National Transportation Safety Board
Aviation Accident Final Report

Location:	Dubuque, Iowa	**Accident Number:**	CEN15FA008
Date & Time:	October 13, 2014, 23:05 Local	**Registration:**	N9126V
Aircraft:	Piper PA46	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The instrument-rated private pilot was returning to his home airport after flying to another location to attend a meeting. At the departure airport, the pilot filed an instrument flight rules flight plan, had it activated, and then departed for his home airport. After reaching his assigned altitude, the pilot requested clearance directly to his destination with air traffic control, and he was cleared as requested. Before arriving at his airport, he requested off frequency to get the NOTAMs and weather conditions for his destination. The weather conditions at the arrival airport included a 200-ft overcast ceiling and 5 miles visibility with light rain and mist. The pilot then requested the instrument landing system (ILS) approach for landing. An air traffic controller issued vectors to the ILS final approach course and cleared the pilot to change off their frequency. Witnesses at the airport reported hearing and seeing the airplane break out of the clouds, fly over the runway about 100 ft above ground level (agl), and then disappear back into the clouds. Two witnesses stated that the engine sounded as if it were at full power and another witness stated that he heard the engine "revving" as if flew overhead. Shortly after the airplane was seen over the airport, it struck a line of 80-ft tall trees about 3,600 ft north-northwest of the airport and subsequently impacted the ground and a large tree near a residence.

The published missed approach procedures required the pilot to climb the airplane to an altitude of 2,000 ft mean sea level (msl), or about 900 ft agl, while flying the runway heading. Upon reaching 2,000 ft msl, the pilot was required to begin a left turn to the northwest and then continue climbing to 3,300 ft msl.

An examination of the airplane, the engine, and other airplane systems revealed no anomalies that would have precluded the airplane from being able to fully perform in a climb during the missed approach. It is likely that the pilot lost airplane control after initiating a missed approach in instrument meteorological conditions.

Although it is possible that the pilot may have experienced spatial disorientation, there was insufficient evidence to conclude that spatial disorientation contributed to the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of airplane control while attempting to fly a missed approach procedure in instrument meteorological conditions.

Findings

Personnel issues	Incorrect action performance - Pilot
Personnel issues	Aircraft control - Pilot
Aircraft	(general) - Not attained/maintained

Factual Information

History of Flight

Approach-IFR missed approach	Loss of control in flight (Defining event)

On October 13, 2014, at 2305 central daylight time, a Piper PA-46-310P airplane, N9126V, collided with trees and impacted the ground in a residential area following a missed approach to Runway 36 at the Dubuque Regional Airport (DBQ), Dubuque, Iowa. The private rated pilot, who was the sole occupant on board the airplane, sustained fatal injuries and the airplane was destroyed. The airplane was registered to Grand River Emergency Department Consultants LLC, and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Dark night instrument meteorological conditions prevailed and an Instrument Flight Rules (IFR) flight plan was filed. The cross-country flight originated at the Ankeny Regional Airport (IKV), Ankeny, Iowa, about 2200.

A friend of the pilot reported on the afternoon of October 13, the pilot left DBQ and flew to IKV, arriving about 1700. The friend and his wife met the pilot at the airport and drove him to his home for a meeting. About 2015, the pilot, his friend, and his friend's wife left the house for IKV, arriving about 2100. The friend said this was the last time they saw the pilot and was not certain exactly what time the pilot actually left IKV to fly back to DBQ.

At 2200, the pilot contacted Des Moines Departure Control and received an IFR clearance from IKV to DBQ. Two minutes later, the pilot received his IFR release. At 2204, the pilot contacted Des Moines Departure Control and reported being airborne. Des Moines Departure control cleared the airplane to 7,000 ft and a minute later the airplane was radar identified and its altitude verified.

At 2207, the pilot requested a reroute direct to Cedar Rapids, Iowa. The pilot was given a new clearance; direct to Cedar Rapids, then direct to DBQ at 7,000 ft.

At 2217, Des Moines Departure Control handed the airplane off to Chicago Air Route Traffic Control Center.

At 2217:48, the pilot checked in with Chicago Air Route Traffic Control Center Radar Position 56 (ZAU 56R) and reported being level at 7,000 ft. ZAU 56R gave the pilot the local altimeter setting and queried if he wanted to proceed direct to DBQ or continue on his present course. The pilot replied that direct DBQ was fine with him. ZAU 56R cleared the pilot direct to DBQ and provided the pilot with the latest pilot reports for his route of flight. At 2127:23, ZAU 56R instructed the pilot to contact Cedar Rapids Approach [Control] with the frequency. The pilot responded, "Going to" the frequency, his call sign, and "good night."

The pilot checked in with Cedar Rapids Approach Control, reported level at 7,000 ft, and requested the current Cedar Rapids Altimeter, which was provided. At 2249, Cedar Rapids Approach Control instructed the pilot to contact Chicago Center on frequency 133.95 MHz. The pilot acknowledged.

At 2249:35, the pilot checked in with Chicago Air Route Traffic Control Center Radar Position 64

(ZAU 64R) and reported being level at 7,000 ft. ZAU 64R replied with "advise me of the weather NOTAMs at Dubuque and the type of approach requesting …" The pilot replied that he had the weather at DBQ and that he'd like the ILS (Instrument Landing System) approach to runway 36. ZAU 64R replied with "I-L-S three six," and, "turn right heading zero niner zero and I'll have lower for you in just a moment."

At 2251:50, ZAU 64R cleared the airplane to 4,000 ft at the pilot's discretion.

At 2256:45, ZAU 64R queried the pilot, "And november one nine one two six victor I just want to verify you said that you had the weather as well as the NOTAMs, correct?" The pilot replied with "Affirmative …"

At 2258:49, ZAU 64R informed the pilot "… seven miles from golden, turn left, heading of zero three zero, maintain at or above three thousand until established on a published segment of the approach, cleared straight in I-L-S runway three six approach, Dubuque airport." The pilot read back the clearance.

At 2259:52, ZAU 64R instructed the pilot with "… cancel i-f-r this frequency, if unable through flight service; change to advisory frequency is approved." The pilot replied, "Cancel with you, um, going to advisories, two six victor."

At 2302, the airplane turned onto a 360-degree heading. The airplane was in a 480 ft per minute descent passing through 2,700 ft. A minute later, the airplane was on a heading of 357-degrees at 2,100 ft, and on a descent rate of 600 ft per minute. The last radar position put the airplane in the immediate vicinity of the airport. There was no heading or rate of descent associated with the airplane's last position.

Witnesses on the airport saw and heard the airplane over the airport and when the pilot started his missed approach. One witness, a Customer Service Agent for a commuter airline, who was on the airport ramp, saw the airplane break out of the clouds above the runway. He said the airplane was about 100 ft above ground level (agl) and then went back into the clouds about three-fourths of the way down runway 36.

Another witness, who lived on the airport property, said about 2300, he heard an airplane fly overhead. The airplane's engine sounded as if it were at full power and sounded louder than usual as compared with other aircraft.

A third witness was on the airport when he heard an airplane's engine "revving" overhead about 2300. He saw the airplane's lights "glow overhead." He described the weather as very low clouds and mist.

A fourth witness, also a Customer Service Agent, who was on the ramp, said he first heard the airplane and then saw the airplane pass in front of him. He said the airplane was approximately 60 to 70 ft off the ground and heading north over runway 36. The airplane was flying level and the engine was at full power. He said he could see the airplane's navigation lights clearly. He then went inside the terminal to await the arrival of American Eagle Flight 3139. The witness said that within a few minutes of the airplane passing midfield, they received a call from Flight 3139 requesting an airfield conditions report. Less than a minute after the witness's communication with Flight 3139, their station phone rang. The 9-1-1 operator called to tell them they had just received a call that an airplane had crashed on Military

Road, north of the airport.

At 2306:14, ZAU 64R tried to raise the pilot. There was no reply.

Pilot Information

Certificate:	Private	**Age:**	59,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	January 22, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	November 8, 2013
Flight Time:	1003 hours (Total, all aircraft), 100 hours (Total, this make and model), 77 hours (Last 90 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

The pilot, age 59, held a private pilot certificate with an airplane single-engine land, instrument airplane rating. According to the pilot's logbook, he had recorded 1,003 total flying hours and 76.7 flying hours in the 90 days preceding the accident.

The pilot had successfully completed a flight review on November 8, 2013, and an instrument proficiency check flight on March 2, 2011. According to the pilot's logbook, he had satisfied the requirements for instrument currency in accordance with FAR 61.57(a)(1)(i)(ii) by conducting 11 instrument approaches under actual instrument conditions along with appropriate holding and navigation procedures within the 90 days preceding the accident.

The pilot held a valid third-class medical certificate dated January 22, 2014. The certificate showed in the restrictions or limitations section, "Must Wear Corrective Lenses."

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N9126V
Model/Series:	PA46 310P	**Aircraft Category:**	Airplane
Year of Manufacture:	1987	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4608087
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	June 5, 2014 Annual	**Certified Max Gross Wt.:**	4101 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4785 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:		**Engine Model/Series:**	TSIO-520 SER
Registered Owner:		**Rated Power:**	350 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

The airplane was a Piper Aircraft Corporation model PA-46-310P Malibu. The six-place single-engine airplane, serial number 4608087, was manufactured in 1987 and had a standard airworthiness certificate classifying its operation in the normal category.

The airplane was powered by one Continental Motors, Incorporated TSIO-550-C1B fuel-injected and turbocharged 6-cylinder horizontally opposed reciprocating engine, serial number 814575-R, rated at 350 horsepower at 2,600 rpm.

The airplane was equipped with a 4-blade MT-Propeller; model MTV-14-D, 195-30a, and hub serial number 07M50. The constant-speed propeller with a milled single-piece aluminum hub and wood-resin composite blades was installed on the airplane on November 13, 2007.

According to the airplane's airframe logbook, the airplane underwent an annual inspection on June 5, 2014. The recorded tachometer and Hobbs times at the annual were 4,785 hours. The airplane's engine logbook showed the total time on the airplane's engine at the annual inspection as 1,093.7 hours. The engine logbook had two subsequent entries dated June 22, 2014 and July 28, 2014. Both reflected engine oil filter replacements and oil servicing. The recorded Hobbs meter time on June 22 was 4,805 hours. The recorded Hobbs time on July 28 was 4,850.5 hours. No other logbook entries followed.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	DBQ,1077 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	22:53 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Thin Overcast	**Visibility**	5 miles
Lowest Ceiling:	Overcast / 200 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots /	**Turbulence Type Forecast/Actual:**	/ Unknown
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	/ Unknown
Altimeter Setting:	29.45 inches Hg	**Temperature/Dew Point:**	13°C / 13°C
Precipitation and Obscuration:			
Departure Point:	Ankeny, IA (IKV)	**Type of Flight Plan Filed:**	IFR
Destination:	Dubuque, IA (DBQ)	**Type of Clearance:**	IFR
Departure Time:	22:00 Local	**Type of Airspace:**	

At 2253, the routine aviation weather report for DBQ was wind 360 degrees at 10 knots, ceiling 200 ft overcast, visibility 5 statute miles with light rain and mist, temperature 13 degrees Celsius (C), dew point 13 degrees C, altimeter 29.46 inches Hg, and remarks, rain ended at 2218 and began again at 2243.

The Davenport, Iowa, sounding at 1800 depicted a saturated environment with a relative humidity greater than 80 percent from the surface to 6,000 ft and between 8,000 and 12,000 ft. The lifted condensation level or expected cloud base was 400 ft agl. The freezing level was identified at 11,557 ft. The precipitable water was 1.44 inches. The sounding depicted several low-level temperature inversions below 10,000 ft.

The wind profile showed a strong veering in the wind direction with a surface wind from the south with wind speeds increasing with height. The mean 0 ft to 18,000 ft was 193 degrees at 37 knots. The sounding depicted a threat of low-level wind shear due to the rapid change in wind direction and speed with height, which was associated with the frontal system over the area as well as light to moderate turbulence.

Airport Information

Airport:	Dubuque Regional Airport DBQ	**Runway Surface Type:**	
Airport Elevation:	1077 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	ILS
Runway Length/Width:		**VFR Approach/Landing:**	None

The Dubuque Regional Airport, is located 7 miles southwest of the city of Dubuque, Iowa. The field elevation is 1,076 ft mean sea level (msl). Its principal runways are 13-31, and runway 18-36. Runway 18-36 is 6,327 feet long and 150 feet wide. Its surface is grooved concrete and has a medium intensity

approach lighting system with runway alignment indicator lights. The airport is publically owned by the City of Dubuque. The airport has an Air Traffic Control Tower that is manned between the hours of 0600 and 2200. After 2200, pilots use the Common Traffic Advisory Frequency (CTAF) of 119.5 MHz to advise other aircraft of their position in relation to the airport. A VORTAC radial distance navigation station is located on the field near the airport center. The airport has several instrument approaches to the two principal runways. Runway 36 has a VOR approach, RNAV (GPS) approach, and an ILS/LOC (Localizer) approach associated with it.

The ILS/LOC approach to Runway 36 begins at the outer marker, GOLDN (golden), at or above 3,000 ft msl. The weather required to fly the approach is a minimum ceiling of 200 feet agl and 1/4 mile visibility. The full approach is a procedure turn, with the maneuvering side to the east of the 177-degree radial off the DBQ VORTAC. The glideslope intercept is also located at GOLDN, 5 nautical miles (nm) from the end of the runway. Pilots establish themselves on the 357-degree inbound course, intercept the ILS glideslope at 2,700 ft, and fly it down to a decision height of 1,247 feet, about 240 feet above the ground. If they fail to see the runway environment, they execute the missed approach procedure, which is to climb to 2,000 ft msl on the runway heading of 360 degrees. At 2,000 ft, the pilot turns left to a heading of 310 degrees and continues climbing to 3,300 ft, proceeding to CASSY, the missed approach fix, which is off the DBQ VORTAC 322-degree radial at 25 nm. The pilot would also contact the departure frequency for further clearance.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	42.42139,-90.729446

The accident site was located in a residential area about 3,600 ft north-northwest of the DBQ airport.

The initial impact was a line of trees at a GPS location of N4225.245 / W090.43.223 and an elevation of 1,088 ft. The trees were about 80 ft tall and pieces of the airplane's propeller were located in the area of the tree line along with several tree branches and branch pieces. The branch pieces examined exhibited 45-degree cuts at the ends. Paint chips were visible in the cut surfaces of the branch pieces. A 14-inch long piece of propeller blade portion to include the tip was located about 200 yards south of the tree line. It showed leading edge chips and gouges consistent with striking a hard object.

The airplane wreckage continued north from the tree line along a 360-degree heading. The initial debris field began at a large L-shaped ground impact scar. Dirt and airplane parts were dispersed north from the impact scar. The north extending debris field contained pieces of broken Plexiglas, the elevator assembly, right horizontal stabilizer, and a portion of top right inboard wing skin. Additional pieces of the airplane's propeller were also found along the debris path and exhibited impact damage consistent with a tree strike. The right outboard wing section was lying forward and to the left, in line with the

initial tree strike. The debris trail continued for about 120 ft to where the fuselage came to rest on the northeast side of a large tree that it had struck. Impact marks were visible on the tree trunk.

The airplane's fuselage was oriented on amagnetic heading of about 235 degrees. The airplane's left wing was folded over the fuselage. The fuselage forward cabin section was broken open and consumed by ground impact and a post impact ground fire. The firewall assembly was found separated. The rudder pedal assemblies were in place on the firewall. The control yoke assemblies were bent and fractured. Both control wheels were separated from their respective control yokes. The left and right instrument panels were bent and broken aft. Most of the engine and flight instruments, and radio/navigation units were broken out of their mounts, crushed, and charred by fire. The circuit breaker panels were broken aft, charred, and consumed by fire. The engine power, mixture, and propeller levers were in the full forward position and were separated from their engine and propeller governor connections. They moved freely when manipulated. The electrical switch panels were broken aft and downward and charred by fire. The wing flaps switch was found in the up position. The landing gear select switch and alternate air lever were broken. The aft cabin door was broken aft and showed thermal damage. The forward baggage door was separated and crushed. Both the cabin and baggage doors bayonets were found in the locked position. The fuel selector valve and stabilator and rudder trim indicators were broken aft and fractured. All cabin seats and seat restraint systems were broken aft and consumed by fire. The airplane's windscreen and cabin windows were broken and fragmented. The nose landing gear was broken aft and separated from the wheel well compartment.

The aft tail section was separated from the forward fuselage section at the pressure bulkhead. It contained the autopilot trim gyro and the Emergency Locator Transmitter (ELT). The ELT did not activate.

The airplane's vertical stabilizer was separated from its fuselage mounting location. It was found lying in the debris field adjacent to the main fuselage wreckage. It showed aft bending and crushing from impact forces. The rudder was laying on the ground adjacent to the vertical stabilizer. It was broken at the vertical stabilizer hinge points and showed impact aft bending and crush damage from impact forces.

The airplane's horizontal stabilizers were separated from the aft fuselage tail cone. They were lying in the initial impact area in the debris field. They showed impact damage consistent with tree and ground impact. The elevator assembly was noted to be lying adjacent to the horizontal stabilizers. The trim tabs were still attached. The trim control rods were separated.

The airplane's left wing had separated from the fuselage at the wing root and subsequently fractured into several sections. The inboard section was lying against the fuselage and the outboard section rested in the nearby debris field. The inboard section exhibited severe fire damage. The inboard section of the wing spar was melted and consumed. The fuel tank was breached.

The fuel tank cap was in place and in the locked position. The deice boot was charred and consumed by the post impact ground fire. The cables to the left aileron were stretched and unraveled indicative of a tension overload separation. The pitot mast was bent aft. The wing's leading edge was crushed aft along its entire span. The left main landing gear was located in its wheel well and was found in the down position. The flap actuator rod was bent and the flap control rod was separated. The left flap and left aileron were separated from their hinge points and both exhibited impact damage. The aileron's balance

weight was noted to be in place. Left aileron control continuity was confirmed through the cable separation to the control yoke mixer unit.

The right wing outboard section was broken aft, outboard of the wing root. The spar stub was bent aft. The inboard leading edge was bent upward at a ninety degree angle. The right aileron was partially attached and found lying under the wing tip area. The balance weight was intact and the right aileron control cables showed stretching and fraying indicative of failure due to tension overload. The fuel caps were in place and locked. The right wing tank was intact and contained fuel. The inboard wing section contained the right main landing gear. The top skin over the gear was separated aft and located near the line of trees where the initial impact occurred.

The airplane's engine was located on the ground inverted at the end of the accident site about 25 feet north of the airplane main wreckage. It had separated from the airplane firewall at the engine mounts. An initial examination of the engine showed the oil pan crushed upward. The intake and exhaust ducting and the fuel distribution manifold were broken aft and separated. The propeller hub and spinner remained with the engine. The spinner exhibited aft and counterclockwise crushing that conformed to the propeller piston. All four of the wood composite propeller blades were broken off at the propeller hub. The fractures were consistent with the blades breaking in rotation at the time of impact.

The airplane's engine was retained for further examination.

Medical and Pathological Information

The results of an autopsy performed on the pilot on October 14, 2014 by the Iowa Office of the State Medical Examiner, Ankeny, Iowa, showed the cause of death to be blunt force trauma and thermal injuries sustained in the accident.

The FAA's Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot. Test results were negative for all tests conducted.

Tests and Research

The airplane's engine was disassembled and examined at Continental Motors, Incorporated, Mobile, Alabama, on June 15 and 16, 2016. The examination showed no anomalies that would have resulted in the engine not producing full power when needed.

Administrative Information

Investigator In Charge (IIC):	Bowling, David
Additional Participating Persons:	James Konig; Federal Aviation Administration; Des Moines, IA Harrison McNaughton; Federal Aviation Administration; Des Moines, IA Robert Martellotti; Piper Aircraft, Inc.; Vero Beach, FL Mike Council; Continental Motors, Inc.; Mobile, AL
Original Publish Date:	July 12, 2016
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=90245