Aviation Investigation Final Report

Location:	Kansasville, Wisconsin	**Accident Number:**	CEN12FA617
Date & Time:	September 9, 2012, 11:52 Local	**Registration:**	N3224G
Aircraft:	Beech A36	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was established in cruise flight at 6,000 feet mean sea level on a north-northwest course. Communications between air traffic controllers and the pilot were routine. The pilot did not advise the controllers of any difficulties or anomalies nor did he issue any distress call. About 30 seconds before the accident, the airplane entered a descent that continued until impact. A witness observed the airplane on its north-northwest course before it "tipped forward" and descended into the ground. The airplane appeared to be intact at the time, and she did not recall seeing any flames or smoke before impact. The main wreckage site was about 50 feet in diameter, with debris extending to about 200 feet. The airplane was fragmented; however, portions of both wings, the empennage, and all flight controls were located at the accident site. The postaccident examination did not reveal any anomalies consistent with a preimpact failure or malfunction. The relatively concentrated distribution of the wreckage was not consistent with an in-flight break up. Additionally, the existence of day visual meteorological conditions with clear skies precluded the possibility of spatial disorientation. Toxicology testing noted the presence of ethanol; however, it could not be determined if it was as a result of postmortem production or ingestion. Regardless, the ethanol level noted was not impairing and did not pose a significant hazard to flight safety. A review of the pilot's Federal Aviation Administration medical file, toxicology testing, and autopsy did not provide evidence of acute medical incapacitation, but the latter were significantly limited by the degree of injury. Considering the abrupt departure from cruise flight and the uninterrupted descent to impact, the possibility of an acute medical problem could not be ruled out.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: In-flight loss of control for reasons that could not be determined because postaccident

examination of the pilot and testing of the airplane did not reveal any anomalies that would have led to the loss of control.

Findings

Personnel issues	Aircraft control - Pilot
Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Enroute-cruise	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On September 9, 2012, at 1152 central daylight time, a Beech A36, N3224G, was substantially damaged when it impacted terrain near Kansasville, Wisconsin. The pilot was fatally injured. The aircraft was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, which was operated on an instrument flight rules (IFR) flight plan. The flight originated from Chicago Executive Airport (KPWK), Wheeling, Illinois, at 1136, with an intended destination of Lakeland Airport (KARV), Minocqua, Wisconsin.

At 0857, the pilot contacted flight service. He obtained a weather briefing and filed an IFR flight plan for the route from KPWK, direct to the Badger (BAE) VHF Omni-Range (VOR) navigation station, and direct to KARV.

At 1137, the pilot contacted Chicago Terminal Radar Approach Control (TRACON) after takeoff from KPWK. Air traffic control (ATC) radar track data indicated that the initial data point was recorded at 1137:05 (hhmm:ss) and was located about 0.75 nautical miles (nm) north-northwest of the departure end of runway 34. The altitude associated with that data point was 900 feet msl. The controller subsequently cleared the flight to climb to 4,000 feet msl and then 6,000 feet msl as it proceeded north-northwest bound. Communications were routine and track data depicted the airplane remaining on course and climbing to the assigned altitudes as cleared.

At 1146, control of the flight was transferred to Milwaukee TRACON. The pilot established contact with Milwaukee TRACON controller and advised that he had been assigned 6,000 feet msl. At 1148, the flight was cleared direct to KARV. At 1152, radar contact with the accident airplane was lost. The air traffic controller's attempts to contact the pilot were not successful. The pilot did not advise the controller of any anomalies prior to the loss of contact, nor was any distress call from the pilot received.

Radar track data depicted the accident airplane established on a north-northwest course at 6,000 feet msl. About 1152:15, the airplane began to descend, which continued until the impact with terrain. The final radar data point was recorded at 1152:34 and was located about 0.25 nm south-southeast of the accident site. The altitude associated with that data point was 3,500 feet msl. The elevation of the accident site was approximately 810 feet.

A witness reported observing the airplane on a north-northwest course when it "tipped forward" and descended into the ground. The airplane appeared to be intact at the time and she did not recall seeing any flames or smoke prior to impact. Several additional witnesses reported observing the airplane in a steep nose down attitude prior to impact.

PERSONNEL INFORMATION

The pilot held a private pilot certificate, with single-engine land airplane, and instrument airplane ratings. He was issued a third class airman medical certificate on March 22, 2012, with a restriction for corrective lenses.

The pilot's logbook was not available to the NTSB. On his most recent application for an airman medical certificate, the pilot reported a total flight time of 2,429 hours, with 31 hours flown within the past 6 months.

AIRCRAFT INFORMATION

The accident airplane was a 1995 Beech model A36, serial number E-2924. It was a single-engine, low wing airframe configuration, with a retractable tricycle landing gear. The airplane was certified for a maximum of 6 occupants. The airplane was issued a utility category, standard airworthiness certificate in February 1995. The airplane was powered by a 300-horsepower Continental Motors IO-550-B/BP reciprocating engine. The engine data plate appeared to indicate the serial number as B8913. The airworthiness and maintenance records noted the engine serial number as B8913 and BPA8913.

According to maintenance records, an engine oil change and airframe oxygen system service were completed on July 25, 2012. At that time, the airframe and engine had accumulated 2,789.7 hours and 1,229.8 hours time in service, respectively. The most recent annual inspection was completed on February 7, 2012, at 2,712.0 hours total airframe time.

Records indicated that the accident engine was originally manufactured to an IO-520-BB design configuration (serial number 578701). In 2005, the IO-520-BB engine was modified to an IO-550-B/BP engine configuration (serial number B8913/BPA8913) under STC SE09997SC. At that time, the engine fuel injectors were replaced in accordance with STC SE09289SC and a turbonormalizing system was installed in accordance with STC SE5222NM. The accident engine was installed on the airplane in March 2005. In addition, wingtip fuel tanks were installed in accordance with STC SD4-1629 at that time.

METEOROLOGICAL INFORMATION

The Burlington Municipal Airport (KBUU) Automated Weather Observing System (AWOS) was located about 7 miles west of the accident site. At 1135, conditions were recorded as: wind from 360 degrees at 10 knots, gusting to 15 knots; visibility 10 miles; clear sky; temperature 17

degrees Celsius; dew point 8 degrees Celsius; and altimeter 30.09 inches of mercury.

At 1155, the BUU recorded weather conditions were: wind from 360 degrees at 10 knots, gusting to 16 knots; visibility 10 mile; clear sky; temperature 18 degrees Celsius; dew point 7 degrees Celsius; and altimeter 30.09 inches of mercury.

The Kenosha Regional Airport (KENW) Automated Surface Observing System (ASOS) was located about 12 miles southeast of the accident site. At 1153, conditions were recorded as: wind from 010 degrees at 10 knots, gusting to 16 knots; visibility 10 miles; clear sky; temperature 20 degrees Celsius; dew point 9 degrees Celsius; and altimeter 30.08 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The main accident site was about 50 feet in diameter. It encompassed portions of four backyard areas within a subdivision. A postimpact fire consumed portions of the airframe, an adjacent two-car garage structure, and a shed. The adjacent residential structures sustained thermal damage from the postimpact fire. Debris from the airplane was located up to 200 feet from the main accident site. There were no reports of any injuries to individuals on the ground.

The main wreckage consisted of the fuselage, wings, empennage, engine, and propeller assembly. The main impact crater contained the propeller and engine, which were embedded about 4 feet into the ground. The fuselage was fragmented, with portions consumed by the postimpact fire. Portions of the elevators and rudder were located with the main wreckage. In addition, two fragmented elevator sections recovered about 180 feet south and 200 feet south-southwest of the main wreckage. The elevator counter balance weights had separated from the elevators. One was recovered about 180 feet south-southeast of the main wreckage. The second was recovered about 15 feet southeast of the main wreckage. Two remnants of an oxygen bottle were recovered from the accident site. The top and bottoms portions of the bottle were located about 140 feet northeast and 50 feet north of the main wreckage, respectively.

The wings were fragmented, with larger sections exhibiting chordwise crushing damage. Structure associated with the right wing was located west of the main impact crater. Structure associated with the left wing was located east of the main impact crater. Portions of the left and right ailerons and flaps were recovered with the main wreckage. Observed separations of the control cables appeared consistent with overstress failures. The flap actuators had separated from each wing. The actuator extension was consistent with a zero degree deflection (flaps up).

The nose and right main landing gear were located with the main wreckage. The left main landing gear assembly was located about 30 feet north of the main impact crater in an adjacent yard. The landing gear actuator was fragmented. One section of the actuator came to rest about 130 feet west of the main impact crater. A second actuator section came to rest on

the adjacent driveway, about 40 feet southwest of the main impact crater.

The engine sustained damage consistent with significant impact forces. The top and bottom of the crankcase was fractured along the entire length of the engine. The crankshaft was distorted, but appeared otherwise intact when examined through the fractured portions of the crankcase. The connecting rods appeared intact. The cylinders were displaced relative to the crankcase and deformed consistent with impact forces. The magnetos were separated and fragmented. The fuel pump was separated and damaged. The throttle body was fragment with only the throttle valve intact. The fuel metering unit was damaged. The fuel inlet screen appeared intact and was free of debris. The oil pump remained attached to the engine. The pump gears appeared intact, with light scoring observed on the housing.

The propeller hub was fracture consistent with impact forces. The aft portion of the propeller hub remained attached to the engine crankshaft. The propeller blades were separated from the hub. The propeller blades and hub fragments were recovered from the main impact crater. Two blades were bent forward at the tip over the outboard one-third to one-half of the blade span. The third blade was bent aft at the tip over the outboard one-half of the blade span. All three blades exhibited scoring of the faces, as well as leading/trailing edge gouges.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was completed by the Milwaukee County Medical Examiner's Office on September 11, 2012. The pilot's death was attributed to multiple blunt force injuries sustained as a result of the accident. The medical evaluation was limited by the degree of injury which precluded a complete autopsy examination and left only muscle available for toxicological analysis.

FAA Civil Aerospace Medical Institute toxicology testing noted that 15 (mg/dL, mg/hg) Ethanol was detected in muscle tissue. Testing was negative for all other substances in the screening profile.

Pilot Information

Certificate:	Private	**Age:**	67,Male
Airplane Rating(s):	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:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	March 22, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	2429 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N3224G
Model/Series:	A36	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	E-2924
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	February 7, 2012 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2712 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-550-B/BP
Registered Owner:	On file	**Rated Power:**	300 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ENW,743 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	125°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / 16 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	10°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	20°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Wheeling, IL (PWK)	**Type of Flight Plan Filed:**	IFR
Destination:	Minocqua, WI (ARV)	**Type of Clearance:**	IFR
Departure Time:	11:36 Local	**Type of Airspace:**	

Airport Information

Airport:	Kenosha Regional ENW	**Runway Surface Type:**	
Airport Elevation:	742 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	42.698612,-88.136947(est)

Administrative Information

Investigator In Charge (IIC):	Sorensen, Timothy
Additional Participating Persons:	Angel Figueroa; FAA – Milwaukee Flight Standards; Milwaukee, WI Ernest Hall; Hawker Beechcraft Corporation; Wichita, KS Nicole Charnon; Continental Motors, Inc.; Mobile, AL
Original Publish Date:	September 30, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=84975