



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	WHEELING, WV	<b>Accident Number:</b>	NYC98LA028
<b>Date &amp; Time:</b>	11/13/1997, 2141 EST	<b>Registration:</b>	N80GP
<b>Aircraft:</b>	Beech 65-A90	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	5 None
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled		

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## Analysis

The pilots reported they experienced an engine fire during a missed approach in night, IMC conditions, and feathered the propeller and shut down the engine. On an approach to another airport, the airplane touched down short of the runway, traveled onto the runway, and then departed the left side of the runway. The pilot reported he could not maintain altitude due to ice accumulations, and the lack of power with one engine shut down. Examination of the wreckage revealed rotational damage to both engines and propellers consistent with operating engines. Neither propeller was in the feathered position. The pilot had been briefed about known moderate icing conditions, and isolated severe icing. The AFM recommended a minimum speed in icing conditions of 140 knots, and at less than 140 knots, ice could accumulate on the wings in unprotected areas. The pilot reported he flew the approach at 114 knots.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of the pilot to maintain the minimum required airspeed while operating in icing conditions which resulted in ice accumulations and an inadvertent stall while on approach. Factors were the icing conditions and the pilot's lack of experience in the airplane.

## Findings

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Occurrence #1: HARD LANDING

Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

1. (F) WEATHER CONDITION - ICING CONDITIONS
2. (C) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
3. (F) LACK OF TOTAL EXPERIENCE IN TYPE OPERATION - PILOT IN COMMAND
4. STALL - INADVERTENT - PILOT IN COMMAND

## Factual Information

On November 13, 1997, at 2141 eastern standard time, a Beech 65-A90, N80GP, operated by Skyward Aviation, was substantially damaged while landing at Wheeling County Airport (HLG), Wheeling, West Virginia. The certificated airline transport pilot, commercial rated co-pilot, and three passengers were not injured. Instrument meteorological conditions prevailed for the on-demand charter flight which departed from Tri-Cities Airport, Bristol (TRI), Tennessee, at 2008, destined for the Washington County Airport (AFJ), Washington, Pennsylvania. The flight was operated on an instrument flight rules (IFR) flight plan under 14 CFR Part 135.

The flight originated from Washington on the morning of November 13, 1997, and flew to Tri-Cities airport. At 1744, the pilot contacted the Nashville Automated Flight Service Station (AFSS), in Nashville, Tennessee. He received a weather briefing which included a forecast for freezing rain and sleet, moderate rime and mixed icing for his destination.

At 1913, the pilot again contacted the Nashville AFSS for an update weather briefing. He was given a center weather advisory for, "...moderate isolated severe icing...", location unspecified. The pilot specifically questioned the briefer about icing. The pilot was given pilot reports of mixed moderate icing from an airplane landing at Allegheny County Airport (AGC), West Mifflin, Pennsylvania, 21 nautical miles northeast of the Washington. In addition, the observation at AGC included light freezing rain, snow and mist.

The flight crew reported that the return flight to Washington was uneventful. The VOR-B approach to Washington was initiated; however, the runway was not visually acquired, and a missed approach was performed. According to a written statement from the pilot:

"...Shortly thereafter the right engine fire warning light illuminated. I immediately declared an emergency with ATC. The appropriate emergency checklists were completed. I then received information from ATC indicating that Wheeling, West Virginia [16 NM west of Washington], was the nearest suitable airport that there was no reported icing or turbulence in the area...During the descent for the ILS approach to Runway 3 at Wheeling, we encountered unreported icing...the icing conditions exceeded the capabilities of the aircraft...due to the single engine operation, compounded by the icing of the aircraft, we were unable to complete a successful landing...."

Two passengers reported that, during the approach into Wheeling, they could see ice accumulating on the top surface of the wing, aft of the area covered by the boot. One passenger also stated that just prior to touchdown the airplane rolled about 45 degrees left wing down.

A witness at the airport reported that the airplane appeared to "drop in" from 60 or 70 feet.

The airplane was examined by inspectors from the Federal Aviation Administration (FAA), who reported the airplane came to rest about 950 feet beyond the approach end, and 125 feet left of runway 3. The left main landing gear had collapsed rearward, and the right wing was bent down near the fuselage attaching point. The fuselage skin was wrinkled.

The inspectors reported that ground scars were observed starting 90 feet prior to the approach end of runway 3, and progressed toward the runway. The scars were identified by the FAA as initially coming from the left wing tip, followed by the left main landing gear, the right main landing gear, and both propellers as the scars moved toward the runway.

On-site examination revealed that neither propeller was in a feathered position. When the airplane was lifted for removal, both propellers were observed to transition to the full feathered position. The propeller blades were curled rearward with chordwise scrapes on the front surface of all blades. The propellers were forwarded to Hartzell Propellers, in Piqua, Ohio, for further examination. The teardown was witnessed by two representatives of the FAA. According to a letter from a representative of Hartzell Propellers:

" - Both propellers were rotating and absorbing power at the time of impact." " - Neither propeller was in the 'feather' position at time of impact."

Both engines were torn down at a Pratt & Whitney facility in Bridgeport, West Virginia. Light circumferential rubbing was found on the compressor turbines and power turbines of both engines.

Both pilots were interviewed. The interviews did not reveal any additional information beyond that contained in their written statements. Both pilots were asked again if the right engine had been feathered and said "yes". Neither pilot could offer an explanation about the observations of the engines and propellers.

A review of the air/ground communications tape from Pittsburgh Approach Control revealed that when the approach controller queried the control tower at Wheeling, Virginia, about ice, the Wheeling controller replied that they had rain, and had experienced freezing rain earlier. The Wheeling controller also reported that as far as he knew there was no icing. The controller then told the pilot that Wheeling did not have ice.

A check of the icing certification revealed that the airplane was certified for flight in known icing conditions. There were no known equipment malfunctions which would have rendered the icing certification invalid.

According to the Beech 65-A90 flight manual, icing supplement, the minimum speed for icing conditions was 140 knots. In addition, the following CAUTION note was in the flight manual:

"Stalling airspeed should be expected to increase when ice has accumulated on the airplane due to the distortion of the wing airfoil. For the same reason, stall warning devices are not accurate and should not be relied upon. Keep a comfortable margin of airspeed above normal stall airspeed with ice on the airplane. Maintain a minimum of 140 knots during sustained icing conditions to prevent ice accumulation on unprotected surfaces of the wing...."

On a follow-up interview, the captain was asked what speed he was trying to maintain. He reported the speed was "Blue Line (Best Angle of Climb) + 10 knots." According to the flight manual for the 65-A90, the best angle of climb speed varied between 89 knots, and 109 knots, depending upon weight and altitude. Using the landing weight of 8650 pounds from the load manifest, the estimated best angle of climb airspeed was 104 knots.

When asked how he verified an engine fire, the pilot reported that the fire light was illuminated. He said he looked out but did not observe any flames on or about the engine cowling, or in the engine exhaust, nor was the engine running abnormally.

The pilot reported his total time as 10,000 hours with 100 hours in Beech 65-A90.

Both crewmembers submitted urine samples for toxicological analysis in accordance with the operators procedures. Test results were negative for drugs of abuse.

## Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Engineer	<b>Age:</b>	44, Male
<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; Helicopter	<b>Second Pilot Present:</b>	Yes
<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>	01/14/1997
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	10000 hours (Total, all aircraft), 100 hours (Total, this make and model), 4500 hours (Pilot In Command, all aircraft), 92 hours (Last 90 days, all aircraft), 60 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Beech	<b>Registration:</b>	N80GP
<b>Model/Series:</b>	65-A90 65-A90	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	LJ 137
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	7
<b>Date/Type of Last Inspection:</b>	09/12/1997, AAIP	<b>Certified Max Gross Wt.:</b>	9650 lbs
<b>Time Since Last Inspection:</b>	116 Hours	<b>Engines:</b>	2 Turbo Prop
<b>Airframe Total Time:</b>	7290 Hours	<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	PT6-20
<b>Registered Owner:</b>	GPC INC.	<b>Rated Power:</b>	500 hp
<b>Operator:</b>	SKYWARD AVIATION	<b>Operating Certificate(s) Held:</b>	On-demand Air Taxi (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	S2KA

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	HLG, 1195 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	2145 EST	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	3 Miles
Lowest Ceiling:	Broken / 700 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	80°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	0° C / 0° C
Precipitation and Obscuration:			
Departure Point:	BRISTOL, TN (TRI)	Type of Flight Plan Filed:	IFR
Destination:	WASHINGTON, PA (AFJ)	Type of Clearance:	IFR
Departure Time:	2000 EST	Type of Airspace:	Class D

## Airport Information

Airport:	WHEELING (HLG)	Runway Surface Type:	Asphalt
Airport Elevation:	1195 ft	Runway Surface Condition:	Wet
Runway Used:	3	IFR Approach:	ILS
Runway Length/Width:	5000 ft / 150 ft	VFR Approach/Landing:	None

## Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	3 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	5 None	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	ROBERT L HANCOCK	Report Date:	11/10/1998
Additional Participating Persons:	TERRY RICKER; WEST MIFFLIN, PA JEFF HALLIDAY; WEST MIFFLIN, PA		
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 <a href="mailto:pubinquiry@ntsb.gov">pubinquiry@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](#).