



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	CEDAR BLUFF, VA	<b>Accident Number:</b>	BFO95FA064
<b>Date &amp; Time:</b>	06/14/1995, 2154 EDT	<b>Registration:</b>	N922DC
<b>Aircraft:</b>	Piper PA-31P-350	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	3 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Business		

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## Analysis

ATC data indicated the airplane was in cruise flight at about 17,000 feet MSL, when the pilot deviated from the intended flight path to avoid thunderstorms. At 2150 EDT, the pilot requested clearance to climb to 19,000 MSL. At 2152, he requested a right turn out of weather and advised ATC that he was 'getting icing.' Between 2153 and 2154, the pilot's transmissions were garbled, then at 2154:38, he stated '...trying to get out of this mess.' Radar and radio contact with the airplane were lost. An in-flight breakup of the airplane occurred, and wreckage was found scattered over a 3 mile area. Postaccident examination revealed the outboard portion of the right wing had failed and separated in an upward and aft direction. Scrape marks were found on the right side of the fuselage, and there was damage to the right horizontal stabilizer and rudder. Also, there was evidence that both engines had separated in flight; they were found about 1 mile from the main wreckage. No preexisting mechanical malfunction or fatigue of the airplane was found. The pilot had received a complete weather briefing, and was advised of severe weather along the intended route of flight.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's improper planning/decision, and his allowing the airplane to exceed its maximum design/stress limitation. Factors relating to the accident were: the adverse weather conditions, and the pilot's continued flight into adverse weather.

## Findings

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

### Findings

1. (C) PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
2. (F) WEATHER CONDITION - CLOUDS
3. (F) WEATHER CONDITION - ICING CONDITIONS
4. (F) WEATHER CONDITION - THUNDERSTORM
5. (F) FLIGHT INTO ADVERSE WEATHER - CONTINUED - PILOT IN COMMAND

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Occurrence #2: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: CRUISE

### Findings

6. (C) DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED - PILOT IN COMMAND
7. WING - OVERLOAD
8. WING - SEPARATION
9. ENGINE ASSEMBLY, MOUNT - OVERLOAD
10. MISCELLANEOUS, ENGINE - SEPARATION

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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

## Factual Information

### HISTORY OF FLIGHT

On June 14, 1995, at about 2154 eastern daylight time, a Piper PA-31P-350, N922DC, disappeared from the Atlanta, Georgia, Air Route Traffic Control Center (ARTCC) radar tracking system. The pilot and two passengers were fatally injured and the airplane was destroyed. The wreckage was located near Cedar Bluff, Virginia. Instrument meteorological conditions prevailed for the flight, and an instrument flight rules (IFR) flight plan was filed. The business flight was conducted under 14 CFR Part 91. The flight originated from Nashville, Tennessee at 2034 and the intended destination was Lancaster, Pennsylvania.

According to Federal Aviation Administration (FAA) Air Traffic Control (ATC) records, at 1820 the pilot contacted Nashville, Tennessee (BNA) Automated Flight Service Station (AFSS). The pilot filed an IFR flight plan from Chattanooga, Tennessee to Nashville, then filed another flight plan from Nashville to Lancaster, Pennsylvania. The BNA AFSS personnel issued a complete weather briefing. He advised the pilot of severe weather along his intended route of flight, and relayed two updated SIGMETs, and flight precautions for turbulence. (For details, see excerpts from ATC package section.)

ATC records indicate that at 1954, the pilot contacted BNA air traffic control tower (ATCT) and requested and received the IFR clearance to Lancaster, Pennsylvania. At 2034, the airplane departed Nashville, and was cleared to climb and maintain 11,000 feet mean sea level (MSL.) According to ATC transcripts, at 2050, the pilot requested and received clearance to 17,000 feet MSL.

At 2119, the pilot contacted Indianapolis (ZID) Air Route Traffic Control Center (ARTCC), and asked about weather deviations. ARTCC personnel advised the pilot that aircraft were deviating to the south. The pilot requested and received clearance to deviate to the south around weather.

At about 2142, ZID ARTCC coordinated the weather deviation and routing for N922DC with Atlanta (ZTL) ARTCC, and N922DC was transferred to ZTL ARTCC. The pilot contacted ZTL ARTCC at 2144:36, and stated "...it looks like I might have to go east further yet, uh, on my routing." The pilot further stated "...I got some pretty good weather up here...if you guys will help me through...some of the lightning looks pretty good." At 2145:09, the ZTL ARTCC controller advised the pilot that he didn't see any weather directly along the airplane's flight path, but added "...let me know how you want to deviate, we'll be able to work it out I'm sure."

At 2149:19, the pilot asked the ZTL ARTCC controller if there was previous traffic along his route of flight, and asked: "Did they get a fairly smooth ride, or..." The ATL ARTCC controller responded: "No complaints." At 2150:36, the pilot of N922DC requested clearance to climb to 19,000 MSL, and the ZTL ARTCC controller acknowledged the request.

At 2152:19, the pilot stated "...[N922DC] would like to uh...uh take a right turn and get out of this weather." At 2152:27, the ZTL ARTCC controller responded "...deviation right of course approved...climb and maintain [19,000 feet MSL.]" The pilot acknowledged the climb clearance.

At 2152:59, the pilot stated "...going to go ahead and descend back, we're going to go down to [15,000 feet MSL.]" The ZTL ARTCC controller queried the pilot as to his intentions. At

2153:15, the pilot stated: "Well, I'm getting icing and uh, I just, uh... ."

According to the ATC transcript, during the next 60 seconds, the ZTL ARTCC controller attempted to reestablish radio communications with N922DC, but the transmissions from the aircraft were broken and unreadable. At 2154:38, the pilot of N922DC stated "...trying to get out of this mess." There were no further transmissions from the accident airplane. According to radar data, at 2153:30 the airplane's transponder signal was lost; less than one second later the airplane disappeared off the controller's radar screen. Excerpts from the ATC package are appended.

The accident occurred during the hours of darkness, and the main wreckage site was located at latitude 37 degrees 00 minutes 08 seconds North, and longitude 81 degrees 49 minutes 29 seconds west.

#### PILOT INFORMATION

The pilot held an Airline Transport Pilot certificate. He had Commercial pilot privileges for airplane single engine land, and was type rated in rotorcraft. The pilot also held a ground instructor certificate. The pilot's logbook was recovered, but total flight time was not current. The pilot reported 6,650 civilian flight hours on the application for the most recent medical certificate, which was dated May 5, 1995. The pilot's last proficiency check is undetermined due to the lack of a current logbook. Records indicate that the pilot held the "flight manager" position for the owner/operator.

#### AIRCRAFT INFORMATION

The Piper PA-31P-350, S/N 31P-8414028, was manufactured and certificated in 1984. FAA records indicate that the airplane was registered to the current owner/operator on June 6, 1995. The registration document was signed by the pilot/flight manager. The airplane's maintenance records indicate that the most recent inspection was an Annual Inspection, which was dated November 1, 1994. The airplane had accumulated a total of 2,423 hours at the time of the accident, including 36 hours since the Annual Inspection. A review of aircraft maintenance logbooks revealed no evidence of discrepancies.

#### METEOROLOGICAL INFORMATION

Preliminary weather reports noted thunderstorm activity at the time and location of the accident. Witnesses on the ground near the accident site stated that they heard the airplane crash. They stated that it was "...raining, hailing, lightening, and thundering at the time of the accident".

At 2150, the Bluefield, West Virginia, weather observation facility reported an outside air temperature of 54 degrees Fahrenheit (F), and a dew point of 51 degrees F, with thunderstorms, lightning, and rain showers reported in the area.

According to the meteorological factual report prepared by the National Transportation Safety Board's (NTSB) National Resource Specialist - Meteorology, examination of weather radar data revealed that, at 2134, there was an area of very strong weather echo intensities at the latitude 37 degrees 00 minutes 08 seconds north and longitude 81 degrees 49 minutes 29 seconds west. The report also cited numerous lightning in clouds and cloud to ground between 2145 and 2200 EDT.

According to the National Weather Service (NWS) area forecast for Virginia, between 2045

EDT on June 14 and 0900 EDT on June 15:

Clouds 4,000 to 6,000 feet scattered, 10,000 to 12,000 feet broken, tops 20,000 feet. Cirrus above. Widely scattered moderate rain showers/thunderstorms moderate rain showers. Occasionally in line and clusters. Cumulonimbus tops to 41,000 feet.

Thunderstorms imply severe or greater turbulence, severe icing, low level wind shear, and IFR conditions.

According to the NTSB's meteorologist, the NWS also issued a convective SIGMET that "...was pertinent to the accident. Convective SIGMET 1E was issued at 2055 EDT and was valid until 2255 EDT, and stated:

Area of thunderstorms moving from 3500 at 25 knots. Tops to 45,000 feet. Hail to 1 inch. Wind gusts to 50 knots possible.

The meteorologist's report indicated that the southwestern extent of convective SIGMET 1E was about 12 nautical miles north-northwest of latitude 37 degrees 00 minutes 08 seconds north, and longitude 81 degrees 49 minutes 29 seconds west. The meteorological factual report is appended.

#### WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was scattered over a three mile area. The main wreckage contained the fuselage, the left wing, part of the right wing, and the empennage. The outboard 9 1/2 feet of the leading edge of the right wing separated, and was not recovered. The outboard sections of the right wing upper and lower wing spars, stringers, and leading edge exhibited bending in the upward and aft direction. The left wing remained intact. The outboard edge of the left aileron exhibited buckling about 4 inches from the trailing edge of the aileron. Both wing main spars exhibited localized down and aft bending in the vicinity of the engine firewall. The airplane's two engines were separated from the fuselage and were located about one mile from the main wreckage.

Examination of the fuselage and the tail section revealed black scrape marks along the right side of the fuselage, adjacent to the emergency locator transmitter (ELT) antenna. The right horizontal stabilizer exhibited an indentation about 7 inches deep in the leading edge, 16 inches from the fuselage attachment. Beyond the indented area, the upper right horizontal stabilizer skin was deformed and separated, and exhibited black scrape marks. The upper 18 inches of rudder, including the balance weight were separated from the remaining rudder.

Flight control continuity was confirmed from the cockpit to all control surfaces, except the separated right aileron. Postaccident examination of the engines and propeller assemblies revealed no evidence of preseparation/impact anomaly. Photographs are appended. See radar study for wreckage diagram.

#### MEDICAL/PATHOLOGICAL INFORMATION

An autopsy examination of the pilot was conducted by Dr. David W. Oxley, M.D., Medical Examiner for the Commonwealth of Virginia, Department of Health, Western District, 920 South Jefferson Street, Roanoke, Virginia, 24016, (703) 857-7290. A postaccident toxicological examination was performed by the Federal Aviation Administration (FAA) Civil Aeromedical Institute, in Oklahoma City, Oklahoma. The toxicology report was negative for carbon monoxide and cyanide, and detected the following:

10.000 (mg/dl) Ethanol detected in Blood NO Ethanol detected in Vitreous Fluid 3.000 (mg/dl) Acetaldehyde detected in Blood 19.000 (ug/ml, ug/g) Salicylate detected in Blood 7.800 (ug/ml, ug/g) Acetaminophen detected in Blood

According to FAA medical personnel, because there was no ethanol detected in the vitreous fluid, the ethanol detected in the blood can be attributed to postaccident production, rather than ingestion. The FAA medical staff stated that the last three findings reflected a subtherapeutic level of pain killer medication (aspirin and Tylenol).

#### ADDITIONAL INFORMATION

A radar study was conducted by a radar specialist in the NTSB's Office of Research and Engineering. The radar specialist's report indicated that the airplane was on a northeasterly heading at approximately 17,100 feet MSL until about 2152:30. At 2152:40 the airplane's altitude began to increase until it reached about 17,800 feet MSL (at 2153:00), then began descending. The radar study indicated that the airplane descended to 17,200 feet MSL, and changed to a more north-northeasterly heading. According to the radar specialist, during this period of time, the airplane's ground speed changed from about 220 knots to 170 knots, and indicated airspeed decreased from about 160 knots to about 140 knots.

The radar study indicated that the last recorded secondary beacon target report occurred at 2154:20, and did not include a corresponding altitude. According to the report, "The primary data suggests that [the airplane] continued in an erratic manner, in a southerly direction. Flight characteristics for the time period covered by the primary data [2153:50 to 2158:11] could not be computed since no altitude was available." A copy of the radar study is appended.

The wreckage was released to the owner's representative on July 19, 1995.

#### Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Instructor; Commercial	<b>Age:</b>	37
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	05/09/1995
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	6650 hours (Total, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N922DC
Model/Series:	PA-31P-350 PA-31P-350	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	31P-8414028
Landing Gear Type:	Retractable - Tricycle	Seats:	8
Date/Type of Last Inspection:	11/01/1994, Annual	Certified Max Gross Wt.:	7245 lbs
Time Since Last Inspection:	36 Hours	Engines:	2 Reciprocating
Airframe Total Time:	2423 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	TIO-540-V2AD
Registered Owner:	EXECUTIVE AVIATION, LLC.	Rated Power:	350 hp
Operator:	EXECUTIVE AVIATION, LLC.	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	BLF, 2857 ft msl	Distance from Accident Site:	34 Nautical Miles
Observation Time:	2150 EDT	Direction from Accident Site:	45°
Lowest Cloud Condition:	Thin Broken / 3400 ft agl	Visibility	7 Miles
Lowest Ceiling:	Broken / 3400 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	80°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	12° C / 11° C
Precipitation and Obscuration:			
Departure Point:	NASHVILLE, TN (BNA)	Type of Flight Plan Filed:	IFR
Destination:	LANCASTER, PA (LNS)	Type of Clearance:	IFR
Departure Time:	2034 EDT	Type of Airspace:	Class E

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	2 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Fatal	Latitude, Longitude:	

## Administrative Information

**Investigator In Charge (IIC):** MARGARET B NAPOLITAN **Report Date:** 10/09/1996

**Additional Participating Persons:** JAMES H POOL; CHARLESTON, WV  
DANIEL B FLETCHER; WILLIAMSPORT, PA  
PAUL LEHMAN JR.; PORT ST. LUCIE, FL  
PHIL GOETTEL; OLATHE, 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](mailto: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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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](#).