



National Transportation Safety Board Aviation Accident Final Report

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| Location: | KIANA, AK | Accident Number: | ANC93FA013 |
| Date & Time: | 11/08/1992, 1820 AST | Registration: | N67941 |
| Aircraft: | CESSNA 402C | Aircraft Damage: | Destroyed |
| Defining Event: | | Injuries: | 3 Fatal |

Flight Conducted Under: Part 135: Air Taxi & Commuter - Scheduled

Analysis

THE AIRPLANE WAS ON A VFR FLIGHT FROM KOTZEBUE TO NOORVIK, KIANA, SELAWIK, AND RETURN TO KOTZEBUE. THE FLIGHT HAD OVERFLOWN KIANA DUE TO UNPLOWED RUNWAY CONDITIONS, AND WAS PROCEEDING TO SELAWIK WHEN IT CRASHED INTO SHELLY MOUNTAIN. ACCORDING TO THE RESCUE PERSONNEL, THE MOUNTAIN TOPS IN THE AREA OF THE ACCIDENT WERE OBSCURED BY SNOW, FOG AND CLOUDS. THE TERRAIN WAS COVERED WITH SNOW. THE PILOT HAD A PREVIOUS ACCIDENT INVOLVING WHITEOUT CONDITIONS WHERE HE FLEW INTO RISING TERRAIN.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT IN COMMAND'S ATTEMPT TO FLY VFR INTO IMC CONDITIONS. FACTORS WERE SNOW, WHITEOUT CONDITIONS, AND MOUNTAINOUS TERRAIN.

Findings

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

Findings

1. (F) WEATHER CONDITION - SNOW
 2. (F) WEATHER CONDITION - FOG
 3. (F) WEATHER CONDITION - CLOUDS
 4. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND
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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: CRUISE - NORMAL

Findings

5. (F) WEATHER CONDITION - WHITEOUT
6. (F) TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On November 8, 1992, at 1820 Alaska standard time, a wheel equipped Cessna 402C airplane, N67941, registered to and operated by Baker Aviation Inc. of Kotzebue, Alaska, crashed into a mountain while en route from Kiana, Alaska, to Selawik, Alaska. The air taxi flight, operating under 14 CFR Part 135, originally departed Kotzebue on a round robin flight with stops at Noorvik, Kiana, Selawik, and returning to Kotzebue. The flight last departed Noorvik and overflew Kiana due to runway conditions. A company visual flight rules flight plan was in effect and visual meteorological conditions prevailed throughout the valleys but the mountaintops were obscured by clouds. The Airline Transport Certificated Pilot and the two passengers were fatally injured and the airplane was destroyed by impact forces.

According to the company, the airplane overflew Kiana due to unplowed runway conditions and was proceeding to Selawik along the winter snowmobile trail. The airplane never reached Selawik and the wreckage was located on November 9, 1992, approximately 3 miles east of the trail on the Selawik 314 degree radial at 17 miles (DME).

INJURIES TO PERSONS

The Pilot in Command and the two passengers received fatal injuries as a result of the impact.

DAMAGE TO AIRCRAFT

The airplane was destroyed by impact forces. There was no evidence of pre or post impact fire.

PERSONNEL INFORMATION

The 40 year old Pilot in Command was the holder of an Airline Transport Pilot Certificate, number 2374079, with an Airplane Multiengine land rating. He also held Commercial Privileges for Airplane Single Engine Land. The Airline Transport Pilot Rating was issued on September 8, 1989. According to the Airmen Certification Branch, Federal Aviation Administration (FAA), Oklahoma City, Oklahoma, the Pilot in Command was also the holder of a Flight Instructor Certificate with Airplane single and Multiengine and Instrument Airplane ratings. The Flight Instructor Certificate was issued on August 21, 1991. The Flight Instructor Certificate was renewed through the Pilot's attendance at a FAA approved Jeppesen Sanderson Flight Instructor Refresher Clinic conducted on July 29, 1991. He was also the holder of a Advanced Ground Instructor Certificate, number 370506755, issued on May 16, 1985, and an Airframe and Powerplant Mechanic Certificate, number 2380750, issued on September 19, 1987.

According to the Aeromedical Certification Division of the FAA, the Pilot in Command was the holder of a First Class FAA Medical Certificate, with no limitations, issued on April 20, 1992. However, according to Baker Aviation pilot records, it contained a photocopy of a First Class FAA Medical Certificate dated November 2, 1992, 6 days prior to the accident.

According to Baker Aviation pilot records, the Pilot was hired on December 14, 1990. The record also shows that as of July 16, 1992, the Pilot in command had a total flight time of 4528 hours with 4394 hours as Pilot in Command. The records show an entry of 0 hours for second in command. He had a total of 1747 hours of multiengine time with 912 hours in the Cessna 402 series. He had a total of 368 hours of instrument time, 131 hours of hood and 237 hours of

actual instrument.

According to the Baker Aviation Crewmember Assignment Record, the Pilot in Command failed a checkride in the Cessna 402 on June 26, 1992. A review of the FAR Part 135 Airman Competency/Proficiency Check Sheet (Checkride Sheet), the Pilot in Command received unsatisfactory marks under the Instrument Procedures section for Holding, ILS Approaches, VOR Approaches, and Missed Approaches. Furthermore, the Check Airman who was administering the checkride to the Pilot in Command, was also being examined by a Federal Aviation Administration (FAA) Flight Standards Inspector. The Check Airman, Victor Olsen, received a satisfactory grade. The records also contained another Checkride Sheet, also dated June 29, 1992, which showed that the Pilot in Command satisfactorily passed all elements of the Checkride. He was reassigned to Pilot in Command duties on June 29, 1992.

The Pilot's records also show that the Pilot in Command received recurrent training in the Cessna 402 airplane on June 26, 1992, however, the record did not show whether the training was before or after the failed checkride. The records further show, under the Baker Aviation Inc. Training Dates and Records Review form, that the Pilot in Command received ground training for the Cessna 402 in the Month of May, 1992, and flight training in the Cessna 402 in the month of June 1992. There was no information indicating whether any of that flight training was before or after the failed checkride.

TOXICOLOGICAL RESULT

Results of the toxicological tests were found to be negative.

AIRCRAFT INFORMATION

The airplane records were examined by John Gamble, FAA Inspector, FSDO 01, Fairbanks, Alaska, and the records were found to show no unusual entries or anomalies. The airplane was last inspected on October 27, 1992 during a 100 hour inspection. The airplane had a total airframe time of 7971.0 hours and had flown 67.1 hours since that inspection. The engines were inspected during the 100 hour inspection. The left engine had a total time of 234.0 hours and the right engine had a total time of 62.6 hours.

METEOROLOGICAL INFORMATION

According to information provided by Baker Aviation through the Duats Weather Information Service, the area synopsis for the Western and Southern Seward Peninsula, the Lower Kobuk Valley and Eastern Norton Sound, called for 1000 to 2000 foot scattered to broken clouds, 3000 to 5000 foot scattered to broken clouds with layers to 24,000 feet with occasional 1000 to 2000 foot overcast conditions with 3 to 5 miles of visibility with light snow, blowing snow and fog. Outlook was for Marginal Visual Flight Rules due to ceilings and snow. It also stated Airmet Sierra was current for IFR conditions and mountain obscuration.

Airmet Sierra stated the following; Airmet Sierra for IFR/Mountain obscuration for St Lawrence Island, Western Norton sound, the Seward Peninsula and Eastern Norton Sound, occasional ceilings at or below 1000 feet and visibilities below 3 miles with light snow and blowing snow. Mountains occasionally obscured in clouds and precipitation.

Further information contained in the area synopsis stated that Sigmet Delta applied for severe conditions. Sigmet Delta 1 stated the following; within an area bounded by the MCG-120 NM NW, the OTZ-120 NM N, the BTT- FYU-60 NM W, ORT-80 NM S, ENN-90 NM W, TKA-MCG...severe turbulence within 3000 feet above ground level especially near rough terrain and

mountain passes is forecast. Low level wind shear possible on leeward side of higher terrain. Conditions continuing and moving eastward after 0250 UTC. The icing condition information was contained in the AIRMET and it called for occasional moderate rime icing below 15,000 feet with occasional moderate mixed icing in clouds and precipitation below 6000 feet.

According to the Alaska State Trooper report, the Flight Service Station advised them that the local weather forecast called for severe turbulence below 5000 feet with low level wind shears and icing in the lower Kobuk Valley. There were no reports of turbulence in the area. Pilots in the area reported light snow and 4 miles of visibility at Kiana. Other reports showed a 2500 foot ceiling and 20 miles of visibility at Noorvik and a 2000 foot ceiling and 20 miles of visibility at Selawik. The report also states that a Army National Guard Blackhawk Helicopter was able to locate an Emergency Locator Beacon but was unable to reach the site due to low clouds and ground fog.

There are no weather official FAA weather reporting facilities at Kiana, Noorvik, or Selawik.

AIDS TO NAVIGATION

The route of flight according to the FAA FSS flight plan information was from Kotzebue to Noorvik, to Kiana, to Selawik and return to Kotzebue. The only navigational aids available along the route of flight were a VOR/DME at Kotzebue, located approximately 56 nautical miles west of the accident site, and a VOR/DME at Selawik, located approximately 18 nautical miles southeast of the accident site. There are no Federal Airways or routes established between Kotzebue, Noorvik, and Kiana. There is a Federal Airway between Selawik and Kotzebue. The airway, Victor 531, has a minimum obstruction clearance altitude of 2500 feet above mean sea level. The airway passes within 14 nautical miles south of the accident site.

WRECKAGE AND IMPACT INFORMATION

The on site investigation, conducted on August 2, 1993, showed that the airplane impacted the side of Shelly mountain at the 1700 foot level on a magnetic bearing of 265 degrees. The initial impact marks showed that the airplane approached the slope at a 30 degree angle across the slope. The shape of the impact mark outlined the left wing, left engine, cabin section, and right engine by deep gouges in the terrain spaced in such a manner that the gouges matched the proximate locations of the engines and fuselage. The wreckage path from the impact marks to the airplane's resting place was strewn with parts from the wings, cabin interior, engine and flight instruments, and propeller blade pieces and hubs. The left side of the impact mark contained pieces of a propeller blade which were identified to have come from the left engine propeller. There were no other visible ground scars or marks between the initial impact mark and the airplane wreckage. The wreckage path was approximately 300 foot in length and was approximately 50 feet below the peak of Shelly Mountain.

The slope of Shelly Mountain in the vicinity of the accident site was measured at 28 degrees downslope. The ground was covered with rocks and gravel which had grass growing sporadically throughout the area. The mountain is above the tree line. At the time of the accident the mountain was covered completely with snow. Examination of the airplane wreckage showed that the left wing, outboard of the engine nacelle was severed from the airplane and pieces were scattered along the wreckage path. The left engine and associated inboard portion of the left wing remained attached to the fuselage but severely distorted. The left engine was draped over the top of the fuselage and came to rest on the right side of the wreckage. The entire right wing remained attached to the fuselage, however, also severely

distorted. The right engine remained on the right side of the wreckage but was separated from the engine nacelle. The main airplane wreckage was resting on a heading of 070 degrees. The cockpit was destroyed by impact forces and the main cabin was collapsed and bent. The main structure of the cabin was shredded away to a point approximately 5 feet forward of the leading edge of the horizontal stabilizer. The vertical fin was not damaged. The rudder was wrinkled in the vicinity of the upper hinge attachment. The outboard 2 feet of the right horizontal stabilizer and elevator were bent upward at approximately 5 degrees. The left horizontal stabilizer and elevator were unremarkable. The elevator trim tab was found to be 5 degrees down. The rudder trim and aileron trim were unreliable due to cable separation and damage. All flight control surfaces were found at the wreckage site. The right aileron was found downslope from the wreckage. However, the area had been subjected to high winds during various periods before the on site investigation was accomplished.

All propeller blades were found at the accident site and the blades had score marks across the chord of the blade and along its span. The blades were missing large chunks of metal from the tips and leading edges of the blades. Both propeller hubs separated from the engines and the blades of the left engine propeller separated from the hub.

According to Scott Boyle, a Factory Representative of Continental engines, there was no visible mechanical reason for the engines to not produce power. However, the magnetos on both engines had been removed by unknown persons and the spark plug wires were clipped. Examination of the vacuum pump on the right engine showed that the driving shaft for the vacuum pump was not severed.

The instrument panel could not be found except for pieces of panel and instrumentation scattered along the wreckage path. The HSI (Horizontal Situation Indicator) and the RMI (Radio Magnetic Indicator) were located and both instruments showed a heading indication of 255 and 253 respectfully.

Due to the amount of damage flight control continuity could not be established.

TEST AND RESEARCH

According to National Transportation Safety Board records, the Pilot in Command was involved in a previous accident, while employed by Baker Aviation Inc., on February 10, 1991, near Kivalina, Alaska. Information from the narrative of the Preliminary report shows that the Pilot in Command was operating a Cessna 207 under 14 CFR Part 135, on a scheduled passenger flight. He crashed into a mountain at the 600 foot level, in whiteout conditions, 25 miles southeast of Kivalina, Alaska. The weather, reported by the Pilot in Command, was 500 foot obscured with 1/2 mile of visibility with snow.

According to John Baker, General Manager of Baker Aviation, they had recently suspended the Pilot in Command for exercising poor judgement. John Baker stated they considered termination the pilot, however, they elected to retrain him. The pilot records do not show any suspension or retraining due to an adverse action except the recheck of the 14 CFR Part 135 check ride on June 26, 1992, already mentioned in the Personnel Information Section.

The Pilot records show that the Pilot in Command was on vacation from November 1 to November 7, 1992. The accident occurred on November 8, 1992.

A review of the Baker Aviation Company training manual, dated October 1, 1992, shows the following information;

1. Categories of Training

Initial new-hire - for newly hired personnel.

Initial equipment training - for individuals previously trained and qualified but are being reassigned.

Transition Training - for individuals previously trained and qualified but are being reassigned to the same duty position on a different aircraft.

Upgrade Training - for individuals previously trained and qualified in a duty position and are being reassigned to another duty position for which they were not previously trained or qualified.

Recurrent Training - for individuals previously trained and qualified and will continue to serve in the same capacity.

Requalification Training - for individuals previously trained and qualified but have become unqualified during the eligibility period.

2. Under the curriculum for initial new hire pilot in command for all aircraft, it is a requirement to complete the basic indoctrination training segment, aircraft ground segment, and general emergency segment.

Other segments are required, however, these are the only segments that address meteorology.

3. Under the Basic Indoctrination, Meteorology section, various aspects of weather is covered to include "Procedures for recognizing and avoiding severe weather."

There is no mention of whiteout conditions nor is there any mention of mountain operation and/or mountain operation in adverse weather.

4. Under the curriculum for General Emergency, there is no mention whatsoever of inadvertent flight into instrument meteorological conditions nor is there any section describing emergencies in mountainous terrain.

5. Under the curriculum for Aircraft Ground, there is a section on "Adverse Weather Practices." This area has a section on low visibility. However, there is no mention again of any low visibility operation in a mountainous environment.

According to the Pilot's records, he received initial training for the Cessna 402 on June 18, 1991. The records further show completion of initial training for the Cessna 207, dated December 26, 1990 and the Cessna 206, dated March 6, 1991.

The Pilot in Command received recurrent training in the Cessna 402 on June 26, 1992.

Examination of the Baker Aviation Company Operations Manual, dated August 21, 1989, page 2-3 it states that "Company aircraft will not be operated into known or forecast adverse weather (including icing), which will exceed aircraft limitation as given in the Aircraft Flight Manual...."

Page 2-17 of the Company Operations Manual states "Baker Aviation, Inc.'s policy is that we do NOT, take chances of any kind. This operation shall be very conservative and low key with an emphasis on SAFETY. We do not push weather in any manner...."

There was no mention of mountain operations or encounters with whiteout conditions or inadvertent IMC procedures in the Company Operations Manual.

Pilot Information

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|----------------------------------|--|--|----------------------------|
| Certificate: | Airline Transport; Flight Instructor; Commercial | Age: | 40, 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 1 Valid Medical--no waivers/lim. | Last FAA Medical Exam: | 11/02/1992 |
| Occupational Pilot: | | Last Flight Review or Equivalent: | |
| Flight Time: | 4528 hours (Total, all aircraft), 915 hours (Total, this make and model), 4394 hours (Pilot In Command, all aircraft), 1 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|--|---------------------------------------|----------------------------|
| Aircraft Make: | CESSNA | Registration: | N67941 |
| Model/Series: | 402C 402C | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | No |
| Airworthiness Certificate: | Normal | Serial Number: | 402C0633 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 10 |
| Date/Type of Last Inspection: | 10/27/1992, 100 Hour | Certified Max Gross Wt.: | 6850 lbs |
| Time Since Last Inspection: | 67 Hours | Engines: | 2 Reciprocating |
| Airframe Total Time: | 7971 Hours | Engine Manufacturer: | CONTINENTAL |
| ELT: | Installed, activated, aided in locating accident | Engine Model/Series: | TSIO-520-VB |
| Registered Owner: | BAKER AVIATION INC. | Rated Power: | 325 hp |
| Operator: | BAKER AVIATION INC. | Operating Certificate(s) Held: | Commuter Air Carrier (135) |
| Operator Does Business As: | | Operator Designator Code: | BAJA |

Meteorological Information and Flight Plan

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|----------------------------------|------------------------|---|------------------|
| Conditions at Accident Site: | Instrument Conditions | Condition of Light: | Dusk |
| Observation Facility, Elevation: | , 0 ft msl | Distance from Accident Site: | 0 Nautical Miles |
| Observation Time: | 0000 | Direction from Accident Site: | 0° |
| Lowest Cloud Condition: | Unknown / 2000 ft agl | Visibility | 4 Miles |
| Lowest Ceiling: | Obscured / 2000 ft agl | Visibility (RVR): | 0 ft |
| Wind Speed/Gusts: | / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | | Temperature/Dew Point: | -7° C / -18° C |
| Precipitation and Obscuration: | | | |
| Departure Point: | NOORVIK, AK (ORV) | Type of Flight Plan Filed: | Company VFR |
| Destination: | SELAWIK, AK (WLK) | Type of Clearance: | None |
| Departure Time: | 1743 AST | Type of Airspace: | Class G |

Wreckage and Impact Information

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|---------------------|---------|----------------------|-----------|
| Crew Injuries: | 1 Fatal | Aircraft Damage: | Destroyed |
| Passenger Injuries: | 2 Fatal | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 3 Fatal | Latitude, Longitude: | |

Administrative Information

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|-----------------------------------|---|--------------|------------|
| Investigator In Charge (IIC): | GEORGE KOBELNYK | Report Date: | 05/26/1994 |
| Additional Participating Persons: | LARRY WILLIAMS; KOTZEBUE, AK JOHN GAMBLE; FAIRBANKS, AK LARRY SMITH; WASHINGTON, DC BRIAN FINNEGAN; WICHITA, KS | | |
| 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 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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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](#).