



National Transportation Safety Board Aviation Accident Final Report

Location:	WATERTOWN, SD	Accident Number:	CHI98LA073
Date & Time:	12/30/1997, 1817 CST	Registration:	N5087Q
Aircraft:	Cessna 402B	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The pilot landed at Watertown, loaded and off-loaded cargo, and departed without getting out of the airplane. A witness reported seeing the airplane over the runway at an altitude of about 50 feet agl. The airplane was described to be bouncing and buffeting. Another witness reported the weather as overcast with occasional snow flakes. The airplane then descended, impacted the terrain and exploded. Post accident inspection revealed a 1/2 to 3/4 inch thick ridge of rime ice along the leading edge of the left horizontal stabilizer. Pieces of arc shaped ice were located along the wreckage path. Inspection of the wreckage failed to reveal any preimpact failure/malfunction of the engine or airframe which would have prevented flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to perform an aircraft preflight and to remove the ice which had accumulated on the airframe. A factor involved in the accident was the icing weather conditions which existed and the ice which accumulated on the airplane.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (F) WEATHER CONDITION - ICING CONDITIONS
2. (C) AIRCRAFT PREFLIGHT - NOT PERFORMED - PILOT IN COMMAND
3. (F) AIRFRAME - ICE
4. (C) ICE/FROST REMOVAL FROM AIRCRAFT - NOT PERFORMED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

On December 30, 1997, at 1817 central standard time (cst), a Cessna 402B, N5087Q, piloted by a commercial pilot, was destroyed during a collision with the ground shortly after takeoff from runway 12 (6,895' x 150') at the Watertown Municipal Airport, Watertown, South Dakota. The 14 CFR Part 135 cargo flight was not operating on a flight plan. Visual meteorological conditions prevailed at the time of the accident. The pilot was fatally injured. The flight departed Watertown, South Dakota, at 1816 cst.

At 1653, a person providing the call sign "dakota five twenty" contacted the Huron South Dakota Automated Flight Service Station requesting a "standard brief" for a flight from Aberdeen, South Dakota, to Watertown, South Dakota, to Marshall, Minnesota, to Anoka County, Minnesota. This person stated that the flight would be departing at 5:15 local time. The Air Traffic Control Specialist (briefer) informed the pilot of an advisory for light to occasional moderate rime mixed icing below eight thousand feet in the southern third of eastern Minnesota. The briefer continued to report there were "...some scattered areas of snow across South Dakota only the eastern half of South Dakota widely scattered isolated areas, but once again IFR conditions in those areas that's all drifting southeast out of North Dakota... ." The briefer continued to issue the Minneapolis weather and the "...state forecast now South Dakota two thousand five hundred broken tops of eight thousand... ." The briefer then issued the winds aloft and NOTAMS for the route of flight. The briefing ended at 1658.

Two employees from Corporate Express, a courier company, met the airplane upon its arrival at the Watertown Municipal Airport. One of the couriers stated the airplane arrived around 1740 and the other reported the airplane arrived at 1806. The courier who loaded the airplane stated he put about 120 pounds of cargo on and took about 25 pound off the airplane. He estimated that there was already between 350 and 400 pounds of cargo on board. He stated the airplane was loaded by 1811 and the pilot was starting the engines by 1812. One of the couriers stated that even though the pilot was running late, he did not seem to be stressed out. He stated the pilot left the cockpit to go into the cabin area to receive and tie down the cargo. Both couriers stated the pilot did not get out of the airplane.

A witness reported seeing the airplane traveling in a southeasterly direction along the runway. He reported the airplane was about 50 feet above the ground and descending. The next thing he recalled was seeing a fire ball. Another witness reported seeing the airplane "bounced in the air like it was maybe buffeting on wind or possibly having trouble." Two witnesses reported hearing the aircraft engine. One reported the engine was "running steady and pulling" and the other reported the "motor sound briefly intensified" prior to the impact. One witness reported the weather as being overcast with occasional snow flakes.

Inspectors from the Federal Aviation Administration (FAA) Rapid City Flight Standards District Office conducted the on scene investigation. The airplane impacted the terrain on airport property, left of the extended centerline for runway 12. The wreckage path was on a 025 degree magnetic heading. The wreckage came to rest in an upright position. The forward fuselage and cockpit had sustained severe impact damage. The forward cabin area and wings were subjected to post impact fire. The fuselage was separated just aft of the cabin area. The empennage was not subjected to the fire.

Portions of the left wingtip were located in the first visible ground impact point. The left wing, outboard of the engine nacelle, was destroyed. The left engine was torn free from the nacelle

and was located prior to the location of the main wreckage. The propeller hub was separated from the engine. All three propeller blades were free from the propeller hub and were located near the main wreckage. All three blades contained chordwise scratches and torsional twisting.

The right wing outboard of the aileron was separated from the remainder of the wing. The engine was torn free from the nacelle, but was located in the nacelle area. The right propeller was located in front of the nacelle. The propeller flange was separated from the crankshaft. All three propeller blades were attached to the propeller hub, but were loose. Each blade contained chordwise scratches and torsional twisting. Three slash marks were located on the right side of the nose section of the fuselage.

Flight control continuity was established to all flight controls with the exception of the left aileron which had sustained severe impact damage. The landing gear was found in the retracted position. The flap handle was set at 30 degrees although inspection of the flaps indicated they were extended between 5 and 10 degrees.

A 1/2 to 3/4 inch thick ridge of rime ice was located along the leading edge of the left horizontal stabilizer. The front side of the rotating beacon also contained a similar ice build-up. The right horizontal and vertical stabilizers did not contain any ice. These two surfaces were on the side of the wreckage which faced the fire. Several pieces of arc shaped ice were found along the wreckage path.

An autopsy of the pilot was conducted on December 31, 1997, in Sioux Falls, South Dakota. Toxicological samples were analyzed by the FAA Civil Aeronautical Medical Institute, Oklahoma City, Oklahoma. The samples were negative for all areas screened.

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	25, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Single-engine	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	04/29/1996
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N5087Q
Model/Series:	402B 402B	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	402B0565
Landing Gear Type:	Retractable - Tricycle	Seats:	0
Date/Type of Last Inspection:	11/25/1997, Annual	Certified Max Gross Wt.:	6300 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Continental
ELT:	Installed	Engine Model/Series:	TSIO-520-EB
Registered Owner:	DAEDALUS, INC.	Rated Power:	300 hp
Operator:	SIOUX FALLS AVIATION	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	BUSINESS AVIATION COURIERS	Operator Designator Code:	DUSA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	ATY, 1748 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1753 CST	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 3500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	330°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	-7° C / -10° C
Precipitation and Obscuration:			
Departure Point:	(ATY)	Type of Flight Plan Filed:	None
Destination:	MARSHALL, MN (MML)	Type of Clearance:	None
Departure Time:	1816 CST	Type of Airspace:	Class D

Airport Information

Airport:	WATERTOWN MUNICIPAL (ATY)	Runway Surface Type:	Asphalt
Airport Elevation:	1748 ft	Runway Surface Condition:	
Runway Used:	12	IFR Approach:	None
Runway Length/Width:	6901 ft / 150 ft	VFR Approach/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:	On-Ground
Total Injuries:	1 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	PAMELA S SULLIVAN	Report Date:	04/15/1999
Additional Participating Persons:	PETE SCHULTIS; RAPID CITY, SD		
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 pubinquiry@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](#).