



National Transportation Safety Board Aviation Accident Final Report

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| Location: | YPSILANTI, MI | Accident Number: | CHI93FA193 |
| Date & Time: | 06/08/1993, 0502 EDT | Registration: | N51FG |
| Aircraft: | BEECH E18S | Aircraft Damage: | Destroyed |
| Defining Event: | | Injuries: | 1 Fatal |
| Flight Conducted Under: | Part 135: Air Taxi & Commuter - Non-scheduled | | |

Analysis

THE PILOT WAS CONDUCTING HIS INITIAL REVENUE AND SOLO FLIGHT FOR THIS COMPANY, IN THIS TYPE OF AIRPLANE. THE WEATHER FOR TAKEOFF INCLUDED FOG AND LOW CEILINGS. THE AIRPLANE WAS EQUIPPED WITH A PRIMARY (LEFT) ATTITUDE INDICATOR WHICH WAS ELECTRICALLY OPERATED VIA AN INDEPENDENT SWITCH. THIS AIRCRAFT WAS THE ONLY SUCH AIRPLANE OPERATED BY THIS COMPANY, WITH AN INDEPENDENT SWITCH CONFIGURATION FOR THE PRIMARY ATTITUDE INDICATOR. THE AIRPLANE COLLIDED WITH THE TERRAIN ON THE AIRPORT, JUST AFTER TAKEOFF. SUBSEQUENT EXAMINATION REVEALED NO ANOMALIES WITH THE ENGINES OR AIRFRAME. THE PRIMARY ATTITUDE INDICATOR WAS LOCATED. ON EXAMINATION IT WAS FOUND TO HAVE A MALFUNCTIONING ON/OFF FLAG WHICH GAVE THE INDICATION OF BEING OPERATIVE REGARDLESS OF POWER TO THE UNIT. NO ROTATIONAL DAMAGE WAS NOTED WITHIN THE GYRO HOUSING.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT-IN-COMMAND'S INADEQUATE PREFLIGHT PREPARATION, FALSE INDICATION (ON/OFF) OF ATTITUDE INDICATOR, AND ATTITUDE INDICATOR SWITCHED OFF. FACTORS WERE FOG, LOW CEILING, THE PILOT-IN-COMMAND'S IMPROPER USE OF THE ATTITUDE INDICATOR, AND HIS LACK OF TOTAL EXPERIENCE IN THE TYPE OF AIRPLANE.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (F) WEATHER CONDITION - FOG
2. (F) WEATHER CONDITION - LOW CEILING
3. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
4. (C) FLIGHT/NAV INSTRUMENTS, ATTITUDE INDICATOR - FALSE INDICATION
5. (F) ATTITUDE INDICATOR - IMPROPER USE OF - PILOT IN COMMAND
6. (C) FLIGHT/NAV INSTRUMENTS, ATTITUDE INDICATOR - SWITCHED OFF
7. (F) LACK OF TOTAL EXPERIENCE IN TYPE OF AIRCRAFT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On June 8, 1993, at 0502 eastern daylight time, a Beech E18S, N51FG, operated by Active Aero Charter, Inc., of Belleville, Michigan, and flown by an instrument rated commercial pilot, impacted the terrain after takeoff from runway 23L (7,526' X 150' dry/asphalt) at Willow Run Airport, Ypsilanti, Michigan. The airplane was destroyed during the impact and post accident fire. The pilot sustained fatal injuries. The on-demand air taxi flight was being conducted under provisions of 14 CFR Part 135. Instrument meteorological conditions prevailed at the time of the accident. The flight was originating at the time of the accident with an intended destination of Louisville, Kentucky.

The purpose of the flight was to transport 89 pounds of freight from Ypsilanti, Michigan, to Louisville, Kentucky. This was the first revenue flight to be flown by this particular pilot for this operator. The pilot first began training with Active Aero Charter, Inc., on May 4, 1993, and his training was completed on June 6, 1993, when he met the company requirements for Captain on the BE8T (Beech E18S).

A witness stated that he heard the airplane, looked out the front window of a building, located about one-quarter mile southwest of the impact site, and observed the "faint outline" of an airplane hit the ground. He stated that there were no indications of an engine fire or engine trouble, and went on to state that it sounded like the pilot was "on the throttles." He observed a fire on impact and a trail of fire "possibly 200 feet long," along the impact trail.

PERSONAL INFORMATION

The pilot, born July 8, 1967, was the holder of a commercial pilot certificate, number 194580025, with privileges for single and multi-engine airplanes along with an instrument rating for airplanes. He also held a flight instructor's certificate for single engine airplanes. He held a second class medical certificate issued on November 11, 1992, with no limitations. His most recent equivalent of a biennial flight review was in the same type of airplane as the accident airplane on June 6, 1993. He had a total pilot time of 1,700 hours with 1,315 hours multi-engine and 27 hours as pilot-in-command, in the same type of airplane as the accident airplane. The pilot had flown the accident airplane eight times prior to the accident flight.

AIRCRAFT INFORMATION

The airplane was a Beech E18S, serial number BA-324, which had been converted to tricycle gear and Pratt and Whitney PT-6 series turbo-propeller engines. The airframe had accumulated a total of 11,916 hours at the time of the accident. The left engine had accumulated 6,177 hours with 3,060 hours since overhaul. The right engine had accumulated 4,408 hours total time. The last inspection was accomplished on May 13, 1993, and the airplane had accumulated 67 hours since that inspection.

COMMUNICATIONS

A transcript of the conversation between the pilot of the accident airplane and the Federal Aviation Administration, Air Traffic Control Tower controller, at Willow Run Airport, Ypsilanti, Michigan, is attached to this report. There was no indication in the transcript of any difficulty experienced by the pilot.

WRECKAGE AND IMPACT INFORMATION

The accident site was located on Willow Run Airport, Ypsilanti, Michigan. The initial impact marks were just east of the east edge of taxiway "S" approximately 100 yards north of the southerly end of that taxiway. The initial ground scar was on a heading of 110 degrees magnetic and started with a 36 foot long gouge which began with parts identified as belonging to the left wingtip. At the termination of the initial gouge were two craters, one four feet wide, by six feet in length, by two feet deep; and the second four feet long, by eight feet in width, by two feet deep. A scorched area extended from just east of the second crater for 275 feet spreading out in a fan shaped area. The primary wreckage was located 282 feet from the initial impact point on a heading of approximately 360 degrees magnetic. All major portions of the airplane were found in the debris trail. No parts were found outside the impact area or fan shaped area from the impact point.

Both propellers were located in the debris trail and had separated from their respective engines. The individual blades were bent, twisted, had nicks, gouges, and scratches on the leading edges, faces and cambered sides.

Both engines were found away from the main wreckage. They were examined on the site and were found to have been broken open. Both the compressor and turbine sections showed evidence of rotor blade bending opposite direction of rotation, and stator blade bending in direction of rotation.

Control cable continuity throughout the airframe was verified. Control continuity to the engines was not possible because the controls were separated as were the engines and accessories, from the airframe.

The smell of jet fuel was strong in the area of the wreckage; however, no specific fuel was found in the wreckage area.

The attitude indicator (instrument) from the left side of the cockpit was located. It was found away from the area of intense fire. The instrument case was broken open, but was accounted for with the exception of the front glass. The attitude depicted by the instrument was near wings level and approximately 20 degrees nosedown. The instrument was found fixed in that position.

The on/off flag was found to be in a position which correlated to being "on", i.e., retracted into the side of the case; however, on close inspection it was found that the flag was held in this position by a small defect in the bezel. The flag moved freely after the defect was cleared. The defect could not be associated with the accident. The attitude bar or "wings" located in the bezel was scorched from heat; however, the on/off flag, in the same bezel did not have this scorching.

An examination of the rotor which powered the attitude gyro revealed that the rear bearing had released from the case. Hard metal cooling fan blades were mounted on the end of the rotor where it released from the case; however, the adjacent soft metal housing did not display any rotational damage.

The attitude indicator was electrically powered and was switched on and off by a remote switch on the lower left side of the instrument panel. The switch was not identified in the wreckage due to the intense fire destruction of that area of the airplane.

In the fleet of airplanes operated by Active Aero Charter, Inc., this was the only airplane

equipped with an independent switch to operate the primary attitude indicator. All other installations were automatically energized either when the master switch was turned on or when vacuum/pressure was applied to the instrument.

MEDICAL AND PATHOLOGICAL INFORMATION

The post mortem examination of the pilot was performed by the Wayne County, Michigan Coroner of Detroit, Michigan. Repeated attempts by the NTSB and the Federal Aviation Administration (FAA) to obtain copies of the report proved negative. At one time the FAA was refused a copy of the report. During the most recent contact, administrative personnel reported that the report was not available and had been "lost." The medical examiners and their staff refused to discuss their recollection of the post mortem examination of the pilot. A toxicology examination of specimens from the pilot were negative.

FIRE

A post accident fire consumed much of the wreckage. According to Active Aero Charter, Inc. records, the airplane was loaded with 2,859 pounds of Jet-A fuel at the time of engine start-up. The ignition source of the fire was not determined.

ADDITIONAL DATA/INFORMATION

Parties to the investigation were the Federal Aviation Administration, Flight Standards District Office, Belleville, Michigan, and Beech Aircraft, Wichita, Kansas.

The wreckage was released to a representative of the owner on June 9, 1993.

Pilot Information

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|----------------------------------|--|-------------------------------|------------|
| Certificate: | Commercial | Age: | 25, Male |
| Airplane Rating(s): | Multi-engine Land; Single-engine Land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | Seatbelt |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | Airplane Single-engine | Toxicology Performed: | Yes |
| Medical Certification: | Class 2 Valid Medical--no waivers/lim. | Last FAA Medical Exam: | 11/06/1992 |
| Occupational Pilot: | Last Flight Review or Equivalent: | | |
| Flight Time: | 1700 hours (Total, all aircraft), 27 hours (Total, this make and model), 1100 hours (Pilot In Command, all aircraft) | | |

Aircraft and Owner/Operator Information

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|-------------------------------|---------------------------|--------------------------------|--------------------------|
| Aircraft Make: | BEECH | Registration: | N51FG |
| Model/Series: | E18S E18S | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | No |
| Airworthiness Certificate: | Normal | Serial Number: | BA-324 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 2 |
| Date/Type of Last Inspection: | 05/13/1993, AAIP | Certified Max Gross Wt.: | 11500 lbs |
| Time Since Last Inspection: | 67 Hours | Engines: | 2 Turbo Prop |
| Airframe Total Time: | 11916 Hours | Engine Manufacturer: | P&W |
| ELT: | Installed | Engine Model/Series: | PT6A-28 |
| Registered Owner: | AJAX AIRCRAFT LEASING | Rated Power: | 550 hp |
| Operator: | ACTIVE AERO CHARTER, INC. | Operating Certificate(s) Held: | On-demand Air Taxi (135) |
| Operator Does Business As: | ACTIVE AERO CHARTER, INC. | Operator Designator Code: | BTYA |

Meteorological Information and Flight Plan

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|----------------------------------|-----------------------|--------------------------------------|------------------|
| Conditions at Accident Site: | Instrument Conditions | Condition of Light: | Night/Dark |
| Observation Facility, Elevation: | YIP, 716 ft msl | Distance from Accident Site: | 0 Nautical Miles |
| Observation Time: | 0505 EDT | Direction from Accident Site: | 0° |
| Lowest Cloud Condition: | Unknown / 0 ft agl | Visibility | 0.25 Miles |
| Lowest Ceiling: | Obscured / 0 ft agl | Visibility (RVR): | 0 ft |
| Wind Speed/Gusts: | 4 knots / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 130° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29 inches Hg | Temperature/Dew Point: | 15° C |
| Precipitation and Obscuration: | | | |
| Departure Point: | | Type of Flight Plan Filed: | IFR |
| Destination: | LOUISVILLE, KY (SDF) | Type of Clearance: | IFR |
| Departure Time: | 0502 EDT | Type of Airspace: | Class D; Class E |

Airport Information

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|----------------------|------------------|---------------------------|---------|
| Airport: | WILLOW RUN (YIP) | Runway Surface Type: | Asphalt |
| Airport Elevation: | 716 ft | Runway Surface Condition: | Dry |
| Runway Used: | 23L | IFR Approach: | None |
| Runway Length/Width: | 7526 ft / 150 ft | VFR Approach/Landing: | None |

Wreckage and Impact Information

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

Administrative Information

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|-----------------------------------|--|--------------|------------|
| Investigator In Charge (IIC): | STEPHEN A WILSON | Report Date: | 08/17/1994 |
| Additional Participating Persons: | RICHARD G GASTRICH; BELLEVILLE, MI GERALD C CARTER; BELLEVILLE, MI JOHN WARD; WICHITA, KS | | |
| 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/ . | | |

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](#).