Aviation Investigation Final Report

Location:	TOMAHAWK, Wisconsin	**Accident Number:**	CHI96FA327
Date & Time:	September 4, 1996, 23:40 Local	**Registration:**	N2338Z
Aircraft:	Beech 23	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot took off from Tomahawk Regional airport at 2330. A witness heard an airplane take off, and a short time later, he heard the airplane flying along the runway. At 2340, the witness heard the airplane impact the trees. The witness went outside to search for the airplane but said he could not find it because of the dense fog in the area. During the course of the investigation, no mechanical failures nor malfunctions of the airframe, powerplant, or flight controls were discovered. The pilot's toxicological examination showed that 121.000 mg/dl ethanol was detected in the blood, 135.000 mg/dl ethanol was detected in the brain fluid, and 172.000 mg/dl ethanol was detected in the urine fluid. The pilot's student pilot certificate had expired.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the student pilot's impairment of judgment and performance due to alcohol which led to his initiation of VFR flight into instrument meteorological conditions and loss of control. Factors were: the dark night and the weather conditions.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (F) LIGHT CONDITION - DARK NIGHT
2. (F) WEATHER CONDITION - FOG
3. (C) VFR FLIGHT INTO IMC - INITIATED - PILOT IN COMMAND
4. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
5. (C) IMPAIRMENT(ALCOHOL) - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On September 4, 1996, at 2340 central daylight time (cdt), a Beech 23, N2338Z, piloted by a student pilot, was destroyed when it collided with trees and terrain approximately one quarter mile north west of the runway 09 threshold, at Tomahawk Regional Airport, Tomahawk, Wisconsin. The airplane was observed performing the second touch-and-go at the time of the accident. The student pilot sustained fatal injuries. The 14 CFR Part 91 personal flight was not operating on a flight plan. Weather in the area was reported as instrument meteorological conditions prevailing. Witnesses reported thick fog at the time of the accident. The airplane was located on September 5, 1996, at approximately 1000 cdt.

According to a witness who lives near the airport, he was just going to bed when he heard an airplane run-up its engine. At approximately 2330 cdt, the airplane took off from runway 27. A short time later, he heard the airplane flying along the same runway, as if the pilot was making a touch and go. The witness did not know if the airplane ever touched down. At about 2340 cdt, the witness heard "...like tin and prop hitting tree tops..." and "...heard a very distant thump...". The witness went outside to search for the airplane but stated, "The fog became too thick had to wait till morning. It was not too foggy on the east end (airport) but the west end was just socked in."

The Lincoln County Sheriff's Department received notification of the accident at approximately 0100 cdt, on September 5, 1996. The Sheriff's Department did not locate the airplane wreckage until about 1000 cdt, due to dense fog conditions in the area of the wreckage.

PERSONNEL INFORMATION

The pilot was born August 15, 1937. He was the holder of a expired student pilot certificate for single engine land. He also held an expired third class medical issued on August 8, 1994. A review of the pilot's last logbook revealed his most recent biennial flight review was on May 10, 1994. He had accumulated an estimated total flight time of approximately 65 hours of flight time, 25 of which were in Beech Musketeer 23 airplane.

AIRCRAFT INFORMATION

The airplane was a Beechcraft Musketeer 23, serial number M-32, N2338Z. The airplane had accumulated 2,641 hours time in service at the time of the accident. The engine had 1,362.78 hours total with 380 hours since its last overhaul. The most recent inspection was conducted on May 01, 1996, 21 hours prior to the accident.

METEOROLOGICAL INFORMATION

A witness reported that at the time of the accident, he could not locate the wreckage due to dense fog on the west side of the airport property. The Lincoln County Sheriff's Department called off the search until the fog lifted. The search was resumed at 0900 cdt the next morning.

WRECKAGE AND IMPACT INFORMATION

The NTSB on-scene investigation began at 1730 on September 5, 1996. The wreckage was located on a 028 degree heading in a densely wooded area approximately 1/4 mile northwest of the threshold to runway 090. Branches of several large trees, southwest of the wreckage, were fractured and marked a descending 21 degree angle to the main wreckage. There was a narrow swath of initial broken tree tops approximately 50 to 60 feet agl about 145 feet from the main wreckage. The initial ground impact area was approximately 145 feet from the initial tree impacted. There were several five inch diameter tree branches in various lengths, found along the wreckage path, that exhibited clean slash marks. A seven inch diameter tree trunk exhibited a clean 10 inch diagonal slash mark, and was located with the main wreckage. Pieces of the right wing tip were located along the start of the wreckage path. The right wing leading edge remained in one of the trees. The right aileron was located approximately 48 feet from the main wreckage along the flight path. A piece of the left wing position light cover was recovered from a small crater 15 feet from the main wreckage along the flight path. Pieces of the left wing tip were also recovered from this crater. The main wreckage area was located at the end the wreckage path, approximately 14 feet beyond the initial ground impact area. The majority of the fuselage, aft of the engine firewall to the baggage compartment, was consumed by the post impact fire.

All of the flight control surfaces were accounted for at the accident site. All flight control continuity was established from the remains of the cockpit, to the respective control surface bell cranks. Both flaps and ailerons had separated from their respective wings during impact. The manual wing flap control handle assembly exhibited a retracted flap position. The stabilator and rudder remained attached to the aft tail section, with no apparent damage to their respective hinges. The stabilator trim tab actuator extension was 2 1/4 inches, which is consistent with a neutral trim tab position.

The remains of the engine tachometer indicated 0 RPM, with 2641.1 on the hour meter. The remains of the altimeter exhibited a setting of 30.02 inches of Hg. The remains of the clock revealed a time of 23:30. The remains of the fuel selector valve assembly indicated a left tank position, with its handle guard present. The remains of the fuel strainer and bowl exhibited a clean screen and no outstanding debris. The attitude indicator gyro was disassembled. The rotor housing exhibited a stripe of soot around its inner circumference, which aligned with a stripe of soot along the gyro rotor cups.

The engine incurred substantial fire damage. The propeller remained attached to the engine

and incurred very little damage. The engine driven vacuum pump was removed from the engine and disassembled. The drive shaft was partially melted, but the rotor and vanes were intact. Both magnetos were severely fire damaged, and upon removal, would not rotate. Engine continuity was established through the engine driven vacuum pump accessory pad, with no discrepancies noted.

Examination of the flight controls, engine, and engine control continuity revealed no evidence of a malfunction. The spark plugs were of normal color. No fuel was located in the engine fuel lines or the carburetor.

MEDICAL AND PATHOLOGICAL INFORMATION

A post mortem examination of the pilot was conducted on September 6, 1996 at Good Samaritan Health Center, Merrill, Wisconsin. No pre-existent anomalies were noted during this examination which contributed to the accident or the pilot's death.

The pilot's toxicological analysis was performed by the FAA's Civil Medical Institute (CAMI) in Oklahoma City, Oklahoma. The toxicological examination showed 121.000 (mg/dL, mg/hg) of Ethanol was detected in the blood, 135.000 (mg/dL, mg/hg) of Ethanol was detected in the brain fluid, and 172.000 (mg/dL, mg/hg) Ethanol was detected in the urine fluid. According to a doctor at CAMI, the reported amounts of Ethanol in the tissue would indicate that the pilot was legally intoxicated at the time of the accident.

ADDITIONAL DATA

Parties to the investigation were the Federal Aviation Administration; Textron Lycoming; Raytheon Aircraft Company.

Following the on-scene portion of the investigation, the wreckage was released to owner's son on September 6, 1996.

Pilot Information

Certificate:	Student	**Age:**	59,Male
Airplane Rating(s):	None	**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 Expired	**Last FAA Medical Exam:**	August 31, 1994
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	65 hours (Total, all aircraft), 25 hours (Total, this make and model), 35 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N2338Z
Model/Series:	23 23	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	M-32
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	May 1, 1996 100 hour	**Certified Max Gross Wt.:**	2300 lbs
Time Since Last Inspection:	21 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2641 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	O-320-D2B
Registered Owner:	THOMAS CUMMINGS	**Rated Power:**	160 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:		**Visibility**	1 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	19°C / 18°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	(WI46)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	23:30 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	TOMAHAWK REGIONAL WI46	**Runway Surface Type:**	Macadam
Airport Elevation:	1486 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27	**IFR Approach:**	None
Runway Length/Width:	4000 ft / 75 ft	**VFR Approach/Landing:**	Go around;Touch and go;Traffic pattern

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:**	45.470451,-89.72052(est)

Administrative Information

Investigator In Charge (IIC):	Carlson, Todd
Additional Participating Persons:	DUANE HAHN; MILWAUKEE , WI GREGORY A ERIKSON; WAYNE , IL DON F KNUTSON; WICHITA , KS
Original Publish Date:	February 2, 1998
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=10107

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