



Aviation Investigation Final Report

Location:	Manzanola, Colorado	Accident Number:	DEN07FA045
Date & Time:	January 5, 2007, 06:56 Local	Registration:	N8231D
Aircraft:	Piper PA-34-200T	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Approximately 15 minutes after departure, the airplane encountered instrument meteorological conditions (IMC); and subsequently, the non-instrument rated private pilot lost control of the airplane and impacted snow-covered terrain. Prior to the cross-country flight, the pilot obtained three standard weather briefings, of which two were obtained on the previous day and one on the morning of the accident. The briefings included instrument flight rules (IFR) conditions along the planned route of flight. According to the briefing conversation and a statement from a friend, the pilot intended to land the airplane prior to his destination if the weather conditions were not visual flight rules (VFR). The pilot would then "wait it out" until the weather conditions improved. In addition, the pilot informed the weather briefer that "I have to be in Houston [Texas] by 7 o'clock" on the day of the accident. According to radar data, the airplane departed from the airport and was traveling on a southeasterly heading. For the first 15 minutes of the flight, the airplane maintained a level altitude and a consistent heading. For the last minute of the flight, the airplane entered a descent of 2,500 feet per minute, a climb of 3,000 fpm, and a 1,300 fpm descent, and the airplane's heading varied in several degrees. The airplane impacted the terrain in a right wing low, nose-down attitude. No anomalies were noted with the airframe and engines.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain control of the airplane after an inadvertent encounter with instrument meteorological conditions resulting in the subsequent impact with terrain. Contributing factors were the pilot's inadequate preflight planning, self-induced pressure to conduct the flight, and poor judgment.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: MANEUVERING

Findings

1. (F) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
2. (F) SELF-INDUCED PRESSURE - PILOT IN COMMAND
3. (F) JUDGMENT - POOR - PILOT IN COMMAND
4. (C) FLIGHT INTO ADVERSE WEATHER - INADVERTENT - PILOT IN COMMAND
5. WEATHER CONDITION - CLOUDS

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings

6. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

7. TERRAIN CONDITION - SNOW COVERED

Factual Information

HISTORY OF FLIGHT

On January 5, 2007, at 0656 mountain standard time, a Piper PA-34-200T twin-engine airplane, N8231D, was destroyed when it impacted terrain following a loss of control while maneuvering near Manzanola, Colorado. The private pilot, who was the sole occupant and registered owner of the airplane, was fatally injured. Instrument meteorological conditions prevailed, and a flight plan was not filed for the Title 14 Code of Federal Regulations Part 91 personal flight. The flight departed the Pueblo Memorial Airport (PUB), Pueblo, Colorado, at 0641, and was destined for Tyler Pounds Regional Airport (TYR) Tyler, Texas.

On January 4, 2007, at 1725, the pilot contacted the Great Falls Automated Flight Service Station (AFSS), Great Falls, Montana, to obtain a standard weather briefing for a visual flight rules (VFR) flight from PUB to TYR with a planned departure time of 1900. During the 19-minute briefing, the briefer informed the pilot of the weather conditions along his planned route of flight which included an Airmen's Meteorological Information (AIRMET) for moderate icing that was in effect for the Pueblo area and instrument meteorological conditions (IMC) were present in the Tyler, Texas, area. The pilot then inquired to the briefer when a storm was expected in the Pueblo area. The briefer responded, "...actually expected to move in through the Denver area sometime this evening starting around 8 to 10 o'clock. It looks like Pueblo's not expecting theirs until morning. Right now, they're not expecting any, uh, snow developing until morning in Pueblo." After several minutes of discussion concerning weather around Texas and Oklahoma, the pilot stated, "Well, it looks like I'm just going to have to go part way and sleep somewhere." Prior to ending the conversation, the pilot stated, "...ultimately I have to be in Houston [Texas] before 7 o'clock tomorrow night..."

On January 4th, at 1842, the pilot contacted the Great Falls AFSS to obtain a standard weather briefing for a VFR flight from PUB to TYR with a planned departure time between 0400 and 0600 on January 5th. During the 7-minute briefing, the briefer informed the pilot of the weather conditions along his planned route of flight. The briefer inquired what time did the pilot want to leave, and the pilot responded, "...I want to beat the weather in Colorado, so." The briefing included instrument flight rules (IFR) weather for the TYR area in the morning and improving throughout the day. The pilot then stated, "Looks like the longer I can wait, the better." The briefer responded, "...as far as the Texas stuff, yeah, but don't dilly dally getting out of Pueblo you know." At the end of the briefing, the briefer informed the pilot that at 0500 on January 5th, new terminal forecasts would be available for his planned route of flight.

On January 5th, at 0452, the pilot contacted the Great Falls AFSS to obtain a standard weather briefing for a VFR flight from PUB to TYR with a planned departure time of approximately 0530. During the 17-minute briefing, the briefer informed the pilot of the weather conditions along his

planned route of flight. The briefing included IFR conditions in the Colorado Springs, Colorado area (located approximately 30 nautical miles north of PUB) that were moving south, moderate icing condition for the state of Colorado, low ceilings and visibility along the planned route of flight. The pilot inquired about the conditions in Houston and asked, "What is uh Houston looking like cause I gotta go to Houston by seven tonight." The briefer informed the pilot that the terminal forecast for a local Houston airport was to expect high cirrus clouds, a broken cloud ceiling at 500 feet, 5 miles visibility, and fog moving into the area. During the call at 0505, the briefer informed the pilot about updated weather conditions in the Colorado area and the pilot responded, "so I've got a, I've got a little tunnel there that looks decent right now...from what that will tell me I've got a, I've got a open shot over the butte." The pilot then asked, "...I guess my question would be is where does it look like I can set down for?" The briefer responded, "Basically anywhere in the Texas panhandle, anywhere in western Kansas..." The conversation ended with the briefer informing the pilot of the weather conditions for the Liberal, Kansas, and Dalhart, Texas, airports, temporary flight restrictions (TFRs) and the Notices to Airmen (NOTAMs).

According to PUB air traffic control tower (ATCT) communications, prior to departure, the pilot informed the PUB ATCT controller that he was en route to Tyler, Texas. The ATCT controller then inquired whether the pilot would like flight following for the flight. The pilot at first responded, no; however, then responded, "why don't you go ahead and give me flight following 'til I get out of this weather, although I can't climb too high, so I don't know if they will be able to pick me up." The controller instructed the pilot to squawk transponder code 0346 and reported the current weather conditions as "2,000 overcast, visibility 10." The pilot responded, "I figured I'd get out of here before the weather set in."

At 0640, the pilot was cleared for takeoff from runway 8L at PUB. At 0644, the pilot stated, "I'm just at 6,700 and I'm just coming to the bottom of the clouds and I'm going to descend a little bit and proceed on course." The controller acknowledged the transmission. The pilot then stated, "Actually, it looks like it is kinda broken and scattered down here, it looks like the ceiling is a little bit higher than this." At 0648, the pilot asked the controller, "Pueblo, you still with me?" The controller acknowledged. At 0649, the controller stated, "Seneca 231D, 20 miles southwest of Pueblo. Radar services terminated, squawk 1200, frequency change approved. Have a good flight." The pilot acknowledged the transmission. No further communications were received by ATCT from the pilot.

According to radar data, the airplane departed from PUB and was traveling on a southeasterly heading. Between 0649 and 0655, the airplane maintained an altitude of 6,000 feet on headings between 116 and 138 degrees. At 0655:20, the airplane's ground speed was 133 knots on a heading of 084 degrees. At 0655:29, the radar targets revealed the airplane entered a descent of approximately 2,500 feet per minute (fpm) and a turn to a heading of 342 degrees. At 0655:48, the airplane then entered a 3,000 fpm climb and a turn to a heading of 286 degrees. At 0655:58, the airplane's ground speed was 108 knots with a 1,200 fpm climb on a heading of 307 degrees. At 0656:08, the airplane entered a 1,300 fpm descent and subsequently, radar contact was lost.

A friend of the pilot, who was interviewed by the NTSB investigator-in-charge, stated that the pilot was flying to Texas to visit her. She stated the pilot planned on leaving the previous day; however, because he was not instrument rated, he decided to wait. At 0523 on the morning of the accident, the friend received a phone call from the pilot and he stated he was planning to leave in 30 minutes. The pilot mentioned to her that he checked the weather at 0330 via computer and that there were clouds in the Tyler area, so he may have to wait it out in a little town. According to the friend, the clouds did not lift in Tyler until approximately 1500. At 1700, the friend got concerned, went to the airport, and made several phone calls in an attempt to locate the pilot. The friend stated the pilot made several trips in the previous months from PUB to TYR.

At 1921, an Alert Notice (ALNOT) was issued by Denver Air Route Traffic Control Center for the accident airplane. According to local authorities, Civil Air Patrol (CAP) contacted them at 2230 regarding a missing aircraft. A ground search was initiated by the CAP and local authorities at 0300, on January 6, 2007. At 0900, a CAP air search located the airplane wreckage in snow covered terrain approximately 40 miles southeast of PUB.

PERSONNEL INFORMATION

The pilot, age 49, held a private pilot certificate with single-engine and multi-engine land ratings. The pilot was issued a third-class medical certificate on September 30, 2005, with no restrictions or limitations. The pilot's logbook was not located during the investigation. According to the pilot's multi-engine land Federal Aviation Administration's (FAA) Airman Certificate and/or Rating Application, dated March 27, 2006, the pilot had accumulated 308.3 total flight hours, 27.1 flight hours in the accident airplane make and model, and 7 hours of simulated instrument time.

A friend of the pilot reported he had accumulated between 500 to 600 flight hours at the time of the accident.

AIRCRAFT INFORMATION

The 1980-model Piper PA-34-200T, serial number 34-8070260, was a low-wing, twin-engine airplane. The airplane was powered by Teledyne Continental Motors (TCM) TSIO-360-EB (left) and LTSIO-360-EB (right), engines. The airplane was equipped with three-blade McCauley constant speed, aluminum alloy propellers. The airplane was configured to carry six occupants.

The airplane was issued a standard airworthiness certificate on June 6, 1980, and was certificated for normal category operations. The airplane was registered to the pilot on September 19, 2006. A review of the airplane maintenance records revealed the airframe underwent an annual inspection on August 11, 2006, at a total time of 3,826 hours. The airplane was equipped with a Bendix/King KWX50 weather radar unit and a 3M WX-8

stormscope.

According to fuel records obtained from a PUB fixed based operator (FBO), the airplane's fuel tanks were topped off with 82.8 gallons of fuel on January 5, 2007.

METEOROLOGICAL INFORMATION

At 0553, the PUB automated surface observing system (ASOS), located approximately 40 miles northeast of the accident site, reported the wind from 340 degrees at 5 knots, visibility 10 statute miles, sky broken at 2,200 feet, overcast ceiling at 4,900 feet, temperature minus 1 degree Celsius, dew point minus 2 degrees Celsius, and an altimeter setting of 29.71 inches of Mercury.

At 0653, the PUB ASOS reported the wind calm, visibility 8 statute miles, sky overcast at 2,000 feet, temperature minus 1 degree Celsius, dew point minus 2 degrees Celsius, and an altimeter setting of 29.75 inches of Mercury.

At 0553, the La Junta Municipal Airport (LHX), La Junta, Colorado, ASOS, located approximately 15 miles northeast of the accident site, reported the wind calm, visibility 10 statute miles, broken clouds at 700 feet, overcast ceiling at 1,100 feet, temperature minus 1 degree Celsius, dew point minus 3 degrees Celsius, and an altimeter setting of 29.72 inches of Mercury.

At 0653, the LHX ASOS reported the wind calm, visibility 10 statute miles, scattered clouds at 1,300 feet and 2,800 feet, temperature minus 1 degree Celsius, dew point minus 3 degrees Celsius, and an altimeter setting of 29.77 inches of Mercury.

According to data from the U.S. Naval Observatory, the beginning of civil twilight on the day of the accident was at 0641 and sunrise was at 0711. Approximately 95 percent of the moon's visible disk was illuminated the night prior to the accident.

WRECKAGE AND IMPACT INFORMATION

The accident site was located in 1 to 2 feet deep snow covered, flat terrain, at 37 degrees 55.407 minutes north latitude and 103 degrees 53.649 minutes west longitude, at an elevation of approximately 4,500 feet. The initial impact point was a ground scar measuring 25 feet long and 11 feet wide with three craters located within the ground scar. The first crater contained two propeller blades from the right propeller, and the third crater contained three propeller blades from the left propeller. The airplane wreckage was distributed along a measured magnetic heading of 125 degrees from the initial impact point. The right wing, main wreckage, and left wing were located approximately 40, 130, and 200 feet, respectively, from the initial impact point. The main wreckage consisted of the fuselage, left engine, and empennage.

The left wing was separated from the fuselage at the wing root. The inboard 14 feet of the

wing leading edge skin was destroyed. The middle to outboard main wing spar was bent aft approximately 35 degrees. The aileron was separated and located in the debris field. The aileron cables were attached to the bell crank and the cables were separated at the wing root. The cable separation areas displayed broomstraw features. The flap was attached to the wing at the inboard and outboard attachments, and the middle attachment was separated. The main landing gear was found in the transit position.

The right wing was separated from the fuselage at the wing root. The wing leading edge skin was separated and destroyed. The aileron was separated and found approximately 3 feet from the left wing. The aileron cables were attached to the bell crank and the cables were separated at the wing root. The cable separation areas displayed broomstraw features. The flap was separated and found in the debris field. The main landing gear was found in the retracted position.

The empennage came to rest inverted adjacent to the fuselage. The right side stabilator was bent under the left side stabilator. The right side stabilator balance weight was separated and located 24 feet forward of the initial impact point. Control continuity was established from the stabilator to the control column. The stabilator trim drum displayed 13 threads, consistent with a nose down trim position. The vertical stabilizer and rudder remained attached. The rudder stops were found in their respective positions and control continuity was established from the rudder to the rudder bar.

The fuselage was destroyed and consumed by post-impact fire. The cabin door was separated and both door handles were found in the closed position. The seats were separated and consumed by fire. The throttle quadrant was separated and destroyed. The instrument panel was destroyed and partially consumed by fire. Both control yokes were separated. The nose landing gear was found in the main wreckage. The airplane was equipped with an ELT; however, it was destroyed by fire damage.

The left engine remained partially attached to the engine mount. The left and right magnetos, vacuum pump, starter, and turbocharger were separated. The propeller assembly was separated at the crankshaft flange. The left propeller blades were separated from the hub and located in the initial ground scar. The blades displayed forward twisting and leading edge polishing.

The right engine remained partially attached to the engine nacelle via engine cables. The left and right magnetos and turbocharger remained attached. The propeller assembly was separated and two propeller blades were located in the initial ground scar. The propeller hub was destroyed and the third propeller blade was not located.

PATHOLOGICAL INFORMATION

According to the Otero County Coroner, an autopsy was not performed on the pilot due to trauma sustained during the accident. Specimens for toxicological tests were taken by the El

Paso County medical examiner. The FAA's Civil Aeromedical Institute's (CAMI), Oklahoma City, Oklahoma, examined the specimens. Toxicological tests performed were negative for all screened substances.

TESTS AND RESEARCH

On February 8, 2007, at the facilities of Beegles Aircraft Services, Greeley, Colorado, the airframe and engines were examined. The horizontal situation indicator (HSI) was the only vacuum system operated instrument located during the examination. The HSI was disassembled to examine the gyro wheel and housing. The gyro wheel was free to move within the housing and radial scoring was noted inside the housing and on one end of the gyro wheel.

The left vacuum pump was separated from the engine. The pump was disassembled and examined. Examination of the pump revealed the drive coupler was missing, the rotor was cracked in multiple locations, and the vanes were intact.

The right vacuum pump remained attached to the engine. The pump was disassembled and examined. Examination of the pump revealed the drive coupler was intact, the rotor was cracked in multiple locations, and the vanes were intact.

The left engine exhaust system exhibited ductile type crushing, and the intake system was intact. Valve and gear train continuity was established during hand rotation of the crankshaft. Thumb compression was noted on all cylinders. Borescope examination of the cylinders exhibited combustion signatures consistent with normal operation.

The right engine exhaust system exhibited ductile type crushing, and the intake system was destroyed. Valve and gear train continuity was established during hand rotation of the crankshaft. Thumb compression was noted on all cylinders. Borescope examination of the cylinders exhibited combustion signatures consistent with normal operation. The number 5 cylinder intake valve contained impacted earthen debris.

ADDITIONAL INFORMATION

Parties to the investigation were the FAA Flight Standards District Office, Denver, Colorado, Piper Aircraft, Inc., Vero Beach, Florida, and Teledyne Continental Motors, Mobile, Alabama.

The airplane wreckage was released to the owner's representative on June 29, 2007.

Pilot Information

Certificate:	Private	Age:	49,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	September 1, 2005
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	March 1, 2006
Flight Time:	500 hours (Total, all aircraft), 200 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N8231D
Model/Series:	PA-34-200T	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	34-8070260
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	August 1, 2006 Annual	Certified Max Gross Wt.:	4570 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	3826 Hrs as of last inspection	Engine Manufacturer:	Teledyne Continental
ELT:	Installed, not activated	Engine Model/Series:	TSIO-360-EB
Registered Owner:	Russell J. Mayer	Rated Power:	200 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	Condition of Light:	Day
Observation Facility, Elevation:	LHX,4238 ft msl	Distance from Accident Site:	15 Nautical Miles
Observation Time:	06:53 Local	Direction from Accident Site:	45°
Lowest Cloud Condition:	Scattered / 1300 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	0 knots / 0 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	0°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.77 inches Hg	Temperature/Dew Point:	-1°C / -3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	PUEBLO, CO (PUB)	Type of Flight Plan Filed:	None
Destination:	TYLER, TX (TYR)	Type of Clearance:	None
Departure Time:	06:41 Local	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	On-ground
Total Injuries:	1 Fatal	Latitude, Longitude:	37.917778,-103.885002

Administrative Information

Investigator In Charge (IIC):	Sauer, Aaron
Additional Participating Persons:	Carl M Miller; Federal Aviation Administration; Denver, CO Robert Martellotti; Piper Aircraft, Inc.; Vero Beach, FL Joshua Cawthra; Teledyne Continental Motors; Mobile, AL
Original Publish Date:	September 27, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=65121

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).