



National Transportation Safety Board Aviation Accident Final Report

Location:	MINOT, ND	Accident Number:	CHI94GA093
Date & Time:	02/24/1994, 0949 CST	Registration:	N4071Q
Aircraft:	CESSNA 401A	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	4 Fatal

Flight Conducted Under: Part 91: General Aviation - Public Aircraft

Analysis

THE PUBLIC USE FLIGHT WAS BEING OPERATED BY THE INDIAN HEALTH SERVICE OF THE U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES. IT DEPARTED VFR FROM DEVIL'S LAKE, NORTH DAKOTA, WITH AN INTENDED DESTINATION OF ROLLA, NORTH DAKOTA. THE PILOT ATTEMPTED TWO VISUAL APPROACHES AT ROLLA, BUT ENCOUNTERED WHITEOUT CONDITIONS DUE TO A SNOW STORM. HE OBTAINED AN IFR CLEARANCE & DIVERTED TO MINOT. HE FLEW TWO ILS APPROACHES TO RUNWAY 31 AT MINOT & REPORTED A MISSED APPROACH AFTER EACH. RADIO CONTACT WAS LOST AFTER THE SECOND APPROACH. ABOUT AN HOUR LATER, A SNOW PLOW OPERATOR FOUND WRECKAGE ON THE AIRPORT. INVESTIGATION REVEALED THE PLANE HAD IMPACTED TO THE RIGHT OF RUNWAY 31 WITH THE GEAR RETRACTED & THE FLAPS EXTENDED 15 DEG. THE 0959 WEATHER WAS IN PART: 600' OBSCURED, VISIBILITY 1/2 MILE VARIABLE IN SNOW, WIND 110 DEG AT 11 KTS. NO PREIMPACT MECHANICAL ANOMALY WAS FOUND WITH THE AIRPLANE OR ENGINES.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE OF THE PILOT TO MAINTAIN PROPER ALTITUDE DURING A MISSED APPROACH. FACTORS RELATED TO THE ACCIDENT WERE: THE UNFAVORABLE WEATHER AND SNOW COVERED TERRAIN.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER

Phase of Operation: APPROACH

Findings

1. (F) WEATHER CONDITION - LOW CEILING
2. (F) WEATHER CONDITION - SNOW
3. (F) WEATHER CONDITION - WHITEOUT
4. PERFORMED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: MISSED APPROACH (IFR)

Findings

5. MISSED APPROACH - INITIATED - PILOT IN COMMAND
6. (F) TERRAIN CONDITION - SNOW COVERED
7. (C) PROPER ALTITUDE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF THE FLIGHT

On February 24, 1994, about 0949 central standard time (CST), a Cessna 401A airplane, N4071Q, registered to B & L Aviation, Rapid City, South Dakota, and operated by the U.S. Department of Health and Human Services, Indian Health Service, a federal agency, sustained substantial damage when it crashed in instrument meteorological conditions during an instrument approach (ILS) to runway 31 at Minot International Airport, Minot, North Dakota. The airline transport certificated pilot and the three physician passengers aboard were fatally injured.

The flight was a section of a routine quarterly visit by Indian Health Service (IHS) doctors to sites in North Dakota. The airplane and pilot were chartered by IHS from B & L Aviation, Rapid City, South Dakota. The flight departed Devil's Lake, North Dakota about 0800 with an initial destination of Rolla. Weather conditions at Rolla were unsuitable for a VFR approach, and the flight diverted to Minot for an instrument approach.

The pilot received an outlook weather brief from the Grand Forks Automated Flight Service Station (AFSS) at 2103 CST on February 23, 1994. He requested the weather for a flight from Devil's Lake to Rolla, and from Rolla to Minot. The customer service agent for Great Lakes Airways at Devil's Lake reported the pilot came in at 0730. He stated the pilot didn't get a weather brief, and went out to the airplane at 0745. There was no record of the pilot receiving a weather brief the morning of the accident from the Grand Forks AFSS, the State of North Dakota contract weather service, or either FAA DUATS contractors.

The airport manager at Rolla said he talked to the pilot on the radio about 0900. The manager reported it was snowing heavily at the time. He stated the pilot made one attempt to land but terminated the visual approach and went around for a second attempt. The pilot also terminated the second approach and communicated to the airport manager that he encountered "white-out" conditions at 400 feet, and was going to Minot.

The pilot contacted Minot Air Force Base Approach Control at 0903 and requested an IFR clearance to Minot International Airport. Approach control provided vectors to Minot. At 0927, the pilot was cleared for the ILS approach to runway 31 at Minot. At 0933, the pilot reported a missed approach, and was given vectors for a second ILS approach. After executing the missed approach, the pilot remarked to the approach controller, "...that was my mistake...I've got to get this thing a little slower on final." The pilot was cleared for the second approach at 0942. At 0948:23, the pilot reported a missed approach. This was the last radio transmission from the pilot.

The wreckage of the airplane was found on the airport at 1040, by an airport employee plowing snow.

The pilot of the airplane which landed ahead of the mishap airplane reported snow was very heavy, and the visibility was about one-half mile. He also said there was no icing, and no turbulence. The pilot of the airplane (N7786Q) behind the mishap pilot also reported very heavy snow. He described the conditions as almost at white-out. This pilot had to execute a missed approach on his first attempt. The time of the missed approach was 0952:49. On the second approach he stated he had visual contact with the ground at 300 feet agl. He reported the horizontal visibility was very poor. The pilot stated he saw the sequential approach lights

about the time he was starting to execute his second missed approach, and he continued the approach and landed.

The air traffic control facility operating records did not indicate any abnormal conditions with the navigation or approach equipment at the time of the mishap.

PERSONNEL INFORMATION

The pilot held an airline transport pilot certificate with airplane single engine and multiengine land, and instrument ratings. He held a class 2 medical certificate with the limitation that he wear glasses when flying. The pilot's log book indicated he had accrued 5380 hours total flying time, and 1500 hours in this model airplane. He had also accrued 231 hours actual instrument time. In the last 90 day, 30 day, and 24 hour periods respectively, he had flown 75 hours, 28 hours, and 3 hours total time, and 68 hours, 25 hours, and 3 hours in this model airplane. The log book also indicated the pilot had flown 24 hours actual instrument conditions in the last 90 days, and 12 hours actual instrument conditions in the last 30 days. The pilot successfully completed a FAR Part 135.293, 135.297, 135.299 Airman Competency/Proficiency Check on December 4, 1993.

AIRCRAFT INFORMATION

The airplane was a Cessna 401A, manufactured in 1969. The serial number was 401A-0115. The airplane was listed on the owner's FAR Part 135 Air Taxi and Commercial Operator's certificate for IFR or VFR flight, day or night. The owner's Part 135 certificate also authorized use of an autopilot in lieu of a second pilot for IFR operations in the airplane. The last inspection conducted on the airplane was a 100 hour inspection completed on November 11, 1993. The airplane had been flown 33 hours since the last inspection. The total airframe time was 4220 hours. Inspection of the airplane log books revealed no outstanding or deferred maintenance actions.

METEOROLOGICAL INFORMATION

The weather observation taken at Minot at 0959 was: indefinite ceiling 600 feet, sky obscured; visibility one-half mile variable in snow; temperature 6 degrees F, dew point 3 degrees F; wind 110 degrees magnetic at 11 knots; altimeter setting 29.67; remarks, visibility variable from one-quarter to three-quarters of a mile.

There were pilot reports of instrument meteorological conditions and heavy snow at the time of the mishap.

COMMUNICATIONS

The pilot had been in radio communication with air traffic control just prior to the mishap. A transcript of all known radio communications is a part of this report.

WRECKAGE

The on-scene investigation commenced at 0800, February 25, 1994. The airplane crashed on the Minot International Airport. The crash site was 750 feet east, and 600 feet north of the intersection of runways 13/31, and 8/26. This is about one-quarter mile north of the approach end of runway 31. From the initial ground impact point to the main wreckage was 460 feet. The debris trail from the initial impact point to the main wreckage was oriented 288 degrees magnetic. Both of the wings separated from the airplane outboard of the engine nacelles. The heading of the main wreckage was 040 degrees magnetic. The debris trail contains pieces of

both wings, both tip tanks and both propellers.

The landing gear was in the UP position. The flaps were extended 15 degrees, as determined by measuring the drive motor chain. Control continuity was established from the cockpit pedestal to the elevator and rudder, and to the point of wing separation on both wings.

The cockpit throttle control was at midrange, the cockpit propeller and mixture controls were aft in the throttle quadrant.

All three sets of cockpit engine controls were bent to the right.

The attitude gyro was jammed at 10 degrees nose down, and 15 degrees right wing down. The vacuum pumps on both engines turned freely and produced suction.

Both propellers were stripped from the propeller mounting flange. Both propellers exhibited multiple twists and bends. Both engines turned freely. There was continuity through the accessory drive train and valve action on both engines. The magnetos on both engines produced spark. Fuel was found in the induction manifold and fuel pump on both engines. No preimpact discrepancies were discovered on the airframe or engines during the on-scene investigation.

The Morrow Model 820 GPS receiver installed in the airplane was removed for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy and toxicological examination was conducted on the pilot. The autopsy was performed by Richard V. Crisera, M.D., at St. Joseph's Hospital, Minot, North Dakota. The toxicological examination was negative.

TESTS AND RESEARCH

The Morrow Model 820 GPS, serial number 01023754, which was installed in the airplane was examined at an FAA certified repair station. When power was applied to the unit, the self test feature indicated a fault in the data base card. No route information could be extracted from the unit. The operating parameters were set for operation in the manual mode, and the CDI sensitivity was set to 0.10 nm, the most sensitive setting possible. The last position in the unit's memory was 48 degrees, 15.65 minutes north; and 101 degrees, 16.13 minutes west. This point is on the Minot International Airport.

ADDITIONAL DATA

A review of the information provided by the United States Forest Service regarding B & L Aviation, Inc.'s prior operating practices and quality of maintenance, disclosed no evidence of a deficiency, or deficiencies, associated with this particular accident flight.

The wreckage was released to Mr. James E. McClure, agent for the owner, on February 27, 1994.

Pilot Information

Certificate:	Airline Transport; Flight Instructor	Age:	53, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	03/10/1993
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	5380 hours (Total, all aircraft), 1500 hours (Total, this make and model), 5210 hours (Pilot In Command, all aircraft), 75 hours (Last 90 days, all aircraft), 28 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	Registration:	N4071Q
Model/Series:	401A 401A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	401A-0115
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	11/11/1993, 100 Hour	Certified Max Gross Wt.:	6300 lbs
Time Since Last Inspection:	33 Hours	Engines:	2 Reciprocating
Airframe Total Time:	4220 Hours	Engine Manufacturer:	CONTINENTAL
ELT:	Installed	Engine Model/Series:	TSIO-520-E
Registered Owner:	B & L AVIATION, INC.	Rated Power:	300 hp
Operator:	U.S. DEPT OF HEALTH & HUMAN SV	Operating Certificate(s) Held:	On-demand Air Taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MOT, 1715 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	0959 CST	Direction from Accident Site:	270°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	0.5 Miles
Lowest Ceiling:	Obscured / 600 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	11 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	110°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	-14°C / -16°C
Precipitation and Obscuration:			
Departure Point:	DEVIL'S LAKE, ND (DVL)	Type of Flight Plan Filed:	IFR
Destination:	(MOT)	Type of Clearance:	IFR
Departure Time:	0800 CST	Type of Airspace:	Class D

Airport Information

Airport:	MINOT INTERNATIONAL (MOT)	Runway Surface Type:	Asphalt
Airport Elevation:	1715 ft	Runway Surface Condition:	Snow--dry
Runway Used:	31	IFR Approach:	ILS
Runway Length/Width:	7493 ft / 150 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	3 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	MARK E DOUB,	Report Date:	01/11/1995
Additional Participating Persons:	LYLE K STREETER; WASHINGTON, DC JOHN O KLINE; FARGO, ND ROBERT A HARRIS; FARGO, ND		
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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