



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

| | | | |
|--------------------------------|--------------------------------------|-------------------------|------------|
| Location: | Mount Airy, North Carolina | Accident Number: | ATL03FA052 |
| Date & Time: | March 1, 2003, 19:30 Local | Registration: | N343BA |
| Aircraft: | Beech BE-36A | Aircraft Damage: | Destroyed |
| Defining Event: | | Injuries: | 5 Fatal |
| Flight Conducted Under: | Part 91: General aviation - Personal | | |

Analysis

According to the airport manager, the instrument flight collided with the ground shortly after takeoff. Weather at the time of the accident was wind calm, visibility two statute miles, drizzle, ceiling overcast 500 feet, temperature eight degrees Celsius, dew point six degrees Celsius, altimeter 30.00 inches of mercury. Examination of the wreckage site found that the airplane had collided with terrain on the south side of an east-west oriented hill, in a near vertical nose-down attitude. The engine and forward cabin had penetrated the ground to a depth of about eight feet. The wreckage examination failed to disclose anomalies with the airframe or systems.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilots failure to maintain control of the aircraft due to spatial disorientation. A factor was low clouds.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (F) WEATHER CONDITION - LOW CEILING
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (C) SPATIAL DISORIENTATION - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

4. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On March 1, 2003, at 1930 eastern standard time, a Beech BE-36A, N343BA, registered to and operated by the commercial pilot, collided with terrain shortly after takeoff from the Mount Airy/Surry County Airport in Mount Airy, North Carolina. The personal flight was operated under the provisions of Title 14 CFR Part 91 and instrument flight rules (IFR). Instrument meteorological conditions prevailed, and an instrument flight plan was filed. The pilot and four passengers received fatal injuries, and the airplane was destroyed. The flight was originating from Mount Airy, North Carolina, at the time of the accident on March 1, 2003.

The airport manager stated that he had watched the pilot load the airplane, and he heard the pilot file an IFR flight plan in the airport lobby for a flight to the Curtis L. Brown, Jr. Field identifier 4W1, located in Elizabethtown, North Carolina. The manager stated that the pilot reported he was expecting an 800-foot ceiling and 2 statute miles visibility at arrival in Elizabethtown. After the airplane was loaded, the airport manager noted that the Elizabethtown Automated Weather Observation System (AWOS) readout was reporting the ceiling was 500 feet broken, 1,800 feet overcast, and 2 statute miles visibility in light drizzling rain. The airport manager heard the airplane takeoff from runway 18, and he stated that the engine sounded normal. Shortly after the takeoff, the airport manager said he received a telephone call from a local resident who stated that she had heard an airplane making a "flapping" sound followed by the sound of a crash. The airport manager stated that he notified the local authorities, who then initiated a search from the residents home. He said the airplane was quickly located near the resident who reported the accident.

PERSONAL INFORMATION

A review of information on file with the FAA Airman's Certification Division, Oklahoma City, Oklahoma, revealed the pilot was issued a commercial pilot certificate on June 7, 2002, with ratings for airplane single and multiengine land, and instrument airplane. A review of records on file with the FAA Aero Medical Records revealed the pilot held a second-class medical certificate issued on March 5, 2002, with no restrictions. The pilot reported on his application for the medical certificate that he had accumulated 475 total flight hours, and a review of the pilot's logbook revealed that the pilot had accumulated 712 total flight hours. The flight book review also disclosed that the pilot had accumulated 44 hours of actual instrument flying, 3 hours of actual instrument flying within the last 90-days.

AIRCRAFT INFORMATION

A review of maintenance records revealed that the last recorded total time for the airframe

was during the annual inspection on December 16, 2002, of 4,852.53 hours, and an engine total time of 205.1 since factory overhaul. The tachometer time and hobs meter was damaged and the current airframe times could not be recovered. The altimeter system, static pressure system, and transponder were inspected on July 23, 2002. Refueling records on file at Mount Airy-Surry County Airport, Mount Airy, North Carolina, revealed that N343BA, was topped off with 26.4 gallons of fuel on March 1, 2003. The engine logbooks revealed that the factory-overhauled engine was installed on August 31, 2001, and that the engine was equipped with a Shadin fuel flow indicating system installed under STC-SA449GL.

METEOROLOGICAL INFORMATION

Mount Airy Automated Surface Observation at 1920, wind calm, visibility two statute miles, drizzle, ceiling overcast 500 feet, temperature eight degrees Celsius, dew point six degrees Celsius, altimeter 30.00 inches of mercury. Instrument meteorological conditions prevailed at the time of the accident. According to local law enforcement Surry County Sheriff Department and ground search teams, the visibility in the vicinity of the crash scene was very low with fog.

WRECKAGE AND IMPACT INFORMATION

Examination of the wreckage site found that the airplane had collided with terrain on the south side of an east-west oriented hill, in a near vertical nose-down attitude. The engine and forward cabin had penetrated the ground to a depth of about eight feet. The wing leading edges had collapsed rearward, and were compressed flat to the front wing spars. The top and bottom wing panel skins were symmetrically ballooned outward, exposing the wing internal structure. The flap and aileron control surfaces remained loosely attached to the wings. The rear cabin and rear fuselage displayed accordion crush damage. The empennage was found lying partially on top of the fuselage structure and on the hillside. The top of the airplane and empennage were on a northerly heading towards the airport. Flight control continuity could not be verified, however flight control components were examined, and no anomalies were noted. It was found during the recovery of the airplane that the landing gear was retracted, flaps retracted, and that the nose trim tab was set to 10 degrees trailing edge down.

The fuel selector was found positioned on the right main wing tank. The electric fuel boost pump system had been modified to a boost pump that could be selected to either LOW or ON (High). The cabin door and the two utility baggage doors were separated from the airplane. Both utility doors had separated from their hinges and had fragmented into multiple pieces.

The instrument panel was damaged, and the engine and flight instruments were dislodged from the normally install positions. The lower instrument panel switches were deformed or missing. The King 200 (2-axis) autopilot enunciator panel was not located. The airplane was equipped with an auxiliary electric-driven instrument air pump mounted on the firewall. The artificial horizon was disassembled. There was scoring present on the gyro mechanism.

The engine was a Teledyne Continental Motors IO-550. Examination of the engine and

accessory components revealed the following. The engine and propeller were located 8 feet below ground level at the accident site. The engine remained partially attached to the firewall by control cables, wiring and hoses. The engine driven fuel pump, alternator, air conditioner compressor, outboard portions of the propeller governor and the starter were separated from the engine. Both magnetos separated from their mounting flanges and were resting on the top of the engine. A small amount of fuel was found in the separated engine driven fuel pump at the accident site. The cooling fins on the Number 5 and 6 cylinders revealed heavy impact damage on the top and forward facing portions. The number 5 and 6 valve covers were found broken. All six cylinders remained attached to the engine case. The engine was moved to a storage facility in Mount Airy, North Carolina for a post recovery disassembly and examination. The engine was rinsed prior to the post-recovery examination to remove mud and soil from the engine.

The engine driven fuel pump was broken off of the engine at its attachment flange. The lead seal and safety wire was found intact. All fuel lines to and from the fuel pump were fractured at the fuel pump fittings. The fuel pump drive coupler was found fractured at mid-span with the pump end remaining in the fuel pump. Some fuel was found in the engine driven fuel pump. The throttle arm remained attached to the throttle body at the throttle shaft and was separated from the throttle cable attachment end. The throttle shaft was bent and the throttle arm was partially disengaged. The fuel metering unit mixture arm was found bent and resting against the full rich stop. The fuel distribution manifold fuel screen was found clean and free of particles. The plunger moved up and down with spring tension noted and the diaphragm was found intact. The wiring harness was found impact damaged and was cut by impact forces in numerous locations. Both magnetos were impact damaged and contained some mud in the internal mechanisms. Both impulse couplers actuated during hand rotation. No spark was produced from either magneto during hand rotation. The number 1,2,3,4 and 6 top spark plugs and the number 1,2,3,4, and 5 bottom spark plugs were removed and appeared "normal" when compared to the Champion Aviation Check-a Plug index. The number 5 top and number 6 bottom spark plugs were impact damaged and were not removed for inspection.

The number 5 cylinder sustained heavy impact damage. The number 5 intake valve retainer halves were found displaced slightly outward from the normal position. The number 5 intake push-rod tubes were found bent upward and aft, and were removed from the engine prior to hand rotation of the crankshaft. The engine was rotated by hand utilizing the fuel pump drive coupler fitting on the aft end of the crankshaft. Continuity to the engine camshaft, engine driven accessories and to the front end of the crankshaft was established during rotation. The engine crankshaft was separated at the propeller flange, which remained attached to the propeller.

The propeller was a three-bladed McCauley propeller. One propeller blade had separated from the propeller hub, and one blade was loose in the hub. All three-pitch change knobs separated from their respective blades. The two blades that remained attached to the propeller hub were bent aft eight to 12 inches out from the hub. All three blades tips were bent forward and partially separated. Blade face polishing was minimal. The spinner was crushed around the

structure of the hub.

MEDICAL AND PATHOLOGICAL INFORMATION

The Office of the Chief Medical Examiner, Chapel Hill, North Carolina, conducted a postmortem examination of the pilot on March 2, 2003. The reported cause of death was "massive blunt force injury". The forensic Toxicology Research Section, Federal Aviation Administration, Oklahoma City, Oklahoma performed postmortem toxicology of specimens from the pilot. Carbon Monoxide and Cyanide testing was not performed. No Ethanol was detected in the urine. The following drugs were identified; Paroxetine was detected in the Liver 4.912 (ug/mL, ug/g), Paroxetine was also detected in the urine 0.141 (ug/mL, ug/g), Doxylamine was detected in the Liver, Dextromethorphan was present in the Liver, Dextrorphan was detected in the Liver, Dextrorphan was also detected in the kidney, Pseudoephedrine was detected in the Liver, Phenylpropanolamine was detected in the Liver, and Acetaminophen was detected in the Urine 16.82 (ug/ml, ug/g).

ADDITIONAL INFORMATION

The wreckage of N343BA was released to Surveyor CTC Services Aviation (LAD Inc) Adjuster for Avemco Insurance Co., on March 5, 2003. Components retained for further testing were released to CTC Services on October 15, 2003.

A review of voice transcripts provided by the FAA Raleigh (RDU) Automated Flight Service Station (AFSS) found the on March 1, 2003 N343BA, contacted the RDU AFSS on four separated occasions requested weather information. N343BA was provided an outlook briefing for a flight from Mount Airy (MWK) North Carolina to Elizabethtown (EYF), North Carolina. These outlook briefings occurred at 1737 Coordinated Universal Time (UTC) 2010 UTC, 2029 UTC, and 2324 UTC at which time N343BA filed and IFR flight plan from Mount Airy, North Carolina to Elizabethtown, North Carolina with an Alternate of Fayetteville (FAY) North Carolina.

Pilot Information

| | | | |
|----------------------------------|---|--|---------------|
| Certificate: | Commercial | Age: | 32,Male |
| Airplane Rating(s): | Single-engine land; Multi-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 2 Valid Medical--no waivers/lim. | Last FAA Medical Exam: | March 5, 2002 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | June 7, 2002 |
| Flight Time: | 712 hours (Total, all aircraft), 272 hours (Total, this make and model), 653 hours (Pilot In Command, all aircraft), 110 hours (Last 90 days, all aircraft), 28 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

| | | | |
|--------------------------------------|--------------------------------|---------------------------------------|-----------------|
| Aircraft Make: | Beech | Registration: | N343BA |
| Model/Series: | BE-36A | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | |
| Airworthiness Certificate: | Utility | Serial Number: | E-1317 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 6 |
| Date/Type of Last Inspection: | December 16, 2002 Annual | Certified Max Gross Wt.: | 3600 lbs |
| Time Since Last Inspection: | | Engines: | 1 Reciprocating |
| Airframe Total Time: | 4853 Hrs as of last inspection | Engine Manufacturer: | Continental |
| ELT: | Installed, not activated | Engine Model/Series: | IO-550 |
| Registered Owner: | Oscar Nathan Harris II | Rated Power: | 300 Horsepower |
| Operator: | | Operating Certificate(s) Held: | None |

Meteorological Information and Flight Plan

| | | | |
|---|--------------------------|---|------------------|
| Conditions at Accident Site: | Instrument (IMC) | Condition of Light: | Dusk |
| Observation Facility, Elevation: | MWK,1247 ft msl | Distance from Accident Site: | 2 Nautical Miles |
| Observation Time: | 19:20 Local | Direction from Accident Site: | 180° |
| Lowest Cloud Condition: | Clear | Visibility | 2 miles |
| Lowest Ceiling: | Overcast / 500 ft AGL | Visibility (RVR): | |
| Wind Speed/Gusts: | 0 knots / 0 knots | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 0° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 30 inches Hg | Temperature/Dew Point: | 8°C / 6°C |
| Precipitation and Obscuration: | N/A - None - Fog | | |
| Departure Point: | Mount Airy, NC (MWK) | Type of Flight Plan Filed: | IFR |
| Destination: | Elizabethtown, NC (EYF) | Type of Clearance: | IFR |
| Departure Time: | 19:25 Local | Type of Airspace: | Class E |

Airport Information

| | | | |
|-----------------------------|-----------------------------|----------------------------------|---------|
| Airport: | Mount Airy/Surry County MWK | Runway Surface Type: | Asphalt |
| Airport Elevation: | 1247 ft msl | Runway Surface Condition: | Wet |
| Runway Used: | 18 | IFR Approach: | None |
| Runway Length/Width: | 4300 ft / 75 ft | VFR Approach/Landing: | None |

Wreckage and Impact Information

| | | | |
|----------------------------|---------|-----------------------------|----------------------|
| Crew Injuries: | 1 Fatal | Aircraft Damage: | Destroyed |
| Passenger Injuries: | 4 Fatal | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 5 Fatal | Latitude, Longitude: | 36.427501,-80.558052 |

Administrative Information

| | |
|-----------------------------------|---|
| Investigator In Charge (IIC): | Wilson, Ralph |
| Additional Participating Persons: | Richard Litka; Greensboro FSDO; Greensboro, NC |
| Original Publish Date: | December 28, 2004 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=56585 |

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).