# National Transportation Safety Board
# Aviation Accident Final Report

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| **Location:** | WISE RIVER, MT | **Accident Number:** | SEA96FA209 |
| **Date & Time:** | 09/05/1996, 1157 MDT | **Registration:** | N128RP |
| **Aircraft:** | Cessna 340A | **Aircraft Damage:** | Destroyed |
| **Defining Event:** | | **Injuries:** | 1 Fatal |
| **Flight Conducted Under:** | Part 91: General Aviation - Personal | | |

## Analysis

The pilot received a full weather briefing from a Flight Service Station (FSS) on the morning of the accident. The FSS briefer told the pilot that moderate turbulence and icing prevailed along the pilot's intended route of flight, and that there were forecasts for isolated thundershowers. The briefer advised the pilot to call for an update just prior to departure. The pilot departed on the flight almost 3 hours later without calling for an update. He received an IFR clearance after 15 minutes of delays, then proceeded on course to his destination. About 35 minutes after departure, while cruising at 16,000 feet, the pilot reported that he was 'in the clouds and the bumps are big time.' About 3 minutes later, the pilot radioed that he was 'in a dive and I don't...' The airplane impacted terrain in a nose-down, inverted attitude and exploded. Analysis of recorded radar and meteorological data indicates that the airplane encountered a thunderstorm, strong updrafts, downdrafts, and turbulence.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's attempt to fly in adverse meteorological conditions which led a loss of aircraft control. Factors contributing to the accident include: the pilot's failure to obtain the most current information of the meteorological conditions prior to departure, a thunderstorm, and turbulence.

## Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CLIMB - TO CRUISE

Findings
1. (F) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
2. (F) WEATHER CONDITION - TURBULENCE(THUNDERSTORMS)
3. (F) WEATHER CONDITION - ICING CONDITIONS
4. (C) FLIGHT INTO ADVERSE WEATHER - ATTEMPTED - PILOT IN COMMAND
5. (C) AIRCRAFT CONTROL - UNCONTROLLED - PILOT IN COMMAND
6. (C) SPATIAL DISORIENTATION - PILOT IN COMMAND
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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

## Factual Information

HISTORY OF FLIGHT

On September 5, 1996, at 1157 mountain daylight time, N128RP, a Cessna 340A, operated by the owner/pilot, collided with terrain near Wise River, Montana, and was destroyed during an uncontrolled descent. The uncontrolled descent was precipitated by a loss of control during a climb to cruise. The commercial pilot, the sole occupant, was fatally injured. There was a ground fire. Instrument meteorological conditions (IMC) prevailed and an instrument flight rules (IFR) flight plan had been filed. The personal flight departed from Butte, Montana, at 1117 and was en route to McCall, Idaho. The flight was conducted under 14 CFR 91.

An acquaintance of the pilot (statement attached) stated that she flew with the pilot as a passenger from McCall, Idaho, to Butte, Montana, one day before the accident. The pilot had just purchased a home in McCall and the airplane was based there. The acquaintance stated that the pilot stayed overnight at her home in the Butte area. She stated that he "felt fine" and "got a good night's sleep." She also stated that he did not indicate that he was having any problems with himself or the airplane on the evening prior to, or morning of, the accident. On the morning of the accident, the pilot woke up, collected his fishing equipment, and left for the Butte Airport. This was the last time that she saw or heard from the pilot.

According to voice communications recorded by the Federal Aviation Administration's (FAA) Great Falls Automated Flight Service Station (AFSS), Great Falls, Montana, a person identifying himself as the pilot of N128RP telephoned the AFSS at 0825 on the morning of the accident to receive a weather briefing. The telephone conversation was 10 minutes in length, and concluded with the pilot filing an IFR flight plan. The pilot asked the FSS briefer: "... tell me what I'm going to run into..." and he told the briefer that he was planning to depart from Butte at 1000 and fly to McCall.

The briefer began to describe the overall weather conditions affecting the pilot's proposed route of flight. The briefer stated that the pilot "... may see some mountain obscuration," and "...occasional to moderate turbulence up to [30,000 feet]." He also told the pilot that "... from Butte all the way over, you'll be in an area of occasional moderate rime or mixed icing... between the 7,000 foot level and [18,000 feet]."

The briefer further discussed that radar showed a "... line of showers to the west of you that runs from McCall northeastward, north of Salmon through the Missoula-Kalispell area, and those areas of showers will be moving eastward... so, right now, heading down to McCall you may not get into too many showers." The pilot acknowledged this and asked about "... the current word on the [cloud] tops." The briefer read the pilot two pilot reports (PIREPs). One of them indicated that a pilot flying from Billings to Helena, Montana, in an "AC12" reported the base of the clouds at 8,300 feet with "occasional light chop." The other PIREP, reported by a pilot flying a Cessna 310 at 11,000 feet and 22 miles west of Helena, reported "moderate rime ice." The briefer then stated "... there is ice in that stuff," and the pilot responded with "yea."

The briefer then provided an outlook for the pilot's intended route of flight. The outlook for the central Idaho area called for "...widely scattered light rain showers with isolated thundershowers. Tops of the thundershowers at [38,000 feet]. Now I'm not showing any thundershowers, at least nothing that's... very big." The briefer then described more favorable

weather conditions in southern Idaho and for Boise, Idaho, after 1100. The pilot replied: "So it's clearing." The briefer responded with "Yes, but before you go, I'd call and get an update." The pilot responded with "right."

The briefer then concluded the briefing and said "... got the mountain obscuration that would be mostly north of you... we know about the ice... that's about what we're looking at." The pilot acknowledged and filed an IFR flight plan from Butte to McCall. He reported that he had five hours of fuel on board, and that his flight time was scheduled to be one hour and ten minutes.

According to radar data and voice communications (data and transcripts attached) recorded by the FAA Air Route Traffic Control Center (ARTCC) in Salt Lake City, Utah, the pilot of the accident airplane initiated contact with the ARTCC at 1120:57, after having just departed from Butte. This contact was initiated 2 hours and 46 minutes after receiving his first and only weather briefing. The ARTCC instructed the pilot to "... maintain a position VFR, expect an IFR clearance in five minutes."

At 1122:31, the ARTCC informed the pilot that there was a "regional jet" in the area, and another aircraft executing a precision approach into Butte. The pilot stated "...I'll stay below the clouds below him." At 1125:47, the ARTCC informed the pilot that another aircraft was executing a non-precision approach into Butte and "as soon as he's clear you can expect a clearance." The accident pilot acknowledged. At 1129:34, the ARTCC asked the pilot where the base of the clouds were. The pilot said that they were "...right at [7,600 feet]." The ARTCC replied with "Roger. You may want to monitor unicom and see if you can talk to this sky west regional coming inbound...." At 1132:27, the ARTCC informed the pilot to "...expect an additional five minute delay as I get an altitude that clears you from the sky west...."

At 1135:16, the pilot received an IFR clearance from the ARTCC to climb to 13,000 feet above mean sea level (msl). At 1142:41, the pilot reported that he was over the Coppertown VOR at 13,000 feet and was turning southwest bound to intercept his course to McCall. At 1147:08, the pilot was cleared to his proposed cruising altitude of 16,000 feet msl. The airplane arrived at 16,000 feet msl about 1150:00.

At 1154:00, the pilot radioed to the ARTCC that he was "... in the clouds and the bumps are big time..." and he requested clearance for a climb to 18,000 feet msl. The ARTCC controller cleared the airplane to a block altitude from 17,000 feet msl to 19,000 feet msl. The pilot acknowledged, initiated a climb, and stated that the turbulence was "moderate, sometimes worse."

At 1156:52, the pilot radioed that he was at 17,000 feet and "... having a problem." The ARTCC controller said "go ahead," and the pilot radioed: "Romeo pappa is in a dive and I don't...." This was the pilot's last transmission, despite several attempts from the ARTCC to hail the pilot. The airplane disappeared from radar 38 seconds later.

According to a Recorded Radar Study (report attached) performed by the Safety Board's Office of Research and Engineering, the airplane was cruising at 16,000 feet msl at the time the pilot radioed that he was "... in the clouds and the bumps are big time...." During the previous 30 seconds to this radio call, the airplane's indicated airspeed had decreased from 192.8 knots to 139.7 knots, while its heading and altitude remained constant. One minute and 17 seconds later, as the pilot was describing the turbulence as "moderate, sometimes worse," the airplane had slowed to 99.1 knots.

During the subsequent 60 seconds, the airplane's track angle abruptly changed from 260 degrees to 115 degrees, and it began a 4,000 foot-per-minute descent. The airplane descended from 17,300 feet msl to 15,900 feet msl. The airplane then climbed back up to 17,300 feet msl in 20 seconds, then descended to 15,500 feet msl nine seconds later. The calculated indicated airspeed fluctuated from a high of 155 knots to a low of 92 knots during this time period.

At this point in time, at 1157:02, the pilot stated that he was "in a dive...." The airplane was then observed to climb from 15,500 feet to 16,300 feet msl in 19 seconds, then plummeted at a rate of 3,000 feet per minute to 13,600 feet msl, then climbed back up to 15,300 feet msl ten seconds later. The last recorded radar hit occurred at 1157:50 as the airplane was flying through 15,300 feet at a track angle of 42.7 degrees. The airplane's calculated indicated airspeed never decreased below 92 knots.

The airplane was found in mountainous terrain at an elevation of about 8,500 feet msl. The accident site was two nautical miles due north of the last recorded radar hit. The accident occurred during daylight conditions at the following coordinates: North 45 degrees, 45.06 minutes; West 113 degrees, 11.19 minutes.

AIRCRAFT INFORMATION

The accident airplane, a Cessna model 340A, was manufactured in 1976. It was powered by two 310-horsepower Continental turbocharged, propeller-driven engines, had a maximum gross takeoff weight of 5,990 pounds, and could be pressurized. The airplane was purchased and registered by the pilot/owner in February of 1996. According to records (attached) from the airplane's previous owner, the airplane was equipped with full de-ice boots, hot propellers, alcohol de-ice windshield, coupled autopilot, and storm scope. As of the end of 1995, the airframe had accumulated a total 1,452 hours of flight time, and both engines had accumulated 92 hours of operating time since a factory overhaul.

The aircraft maintenance records were not recovered and were presumed to have been destroyed in the accident. The Safety Board collected and examined copies of maintenance work orders (attached) for the aircraft that were obtained from Butte Aviation, Inc., a fixed based operator who would frequently provide maintenance services to the pilot. One work order, dated July 2, 1996, indicated that the oil and oil filters from both engines were changed. The work order also stated: "Checked de ice system for moisture...none found" and "Found holes in [wing de-ice] boots and patched. [Operationally] checked good." The most recent work order, dated August 23, 1996, indicated that the left engine had undergone maintenance to replace a turbocharger waste gate controller. The work order stated that the engine was functionally checked after the maintenance with no unresolved discrepancies.

According to employees at the FBO in Butte, the accident airplane had it's main (tip) fuel tanks "topped off" with 100 low lead aviation fuel about 1430 on the day previous to the accident.

PERSONNEL INFORMATION

The pilot, age 56, held an FAA commercial pilot certificate with ratings for airplane single-engine land, airplane multiengine land, and instrument airplane. The pilot's personal flight log books were not recovered.

According to an aircraft salesman (statement attached), the salesman sold the pilot the accident airplane in early 1996. He stated that the accident pilot "walked in a year ago to buy

and airplane." The pilot told the salesman that he had not flown in "6 or 7 years," and he had previously owned a Beech Bonanza and a Beech Baron. The salesman further stated that he told the pilot to "get a physical and a biennial [flight review]" before buying the airplane. The accident pilot complied with the request; he produced an FAA medical certificate and an endorsement from a flight review that was conducted in a Piper Warrior.

After purchasing the airplane, the salesman flew with the accident pilot for "about 12 hours" in it. He stated that the accident pilot probably flew another 40 hours without him, before flying the airplane to Idaho. The salesman felt the pilot was competent to fly the airplane, and that the pilot stated that he desired owning a turboprop airplane.

According to FAA records, the pilot was last issued an FAA Second Class Medical Certificate on October 16, 1980; however, the aircraft salesman and female acquaintance stated that the pilot had recently received a current medical certificate in December of 1995. The Safety Board interviewed the FAA designated Aviation Medical Examiner (AME) who gave the accident pilot his last FAA medical certificate. According to the AME (statement attached), the pilot had successfully passed the medical examination and received an FAA Third Class Medical Certificate on December 11, 1995.

The AME further stated that the exam was "normal," and the results were "transmitted out" to the FAA in Oklahoma City immediately after the exam. The AME also reported that the pilot weighed 214 pounds and had 20/70 vision that was correctable to 20/20. The FAA stated that they had not received this data. The AME further stated that the pilot wrote on his medical application that he had 2,500 hours of total flight time.

The pilot's female acquaintance stated that the pilot had not flown "in the last 10 years" except during the months that immediately preceded the accident, after he had purchased the accident airplane. She flew with the pilot on several occasions during those months. She stated that the pilot would typically fly "only in good weather," and that he was familiar with the use of the color weather radar that was installed on the airplane. She said the pilot "avoided bad weather or flew around it." She further stated that the pilot would "use the autopilot on long trips."

METEOROLOGICAL INFORMATION

The Safety Board visited the National Weather Service (NWS) station located at the departure airport in Butte and examined the handwritten meteorological surface observations for the times nearest to the time of the accident. The site of the NWS station is 34 miles west-southwest of the accident site. The following was reported:

TIME: 1154 (3 minutes prior to the accident): Surface winds: 300 degrees true at 10 knots Visibility: 20 statute miles; light rain Sky conditions: 2,400 feet broken (7,940 feet msl); 4,500 feet broken (10,040 msl) Temperature: 50 degrees F; dewpoint 46 degrees F Altimeter: 29.80 inches Hg Remarks: Rain began 11 minutes past the hour. Surface level pressure of 62 millibars. Three-tenths of an inch of rain fell since 11 minutes past the hour. Total sky coverage of eight-tenths.

TIME: 1239 (42 minutes after the accident): Surface winds: 310 degrees true at 15 knots Visibility: 15 statute miles; thunderstorm and light rain showers Sky conditions: 2,500 feet broken (8,040 feet msl); 5,000 feet broken (10,540 msl) Temperature: 46 degrees F; dewpoint 43 degrees F Altimeter: 29.82 inches Hg Remarks: Occasional lightning in clouds. Thunderstorm began 37 minutes after the hour - overhead moving northeast.

According to a Meteorological Factual Report (report attached) performed by the Safety Board's National Resource Specialist in Meteorology, the following AIRMETs were in effect at the time and location of the accident:

AIRMET Zulu Update 3 for Ice and Freezing Level. Issued September 5 at 1345Z and valid until September 5 at 2000Z Occasional moderate rime or mixed icing in clouds and in precipitation between 7,000 feet and Flight Level 18,000 feet [FL180].

Freezing Level .. 7,000 to 10,000 feet for an area that included the accident location

AIRMET Tango Update 2 for Turbulence. Issued September 5 at 1345Z and valid until September 5 at 2000Z.

The report also states that there were no SIGMETs, convective SIGMETs, or Center Weather Advisories in effect for the time and location of the accident. The report also presents data from an Archive Level II Doppler weather radar tape from the Missoula, Montana (designated as KMSX) WSR-88D Doppler weather radar. According to the report:

Looping of KMSX images for KMSX times of [1123:39] and [1204:32] showed weather echoes varying in intensity and moving to the northeast in the area of the accident. At a KMSX time of [1147:00] a maximum weather echo intensity of 46 to 50 dBZ (very strong to intense) was seen west within 10 kilometer of the accident site [0.4 degree elevation scan]. At a KMSX time of [1152:50] a maximum weather echo intensity of 41 to 45 dBZ (strong to very strong) was seen west within 5 kilometers of the accident site [0.4 degree elevation scan]. At a KMSX time of [1158:40] a maximum weather echo intensity of 36 to 40 dBZ (moderate to strong) was seen north within 10 kilometers of the accident site [0.4 degree elevation scan].

According to a ground witness (statement attached) who was about 6 miles from the accident site, a snow storm "hit fast" and consisted of "wet, heavy snow" at the time of the accident. The witness stated that the snow was accompanied by "very windy" conditions and "extreme gusts." She observed that there were about 2 inches of snow on the ground immediately after the storm, and that the ground had been bare prior to the storm. She further stated that the weather was "nice" just prior to the storm, and that it had been "cloudy and cold" with temperatures near freezing.

WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was examined at the accident site by the Safety Board on September 7, 1996. The airplane came to rest on gently sloped, wooded terrain. One tree, measuring 10 inches in diameter and located about six feet from the left wing, had been freshly sheared at a height of about 20 feet above the ground. None of the other surrounding trees were damaged. The entire wreckage exhibited evidence of a ground fire. An area of scorched terrain just to the north of the wreckage was found; this area was measured to be about 50 feet in length and width.

The entire airframe was found embedded into the ground in a nose-down attitude. The right wing and engine were more deeply embedded into the ground than the left wing and engine. Evidence of uniform "accordion" aftward crush damage was found along the leading

edges of both wings. The magnetic bearing of a line perpendicular to, and leading forward of, the leading edges of the wings was measured to be 355 degrees.

Two craters, measuring about two feet in depth, were found on either side of each wing. The crater at the end of the right wing measured six feet in width and eight feet in length. Remnants of the right main fuel tip tank were found in this crater. The crater at the end of the left wing measured four feet in width and seven feet in length. Remnants of the left main fuel tip tank were found in this crater. The distance measured between the two craters was similar in length to the wingspan of a Cessna 340A.

Both engines were found between the two craters and were partially embedded into the ground. An external examination of each engine did not reveal any evidence of preimpact catastrophic mechanical malfunction. Both engines exhibited post-crash fire and impact damage, and their respective propellers were not attached.

The propellers were found buried about two feet into the ground underneath each engine, and were extracted with shovels. Each propeller was a three-bladed, Hartzell metal propeller with "Q" tips. All of the propeller blades exhibited leading edge damage, chordwise scratching, and "S" bending.

No evidence of an in-flight fire, in-flight explosion, or in-flight structural failure was found. All primary and secondary flight control surfaces were accounted for at the accident site. No evidence was found to indicate a flight control deficiency. Continuity of the flight controls could not be verified due to fire and impact damage. An examination of the electrically-driven chain-and-sprocket flap mechanism revealed that the flaps were in the fully retracted position. An examination of the electrically-driven landing gear transmission and actuating arms revealed that the landing gear was in the fully retracted position. The entire cockpit and cabin area, including all controls, switches, instruments, and gages, were destroyed by impact forces and ground fire damage.

## MEDICAL AND PATHOLOGICAL INFORMATION

According to Dr. Ken Brunkhorst, M.D., of the Beaverhead County Corner, no autopsy or toxicology could be performed on the pilot because suitable specimens were not found in the wreckage.

## ADDITIONAL INFORMATION

The entire aircraft wreckage was released to Mr. Ted Green, AIG Aviation Insurance Services, Los Angeles, California, on September 13, 1996. Mr. Green was representing the registered owner of the airplane at the time of the release.

## Pilot Information

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| **Certificate:** | Commercial | **Age:** | 56, 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):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 3 Valid Medical--w/ waivers/lim. | **Last FAA Medical Exam:** | 12/11/1995 |
| **Occupational Pilot:** | | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 2500 hours (Total, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Cessna | **Registration:** | N128RP |
| **Model/Series:** | 340A 340A | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | No |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 340A0084 |
| **Landing Gear Type:** | Retractable - Tricycle | **Seats:** | 6 |
| **Date/Type of Last Inspection:** | 02/01/1996, Annual | **Certified Max Gross Wt.:** | 5990 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 2 Reciprocating |
| **Airframe Total Time:** | 1500 Hours | **Engine Manufacturer:** | Continental |
| **ELT:** | Installed, not activated | **Engine Model/Series:** | TSIO-520 |
| **Registered Owner:** | O KEEFE, MICHAEL A. | **Rated Power:** | 310 hp |
| **Operator:** | O KEEFE, MICHAEL A. | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Instrument Conditions | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | BTM, 5545 ft msl | **Distance from Accident Site:** | 32 Nautical Miles |
| **Observation Time:** | 1154 MDT | **Direction from Accident Site:** | 40° |
| **Lowest Cloud Condition:** | Unknown / 0 ft agl | **Visibility** | 20 Miles |
| **Lowest Ceiling:** | Broken / 2400 ft agl | **Visibility (RVR):** | 0 ft |
| **Wind Speed/Gusts:** | 10 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 284° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 29 inches Hg | **Temperature/Dew Point:** | 10°C / 8°C |
| **Precipitation and Obscuration:** | | | |
| **Departure Point:** | BUTTE, MT (BTM) | **Type of Flight Plan Filed:** | IFR |
| **Destination:** | MCCALL, ID (MYL) | **Type of Clearance:** | IFR |
| **Departure Time:** | 1120 MDT | **Type of Airspace:** | Class A |

## Wreckage and Impact Information

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| **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

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| **Investigator In Charge (IIC):** | JEFFREY B GUZZETTI | **Report Date:** | 03/31/1998 |
| **Additional Participating Persons:** | DON PAUL; HELENA, MT<br>SCOTT BOYLE; ARVADA, CO<br>STEVE WILSON; WICHITA, KS | | |
| **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.ntsb.gov/pubdms/. | | |