEOROLOGICAL INFORMATION

The following weather observation was recorded 0810 at Alabaster (EET), Alabama, approximately 25 nautical miles southeast of the accident site: wind, 310 degrees at 7 knots; visibility, 4 statute miles, light rain, mist; ceiling, 500 feet overcast; temperature, 4 degrees Celsius (C); dew point, 4 degrees C; altimeter, 29.86 inches of mercury; remarks, rain began 2 minutes past the hour; ceiling, 200 feet variable 800 feet.

WRECKAGE AND IMPACT INFORMATION

The accident site was at a location of 33 degrees, 24.9' North latitude, and 87 degrees, 8.607' West longitude, and at an elevation of 644 feet. The airplane made ground impact at an approximately 45 degree nose-down angle on a magnetic heading of 340 degrees. The wreckage path was approximately 120 feet long. The accident site was in a heavily wooded area near Mud Creek and Groundhog Roads. All components of the airplane were located at the accident site.

The propeller was separated from the engine. The descending blade had forward bending at the tip, aft bending mid-span, leading and trailing edge damage, and chord- and span-wise scoring. The ascending blade had variable bending and twisting, leading and trailing edge damage, and chord- and span-wise scoring.

The engine remained attached to the airframe but was compressed against the firewall. The throttle control was in the idle position, and the mixture control was in the full rich position. The carburetor heat control was in the mid-range position. The fuel selector was in the both position, and the ports were unobstructed. Residual fuel was found in the wing tanks and selector valve. There was no fuel in the carburetor. A post-accident partial disassembly of the engine revealed drive train continuity. All four cylinders produced compression when the engine was rotated.

The cockpit and the cabin section of the airplane were buckled. The instrument panel was destroyed. The nose gear was separated from the firewall and located along the debris path.

The right aileron bellcrank was wrapped around a tree near the initial tree strike. The aileron push/pull rod remained attached to the bellcrank and a portion of the aileron. The aileron cables remained attached to the bellcrank and the cable ends were separated. The remainder of the right wing was forward of the section found in the tree. A portion of the leading edge of the right wing was wrapped around a tree and crushed. A portion of the aileron remained attached to the wing and the second portion of the aileron separated from the wing. The flap remained partially attached and the flap actuator indicated the retracted position. The flap actuator attachment had separated from the wing and the actuator was free to move. The other end of the actuator remained attached to the flap bellcrank. The flap push/pull rod remained attached to the bellcrank and the flap. The flap cables remained attached to the bellcrank and were separated and had indications of overload. The right wing tank was breached and approximately one gallon of fuel was drained from the right wing tank. The fuel tested negative for water using water-finding paste. The right fuel cap was locked in place and the fuel cap was vented.

The left wing was located with the main wreckage. The aileron remained attached to the wing and aileron control cable continuity was established. The inboard flap track remained attached and the outboard flap track was not observed. The right flap push/pull rod remained attached to the bellcrank and the flap. The flap cables remained attached to the bellcrank and were separated with indications of overload. The left wing fuel tank had separated from the wing. The tank was breached and approximately four gallons of fuel were drained from the tank. The fuel observed in the tank tested negative for water using water-finding paste. The left fuel cap was locked in place and the fuel cap was vented.

The rudder remained attached and the rudder balance weight separated and was observed

along the wreckage path. Rudder cable continuity was established from the rudder surface to the rudder pedals.

The left horizontal stabilizer and elevator remained attached. The inboard portion of the right elevator remained attached and the remainder was separated. The right elevator torque tube was partially broken. The elevator trim actuator remained attached and the elevator tab was separated. The elevator trim actuator chains were broken. Elevator trim cable continuity was established from the tailcone to the cockpit area.

The aileron cables were observed in the cockpit area at the control yoke and were separated with indications of overload.

MEDICAL AND PATHOLOGICAL INFORMATION

Postmortem examinations of the pilot and passenger were performed by the Jefferson County, Alabama Coroner/Medical Examiner Office. The cause of death for the pilot was listed as, "Blunt Force Trauma" and the manner of death was listed as, "Accident." The cause of death for the passenger was listed as, "Blunt Trauma" and the manner of death was listed as, "Accident."

Forensic toxicology was performed on specimens of the pilot and passenger by the FAA Bioaeronautical Sciences Research Laboratory (CAMI), Oklahoma City, Oklahoma. The CAMI toxicology reports were negative for carbon monoxide, cyanide, and ethanol, and drugs.

Pilot Information

Certificate:	Commercial	Age:	63, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 With Waivers/Limitations	Last Medical Exam:	04/21/2006
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	7000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N7109G
Model/Series:	172K	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal; Utility	Serial Number:	17258809
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	05/19/2006, Annual	Certified Max Gross Wt.:	2300 lbs
Time Since Last Inspection:	53 Hours	Engines:	1 Reciprocating
Airframe Total Time:	9523 Hours	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	0-320-E2D
Registered Owner:	Larry John Masters	Rated Power:	150 hp
Operator:	Larry John Masters	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	EET, 587 ft msl	Observation Time:	1410 CST
Distance from Accident Site:	25 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	135°	Conditions at Accident Site:	Instrument Conditions
Lowest Cloud Condition:		Temperature/Dew Point:	4° C / 4° C
Lowest Ceiling:	Overcast / 500 ft agl	Visibility	4 Miles
Wind Speed/Gusts, Direction:	7 knots, 310°	Visibility (RVR):	
Altimeter Setting:	29.86 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Moderate - In the Vicinity - Mist		
Departure Point:	HORNERSVILLE, MO (37M)	Type of Flight Plan Filed:	None
Destination:	TROY, AL (TOI)	Type of Clearance:	None
Departure Time:	0600 CST	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal		

Administrative Information

Investigator In Charge (IIC):	Eric Alleyne	Adopted Date:	04/15/2009
Additional Participating Persons:	Chuck Thompson; FAA/FSDO; Birmingham, AL Edward Rogalski; Textron Lycoming; Williamsport, PA Thomas Teplik; Cessna Aircraft Company; Wichita, KS		
Publish Date:	04/16/2009		
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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