



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	LYNN, IN	<b>Accident Number:</b>	CHI98FA031
<b>Date &amp; Time:</b>	11/02/1997, 1640 EST	<b>Registration:</b>	N79TH
<b>Aircraft:</b>	Piper PA-34-200T	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The pilot received a weather briefing during which time he was informed of an AIRMET for icing conditions. The airplane departed at 1534. Last ATC contact with the airplane was at 1639 when the pilot acknowledged a frequency change while at an altitude of 11,000' msl. The airplane dropped off radar about one minute later. A center weather advisory was in effect which advised of moderate isolated severe mixed/rime icing in clouds between 4,000' and 13,000'. Inspection of the wreckage indicates the airplane experienced an inflight breakup. No evidence was found to indicate any pre-accident failures/malfunctions of the airplane and/or engines existed.

## 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 airplane which resulted in the inflight separation of the wings, vertical stabilizer/rudder, and the stabilator. Factors associated with the accident the pilot continued the flight into known adverse weather and the icing conditions which existed.

## Findings

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

### Findings

1. (F) WEATHER CONDITION - ICING CONDITIONS
  2. (F) FLIGHT INTO KNOWN ADVERSE WEATHER - PERFORMED - PILOT IN COMMAND
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Occurrence #2: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: CRUISE

### Findings

3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
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Occurrence #3: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: DESCENT - UNCONTROLLED

### Findings

4. (C) WING - OVERLOAD
  5. (C) WING - SEPARATION
  6. (C) FLIGHT CONTROL, STABILATOR - OVERLOAD
  7. (C) FLIGHT CONTROL, STABILATOR - SEPARATION
  8. (C) VERTICAL STABILIZER - OVERLOAD
  9. (C) VERTICAL STABILIZER - SEPARATION
- 

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

### Findings

10. TERRAIN CONDITION - GROUND

## Factual Information

### HISTORY OF FLIGHT

On November 2, 1997, at 1640 eastern standard time (est), a Piper PA-34-200T, N79TH, was destroyed during an in-flight breakup near Lynn, Indiana. The commercial instrument rated pilot and passenger sustained fatal injuries. The 14 CFR Part 91 business flight was operating on an IFR flight plan. The flight departed DuPage County Airport, West Chicago, Illinois, at 1535 est, with an intended destination of Charleston, West Virginia.

The pilot and three passengers had departed Bay City, Michigan, and flew to the DuPage County Airport on a business flight. After landing at the DuPage County Airport, two of the passengers disembarked. The pilot and the remaining passenger departed again en route to Charleston, West Virginia, to pickup two more passengers before returning to Bay City, Michigan. All the passengers were employees of the registered owner of the airplane.

At 1237 est, on the day of the accident, the pilot called the Lansing, Michigan Flight Service Station (FSS) at which time he filed an IFR flight plan from Saginaw, Michigan, to DuPage County Airport. The pilot also received an "abbreviated" weather briefing at the time. The pilot was informed of an AIRMET for icing conditions which extended from the central plain states to the Atlantic Coast and down through Kentucky to Northern Tennessee. The pilot was informed that there were pilot reports from various types of airplanes for light to moderate icing. The pilot was informed that icing was present throughout the Great Lakes.

At 1535 est, N79TH was cleared for takeoff from the DuPage County Airport. At 1536 est, N79TH was in contact with the Chicago TRACON and was cleared to climb to 5,000 feet. Shortly thereafter, N79TH was cleared to climb to 10,000 feet. At 1549 est, N79TH was instructed to contact the Chicago Air Route Traffic Control Center (ARTCC). The pilot switched frequencies and was instructed to fly a heading of 140 degrees and to climb to 11,000 feet. The pilot is instructed to change frequencies to several other sectors within the Chicago ARTCC. At 1623 est, N79TH is instructed to change frequencies to the Indianapolis ARTCC. At 1639 est, the Muncie Sector controller instructed N79TH to contact the Indianapolis ARTCC [Rosewood Sector]. The pilot acknowledged this instruction. The pilot of N79TH never made contact with the Indianapolis ARTCC on the new frequency. The controller reported that N79TH was lost on radar approximately one minute after the hand-off.

### PERSONNEL INFORMATION

The pilot was born on September 9, 1942. He was the holder of a commercial pilot certificate with instrument, single and multiengine land ratings. He held a second class medical certificate which was issued on November 18, 1996. The pilot had accumulated 3,486 hours of flight time at the time of the accident.

### AIRCRAFT INFORMATION

N79TH was a Piper Seneca PA-34-200T, serial number 34-7970157. The airplane had accumulated 2,998 hours time in service at the time of the accident. The last annual inspection of the airplane was conducted on April 20, 1997. On August 26, 1997, a factory overhauled left engine was installed on the airplane at a tach time of 3647.9 hours. The last maintenance performed on both engines was on October 29, 1997. The tach time on the left engine at the time of last inspection was 3667.45 hours and the right engine tach time was 3657.97 hours.

## METEOROLOGICAL INFORMATION

The weather conditions en route consisted of several layers of cloud cover and precipitation. At the time of the accident, Indianapolis was reporting a broken layer of clouds at 7,000 feet, a broken layer at 15,000 feet, and an overcast layer at 25,000 feet. Dayton, Ohio, was reporting a few clouds at 5,000 feet and an overcast layer at 7,000 feet.

The closest reporting station, Muncie, Indiana, was reporting at 1645 est, scattered clouds at 3,000 feet, a broken layer at 4,500 feet, and another broken later at 6,000 feet. Visibility was 10 miles with precipitation. The temperature was 41 degrees F and the dew point was 36 degree F. Wind was from 260 degrees at 10 knots. Muncie is about 25 nautical miles (nmi) northwest of Lynn, Indiana.

A Center Weather Advisory issued by the Indianapolis Center was in affect at the time of the accident. The advisory was valid from 2110Z until 2310Z. The advisory noted moderate isolated severe rime/mixed icing in clouds/precipitation from 4,000 feet to 13,000 feet. The area covered by the weather advisory was from 20nmi southeast of Findlay, Ohio[FDY], to 40nmi southeast of Cincinnati, Ohio[CVG], to 60nmi southeast of Decatur[DEC], Illinois, to 30nmi northeast of DEC, to 20nmi southeast of FDY.

AIRMET Zulu Update 4 was valid from 2100Z to 0300Z on November 3, 1997. The AIRMET called for occasional moderate isolated severe mixed/rime icing in clouds and in precipitation between the freezing level and 13,000 feet. Also occasional light freezing rain/light freezing drizzle aloft over Northeastern Illinois, and Northern Indiana.

## WRECKAGE AND IMPACT INFORMATION

The NTSB on-scene investigation began at 1000 on November 3, 1997. The fuselage came to rest right side up in a muddy farm field. The main cabin roof exhibited downward crushing. The left wing and tail section completely separated from the fuselage and was found in the debris path. The inboard section of the right wing remained attached. The rear door separated from the fuselage by impact although the rear baggage door assembly remained attached. The forward cabin and the forward baggage door remained attached. The nose section forward of the baggage door containing a radar unit separated by impact.

The left wing came to rest inverted approximately 1/8 of a mile from the main wreckage. The fracture surface of the main spar indicated that the wing failed in a negative direction. The wing exhibited buckling and wrinkling, and was partially separated outboard of the engine nacelle. The left flap remained attached.

The left landing gear was found attached, but was extended beyond its full down limit. The left engine with propeller remained attached. The propeller appeared to be in the feathered position. The left cowl flap was closed. The left wing aileron bellcrank was found bent. The control cables remained attached to the bellcrank. The other ends of the cables exhibited broomstick signatures and were frayed. The bellcrank limit stops were undamaged.

The right outboard wing separated outboard of the engine nacelle and came to rest about 1 mile from the main wreckage. The right aileron remained attached, but the flap had separated. About three feet of the right inboard flap section was located in the debris field. The right wing aileron bellcrank was found bent. The control cables remained attached to the bellcrank. The other ends of the cables exhibited broomstick signatures and were frayed. The limit stops were found to be bent by impact. The right aileron push/pull rod clevis fitting separated were

it attaches to the bellcrank.

The tail section completely separated from the empennage. The bottom skin section of the fuselage with the tie-down ring separated from the empennage and was located in the debris field.

The right rear fuselage skin with the ELT tray separated from the empennage and was located in the debris field. The horizontal stabilator trim drum assembly separated from the airplane and was located in the debris field. The trim drum had nine threads exposed. The center spar section of the horizontal control surface with the counter weight arm was found in the debris field. The stabilator cables remained attached to the counter weight arm. The other ends of the cables exhibited broomstick signatures and were frayed. The left horizontal hinge fitting was found bent to the left. The top limit stops were bent upwards, the bottom stops were undamaged. The left horizontal stabilator separated from the airplane was located in the debris field. The rudder remained attached to the vertical stabilizer although the top fairing with the counter weight had separated. The rudder trim tab remained attached to the rudder control surface. The rudder control cables were found attached to the rudder horn. The other ends of the cables exhibited broomstick signatures and were frayed.

The left engine remained attached to the engine nacelle. The propeller remained attached to the engine. The propeller blades did not exhibit signatures consistent with power at the time of impact. Valve and gear train continuity was established. Both magnetos were found to produce spark when hand rotated. No evidence of pre-impact mechanical failure of the left engine was found.

The right engine remained attached to the engine nacelle. The propeller remained attached to the engine although the crankshaft flange was partially separated. During examination, the flange and propeller completely separated. Both magnetos were found to produce spark when hand rotated. No evidence of pre-impact mechanical failure of the right engine was found.

Visual examination of the wreckage indicated that the airplane had sustained an in-flight breakup. Examination of the fracture surfaces of the wings and the tail section indicated that the failures were consistent with overload stress.

The left stabilator appeared to separate in a downward direction.

The right stabilator separated upwards with the leading edge twisting up and back. Black transfer marks were present on the right side of the vertical stabilizer and rudder surface. The marks appeared to have been made by the right stabilator de-ice boot. The vertical stabilizer assembly separated from the airplane to the left.

The right wing failed downward with the wing leading edge twisting underneath and aft. The left wing exhibited positive bending signatures outboard of the nacelle, but failed at the root in a downward direction.

#### MEDICAL AND PATHOLOGICAL INFORMATION

A post mortem examination of the pilot was conducted on November 2, 1997, at Branam, Willman, Triplett, Baldwin and Kocoshis Professional Corporation, Muncie, Indiana. No pre-existent anomalies were noted during this examination which would have contributed to the accident or the pilot's death.

The pilot's toxicological analysis was performed at the Federal Aviation Administration Civil

Aeromedical Institute in Oklahoma City, Oklahoma. The examination of specimens were negative for those substances tests.

#### ADDITIONAL DATA

Parties to the investigation were the Federal Aviation Administration, The New Piper Aircraft, Inc., and the National Air Traffic Controller Association.

Following the on-scene portion of the investigation, the wreckage was released to a representative of the insurance company, Howe Associated, Inc., of St. Louis, Missouri.

#### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	55, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	11/18/1996
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	3486 hours (Total, all aircraft), 3417 hours (Pilot In Command, all aircraft)		

#### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N79TH
<b>Model/Series:</b>	PA-34-200T PA-34-200T	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	34-7970157
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	7
<b>Date/Type of Last Inspection:</b>	Unknown	<b>Certified Max Gross Wt.:</b>	4570 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	TSIO-360-EB
<b>Registered Owner:</b>	S AND K AVIATION	<b>Rated Power:</b>	200 hp
<b>Operator:</b>	S AND K AVIATION	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MIE, 937 ft msl	Distance from Accident Site:	24 Nautical Miles
Observation Time:	1645 EST	Direction from Accident Site:	310°
Lowest Cloud Condition:	Scattered / 3000 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 4500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	260°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	5°C / 2°C
Precipitation and Obscuration:			
Departure Point:	WEST CHICAGO, IL (DPA)	Type of Flight Plan Filed:	IFR
Destination:	CHARLESTON, WV (CRW)	Type of Clearance:	IFR
Departure Time:	1436 CST	Type of Airspace:	Class E

## Wreckage and Impact Information

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

## Administrative Information

Investigator In Charge (IIC):	TODD J CARLSON	Report Date:	02/29/2000
Additional Participating Persons:	LEONARD F SWOPE; INDIANAPOLIS, IN GEORGE M BALLARD; INDIANAPOLIS, IN BARRY ANSHELL; NAPERVILLE, IL CHARLES R LITTLE; CHINO HILLS, CA		
Publish Date:			
Investigation Docket:	NTSB accident and incident docket 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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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](#).