



National Transportation Safety Board Aviation Accident Final Report

Location:	STEVENSVILLE, MD	Accident Number:	IAD96FA085
Date & Time:	05/24/1996, 1055 EDT	Registration:	N103RW
Aircraft:	Piper PA-31-310	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	7 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot reported that he ran the engines to full power before releasing the brakes. Immediately after lift-off, when he retracted the landing gear, he noticed a dramatic loss of airspeed. The airplane began to rock back and forth, and the pilot's efforts to increase the airspeed including lowering the nose and adding full power was unsuccessful. According to the Piper Information Manual for a short field takeoff, a lift-off speed of 85 mph and 15 degree of flaps is required. The reported winds were 010 degrees at 7 knots. The pilot departed runway 29 which is 2910 feet long. A witness who was refueling an airplane on the ramp stated that the airplane was still on the runway at the 500 foot mark from the end of runway 29.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper short field takeoff/procedure and selection of the wrong runway for takeoff.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (F) WEATHER CONDITION - TAILWIND
 2. (C) WRONG RUNWAY - SELECTED - PILOT IN COMMAND
 3. (C) SHORT FIELD TAKEOFF/PROCEDURE - IMPROPER - PILOT IN COMMAND
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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

4. TERRAIN CONDITION - WATER

Factual Information

HISTORY OF FLIGHT

On May 24, 1996, at 1055 eastern daylight time (EDT), N103RW, a Piper PA-31-310, lost engine power during initial climb from the Bay Bridge Airport and impacted the water in Stevensville, Maryland. The certificated private pilot, and the six passengers sustained minor injuries. The airplane was destroyed. Visual meteorological conditions prevailed and a flight plan was not filed. The personal flight was operated under 14 CFR Part 91. The flight originated at 1045 EDT and the intended destination was Laconia, New Hampshire.

According to the pilot, he had completed a thorough preflight inspection of the airplane, which included draining the fuel tanks. He stated that a weight and balance within limits was accomplished also. He said the engine start and run-up check lists were completed uneventfully. The pilot stated that he applied the brakes, added full power and the airplane accelerated for takeoff.

He said, "...I ran engines up to full power before releasing brakes at departure end of runway-all systems normal. Rotated at 105 mph. After gear up I noticed dramatic loss of airspeed. Plane began rocking from wingtip to wingtip-not sure it caused by power failure or turbulence. I pushed all controls forward-were all forward. Leveled pitch attitude of aircraft but airspeed loss continued. I was concerned that due to altitude and continuing loss of airspeed recovery would be impossible. My best and only option was to attempt a controlled landing in the water which I set up for and accomplished... ."

A witness fueling an airplane on the ramp said, "...the Navajo went by me on the runway at approximately the 500 foot mark from the end of runway 29. It sounded as if the aircraft was not making full power and I went out to the edge of the runway to watch the aircraft depart the runway. When the aircraft became airborne it was not gaining altitude and leveled at approximately 75 to 100 feet off the runway. The aircraft landing gear retracted and the aircraft started to descend towards the water. The wings tipped from side to side indicating to me that the aircraft was just about at a stall. The wings never went more than approximately fifteen degrees to either the right or the left and the aircraft continued in a gradual descent... ."

The aircraft was refueled on Wednesday, May 22 and had not flown since refueling. Fuel samples taken from the airport fuel sources after the accident did not disclose evidence of contamination. After the accident, the baggage was removed from the airplane and was not weighed.

According to the Piper Information Manual the lift off speed and flap setting for a short field takeoff over a 50 foot obstacle is 85 mph and 15 degrees. The reported winds at the time of the accident was 010 degrees at 7 knots, and the runway is 2,910 feet long. Excerpts of performance chart, and airport information are appended.

The airplane impacted water during the hours of daylight at 38 degrees, 58 minutes north latitude and 76 degrees, 20 minutes west longitude.

PILOT INFORMATION

The pilot held a private pilot certificate with single and multi-engine land ratings. He also held an instrument airplane rating. According to the pilot operator report, he had over 2000 hours of total flight time including 600 hours in the accident make and model airplane. The pilot

held a valid Federal Aviation Administration (FAA) third class medical certificate with no waivers/limitations, which was issued on March 20, 1996.

AIRPLANE INFORMATION

The Piper PA-31-310 airplane, serial number 31-223, was equipped with two Lycoming TIO-540-A1B engines, left engine serial number L-543-61, and right engine serial number L-568-61. At the time of the accident, according to the pilot operator report, the pilot reported that the airplane had over 3812 hours of flight time. He stated that the most recent annual inspection was completed January 1996, and the airplane had accumulated over 101 hours of flight time since that inspection.

METEOROLOGICAL CONDITIONS

At 1055 eastern daylight time, Baltimore Washington Airport, Baltimore, Maryland, located about 20 miles northeast of the accident site issued the following observation:

Sky condition , 10,000 feet scattered; visibility 10 miles; temperature, 76 degrees Fahrenheit (F); dew point, 58 degrees F; winds out of 010 degrees at 7 knots; and altimeter, 30.01 inches Hg.

WRECKAGE AND IMPACT INFORMATION

An on-scene investigation was not conducted. The airframe and engine were examined at the Bay Bridge Airport, Stevensville, Maryland, on May 28, 1996. The parties to the investigation listed in this report participated in the examination.

The airplane was retrieved from the Chesapeake Bay on May 27, and transported to the Bay Bridge Airport. The airplane was on the ramp with the gear in the down position. The fuselage was intact. The bottom of the fuselage was crushed. The right wing and aileron were damaged. The right wing had holes above the fuel tanks. The left wing was bent up at the midpoint. Flight control continuity was confirmed to the elevator, rudder and aileron from the cockpit. The elevator trim jack screw revealed four threads. According to a Piper representative this corresponds to a 9 degree tab down deflection. The flaps were found in the retracted position.

The left engine was attached to the airframe. The left propeller remained attached to the engine. All three blades were bent back approximately 30 degrees at the midpoint. The engine did not rotate when turned manually. The oil suction screen was removed and there was evidence of water in the crankcase. The oil suction screen was clean.

The right engine was attached to the airframe. The right propeller remained attached to the engine. All three blades were bent back approximately 30 degrees at the midpoint. It was not possible to rotate the engine manually due to its location on the fuselage. The magnetos sustained water damage. The number 1 intake pipe was missing. The number 2 intake pipe was bent and detached. The exhaust and tail pipes below the turbocharger transition assembly were separated. The turbo bypass door assembly was damaged. The oil suction screen was removed and it was clean. It was determined that both engines and their accessories should be shipped to Lycoming's Reciprocating Engine Division, at Williamsport, Pennsylvania, for further examination.

TESTS AND RESEARCH

Further engine examination was conducted on July 19, 1996, under the supervision of the Federal Aviation Administration (FAA) from the Harrisburg, Pennsylvania, Flight Standards

District Office. According to the Lycoming investigator, the examination of the left and right engine included removing the accessories and bottom spark plugs. All of the accessories were corroded and could not be tested. He reported that some of the spark plugs were oily, some contained debris and others exhibited moderate wear for both engines. The accessory housing was removed for the left and right engine. Engine internal timing was within limits for the left and right engine. Rotation of both engines was unsuccessful.

The left engine cylinders were borescoped and removed. All the cylinders were corroded. Inspection of the cylinders and pistons revealed corrosion in the ring area of the pistons. When all the cylinders were removed the engine rotated. The turbocharger, controllers and the exhaust bypass valve were corroded. The turbocharger rotated freely.

All cylinders on the right engine were sprayed with marvel mystery oil. After a few minutes the pistons freed and the engine rotated. Continuity was confirmed through the engine including the accessory drive train. All valves opened and closed. Compression was confirmed in all cylinders using the "Thumb Method." When borescoped, all cylinder valves and piston domes were intact. The turbocharger compressor contained dirt and would not rotate. The compressor and turbine blades were intact.

ADDITIONAL INFORMATION

The airframe was released to the owner's insurance representative, Andy Paul, President, Crittenden Adjustment Company, Virginia Beach, Virginia, on June 4, 1996. The engines were returned to Executive Air in Hagerstown, Maryland.

Pilot Information

Certificate:	Private	Age:	43, 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):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	04/15/1996
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	2000 hours (Total, all aircraft), 600 hours (Total, this make and model), 55 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N103RW
Model/Series:	PA-31-310 PA-31-310	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	31-223
Landing Gear Type:	Retractable - Tricycle	Seats:	7
Date/Type of Last Inspection:	01/13/1996, Annual	Certified Max Gross Wt.:	6500 lbs
Time Since Last Inspection:	101 Hours	Engines:	2 Reciprocating
Airframe Total Time:	3812 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	TIO-540-A1B
Registered Owner:	ROBERT W CHILDS	Rated Power:	310 hp
Operator:	ROBERT W CHILDS	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	BWI, 146 ft msl	Distance from Accident Site:	20 Nautical Miles
Observation Time:	1055 EDT	Direction from Accident Site:	135°
Lowest Cloud Condition:	Scattered / 10000 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	10°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	24° C / 14° C
Precipitation and Obscuration:			
Departure Point:	, MD (W29)	Type of Flight Plan Filed:	None
Destination:	LACONIA, NH (LCI)	Type of Clearance:	None
Departure Time:	1045 EDT	Type of Airspace:	Class E

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	6 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	7 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	BEVERLEY DRAKE-NURSE	Report Date:	03/31/1998
Additional Participating Persons:	CARL DIERKSEN; BALTIMORE, MD DAN MC ANALLY; WASHINGTON, DC GERALD R JAMES; DALLAS, TX		
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/ .		

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