National Transportation Safety Board
Aviation Accident Final Report

Location:	MADISON, MS	**Accident Number:**	ATL98FA009
Date & Time:	11/13/1997, 1238 CST	**Registration:**	N500ML
Aircraft:	Beech B100	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

During an IFR arrival, vectors were provided for an ILS runway 16L approach. While on assigned heading and altitude of 270 degrees and 3,000 feet, about 8 miles north of the final approach fix, the pilot was told to turn left to 185 degrees and maintain 2,200 feet until established on the localizer, then he was cleared for the approach. The pilot acknowledged the instructions. About 1 minute later, communication and radar contact with the airplane were lost. Eye witnesses near the accident site observed the airplane as it descended below the cloud layer. The airplane was described as being in a steep left bank with the nose down. Witnesses also stated that the engines were revving. Within seconds of the visual sighting, the airplane crashed. Examination of the airframe failed to disclose a mechanical problem. No fire or smoke was seen coming from the airplane before it crashed. The pilot did not report experiencing a problem with the airplane to the tower controller. Toxicology tests of the pilot indicated O.323 mcg/ml chlorpheniramine (a sedating antihistamine) in liver fluid and 0.073 mcg/ml chlorpheniramine in kidney fluid. Also, unspecified levels of dextromethorphan (a cough suppressant), pseudoephedrine (a decibgestabt), and phenylpropanolamine (a decongestant) were reported in kidney and liver fluids. All medications are available in over-the-counter cold remedies.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain control of the aircraft due to spatial disorientation. A related factor was: the instrument weather conditions.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH

Findings
1. (F) WEATHER CONDITION - CLOUDS
2. (F) WEATHER CONDITION - LOW CEILING
3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
4. (C) SPATIAL DISORIENTATION - PILOT IN COMMAND
5. (F) WEATHER CONDITION - CLOUDS
6. (F) WEATHER CONDITION - LOW CEILING
7. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
8. (C) SPATIAL DISORIENTATION - PILOT IN COMMAND

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

Factual Information

History OF Flight

On November 13, 1997, at 1238 central standard time, a Beech B100, N500ML, collided with the ground while maneuvering for an instrument approach to runway 16L at the Jackson International Airport in Jackson, Mississippi. The business flight operated under the provisions of Title 14 CFR Part 91 with an instrument flight plan filed. Instrument weather conditions prevailed at the time of the accident. The airplane was destroyed; the commercial rated pilot was fatally injured. The flight departed Muscle Shoals, Alabama, at 1130.

At 0756, a man who identified himself as the pilot of N500ML, telephoned Anniston Automated Flight Service Station (AFSS), and requested a preflight briefing for an instrument flight to Jackson, Mississippi, with an enroute stop in Birmingham, Alabama. After the preflight briefing, the pilot filed two instrument flight plans to Birmingham and Jackson. At 0831, the pilot of N500ML again telephoned Anniston AFSS and cancelled both instrument flight plans. The pilot then proceeded to file one instrument flight plan from Muscle Shoals to Jackson.

At 1112, the pilot of N500ML telephoned Anniston AFSS and requested an update on the previous instrument flight briefing. At 1128 the pilot radioed Anniston AFSS and requested and received an instrument flight clearance to Jackson, Mississippi. The flight was cleared to Jackson as filed and was cleared to climb and to maintain 4000 feet. At 1134, the pilot reported on frequency with Memphis Center, at which time the flight was cleared to 16,000 feet. A review of communications between N500ML and the FAA air traffic system disclosed routine handling throughout the enroute and initial letdown portion of the flight.

According to the Jackson tower controller, N500ML was an instrument handoff from Memphis Center for a full stop landing at Jackson International airport. The controller cleared the flight to the Jackson VOR and instructed the pilot to descend to 3000 feet. A few minutes later, the pilot was instructed to turn to a 270 degree magnetic heading for sequencing for the ILS runway 16L approach; the pilot acknowledged the instructions. About two minutes later, the controller reported that all communication and radar contact with the airplane were lost. At approximately the same time, eye witnesses near the accident site observed the airplane as it descended below the cloud layer. The airplane was described as being in a steep left bank with the nose down. They also stated that the engines were revving. Within seconds of the visual sighting of the airplane, two large explosions were heard and a fireball was seen.

PERSONNEL INFORMATION

The pilot held a commercial certificate with an instrument, and multi engine rating. The pilot's last medical certificate, a second class, was issued on December 16, 1996. The second class medical was issued with valid medical waivers and limitations that required that the pilot wear glasses to exercise the privileges of the pilot certificate.

Additional personnel information is contained in this report on page 3 under "First Pilot Information."

AIRCRAFT INFORMATION.

The airplane flight logs disclosed that an annual inspection was completed on January 20, 1997, 150 flight hours before the accident. The aircraft had accumulated a total of 4231 hours.

A review of the engine maintenance logs disclosed that the left engine had accumulated a total of 5465 hours, and the right engine had accumulated a total of 5511 hours. The airframe maintenance log review also showed that the three installed altimeters and two transponders were tested, inspected and found to comply with applicable Federal Aviation Regulations. The last aircraft write-up, November 7, 1997, stated that the "ADF not pointing."

METEOROLOGICAL INFORMATION

A review of reported weather data disclosed that instrument conditions prevailed at the time of the accident. Additional information about the weather is contained on page 3 and 4 under the section titled "Weather Information." During the preflight briefing from Anniston AFSS, the pilot was given current AIRMET (Airman's Meteorological Information) for Jackson. The AIRMET included weather information for icing, instrument weather conditions and turbulence in the vicinity of Jackson. The surface observation at Jackson remained the same before and after the accident. Witnesses also reported low clouds and limited visibility at the accident site.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site disclosed that debris from the airframe was scattered over an area 1300 feet long and 150 feet wide. The wreckage path was orientated on a 120 degree magnetic heading. Several pieces of the wreckage debris were fire damaged. An examination of the accident site disclosed that debris from the left and right sides of the airframe was scattered on the respective side of a line 120 degrees from the initial impact point. There was debris from the nose section and the left wing embedded in the crater at the initial point of impact (see attached wreckage diagram).

Area number 2. of the wreckage diagram, showed a fire damaged area where airframe debris from the right hand engine gearbox, with the data plate attached, was located. Fragment from the left nacelle and a propeller blade from the left propeller assembly was also located within the burned area of the wreckage path. Additional debris from both nacelles was found just beyond the fire damaged area.

Area number 3 of the wreckage diagram, contained right propeller assembly components, the right wing main spar, the nose gear assembly, the vertical fin, and several flight and aircraft instruments. Area number 4 contained parts of the aircraft roof and cabin sections. Examination of the aircraft roof showed another burn area. The inside material of the section of the roof was also fire damaged. Further examination of the fire damaged roof section, failed to disclose the origin of the fire. The engine assemblies were recovered from area 4 of the wreckage path. Both engines sustained heavy impact damage.

Examination of the engine assembly disclosed that the compressor sections of both engines displayed rotational damage to both the compressor wheels and the surrounding stator. The examination of the power section disclosed that there was dirt and debris in the power section. Examination of both engines failed to disclose an obvious mechanical problem or a component failure. All propeller blades were recovered from the accident site. Examination of the propeller blades showed twisting and bending along the entire length of each blade's leading edge.

The examination of the airframe failed to disclose a mechanical problem. No fire or smoke was seen coming from the airplane by the eyewitnesses before the explosions were heard. The pilot did not report experiencing a problem with the airplane to the tower controller.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was not conducted. The toxicological examinations of the pilot disclosed that 21.000 (mg/dl, mg/hg) ethanol and 2.000 (mg/dl, mg/hg) Acetaldehyde was detected in muscle fluid. According to the FAA Manager of the Toxicology and accident Laboratory, the ethanol found in this case is most likely from postmortem ethanol production. O.323 (ug/ml, ug/g) and (0.073 ug/ml, ug/g) Chlorpheniramine was detected in the liver and kidney fluids. Dextromethorphan was detected in both the liver and kidney fluids. Pseudoephedrine was also detected in the kidney and liver fluids. Phenylpropanolamine was also found in the kidney and liver fluid. According to the Manager of the FAA Toxicology and Accident Research Laboratory, the above medications are decongestants, antihistamines, and sedatives. These medications are over the counter cold remedies. The manager also stated that, operation of machinery including automobiles while taking this type of medication is not recommended.

ADDITIONAL INFORMATION

The aircraft wreckage was released to Mr. Glen Galloway, an insurance adjuster, with Associated Underwriters of Atlanta, Georgia.

The Airman's Information Manual (AIM) states the following: "Pilot performance can be seriously degraded by both prescribed and over the counter medication, as well as by medical conditions for which they are taken. Many medications, such as tranquilizers, sedatives, strong pain relievers, and cough-suppressant preparations have primary effects that may impair judgment, memory, alertness coordination and ability to make calculations."

According to the pilot's wife, he, the pilot, had mentioned that he was suffering from a headache and a head cold on the morning of the accident.

An examination of recovered radar data did not show any unusual flight performance profile deviations. The last radar observation showed the airplane at 2700 feet, with an average ground speed of approximately 188 knots (see attached flight track and radar data)

Pilot Information

Certificate:	Commercial	**Age:**	59, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	12/16/1996
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	3646 hours (Total, all aircraft), 162 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N500ML
Model/Series:	B100 B100	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	BE-78
Landing Gear Type:	Retractable - Tricycle	**Seats:**	9
Date/Type of Last Inspection:	01/20/1997, Annual	**Certified Max Gross Wt.:**	11200 lbs
Time Since Last Inspection:	150 Hours	**Engines:**	2 Turbo Prop
Airframe Total Time:	4231 Hours	**Engine Manufacturer:**	Airesearch
ELT:	Installed, not activated	**Engine Model/Series:**	TPE-331-6-252
Registered Owner:	A & H AIRCRAFT SALES	**Rated Power:**	776 hp
Operator:	A & H AIRCRAFT SALES	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	JAN, 346 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	1240 CST	**Direction from Accident Site:**	335°
Lowest Cloud Condition:	Unknown / 0 ft agl	**Visibility**	1 Miles
Lowest Ceiling:	Overcast / 200 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	Variable	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	11°C / 11°C
Precipitation and Obscuration:			
Departure Point:	MUSCLE SHOALS, AL (MSL)	**Type of Flight Plan Filed:**	IFR
Destination:	JACKSON, MS (JAN)	**Type of Clearance:**	IFR
Departure Time:	1130 CST	**Type of Airspace:**	Class G

Airport Information

Airport:	JACKSON INTERNATIONAL (JAN)	**Runway Surface Type:**	Concrete
Airport Elevation:	346 ft	**Runway Surface Condition:**	Dry
Runway Used:	16L	**IFR Approach:**	ILS
Runway Length/Width:	8500 ft / 150 ft	**VFR Approach/Landing:**	Forced Landing

Wreckage and Impact Information

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

Investigator In Charge (IIC):	PHILLIP POWELL	**Report Date:**	02/28/2000
Additional Participating Persons:	ALLEN DAVIS; JACKSON, MS		
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.ntsb.gov/pubdms/.		