



# National Transportation Safety Board Aviation Accident Factual Report

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<b>Location:</b>	Milltown, WI	<b>Accident Number:</b>	CHI01FA044
<b>Date &amp; Time:</b>	12/03/2000, 1515 CST	<b>Registration:</b>	N7678N
<b>Aircraft:</b>	Beech 95-B55	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Instructional		

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## HISTORY OF FLIGHT

On December 3, 2000, at 1515 central standard time (cst), a Beech 95-B55, N7678N, sustained substantial damage during an in-flight collision with the terrain following a loss of aircraft control while maneuvering near Milltown, Wisconsin. Visual meteorological conditions prevailed at the time of the accident. The flight was operating under the provisions of 14 CFR Part 91 and was not on a flight plan. The certified flight instructor (CFI) and the dual student were fatally injured. The local instructional flight departed the St. Paul Downtown Holman Field Airport, St. Paul, Minnesota, about 1448.

Aircraft radar track data for the period before and after the reported accident time was obtained from Federal Aviation Administration (FAA) Air Traffic Control. The obtained data indicated there was a single aircraft, which was transmitting a visual flight rules (VFR) 1200 transponder beacon code, maneuvering near the accident location about the time of the accident. The last two minutes of radar data were recorded as:

(hhmm:ss)	(North Latitude)	(West Longitude)	(Pressure Altitude)
1512:02	45.550830	92.463060	6,000
1512:23	45.550830	92.468890	6,100
1512:33	45.548890	92.468890	6,000
1512:43	45.546390	92.469170	6,000
1512:53	45.542500	92.466390	6,000
1513:03	45.540280	92.463060	6,000

1513:13	45.538060	92.460280	6,000
1513:23	45.536110	92.460560	6,100
1513:33	45.536110	92.457500	6,100
1513:44	45.533890	92.454720	6,100
1513:54	45.531940	92.454440	5,800
1514:04	45.529440	92.443060	4,500
1514:14	45.533610	92.448890	3,200

A plot of the aircraft radar track data was generated, and is appended to this factual report along with a copy of the source data.

A witness, located near the accident site, reported in a written statement, "...heard an airplane coming over then the motor shut off and the plane started to fall, spiraling down until it hit the ground..."

Another witness, at the same location, reported in a written statement, "...heard a small plane overhead the motored stop or shut off I was watching it drop out of the sky. My first idea was start your engine[.] It just kept twisting coming down[.] [When] it got about 300 ft of the ground I knew there was no hope[.] About 3 sec. after the crash there was a loud bang."

A hunter, located near the accident site, reported in a written statement, "About 320 I heard a plane came from the S-SW and was traveling N. When it was west of me the sound of the engin[e] was fluctuating from a high pitch to a low pitch. Then the plane was North and it turned around. I heard it coming back and all at once the sound of the engine stopped. About 2 Min. later I heard a crashing sound to the N.E. of me."

Copies of the written witness statements are appended to this factual report.

#### PERSONNEL INFORMATION

The CFI held a commercial pilot certificate with ratings for airplane multi-engine land, airplane single engine land, and instrument airplane operations. The CFI also held a certified flight instructor certificate with ratings for airplane multi-engine land, airplane single engine land, and instrument airplane operations. The CFI was issued an instructor rating for multi-engine operations on August 2, 2000. The CFI's last medical examination was conducted on November 7, 2000, and she was issued a first-class medical certificate with no limitations or restrictions. The pilot's height was listed as 69 inches on the issued medical certificate.

According to the CFI's flight logbooks, the CFI had a total flight time of 985.6 hours, of which 111.5 hours were in multi-engine airplanes and 874.1 hours were in single engine airplanes. The CFI had flown 111.5 hours in the Beech 95-B55, of which 86.8 were as pilot-in-command and 62.6 hours were as a flight instructor.

The CFI had flown 219.6 hours in the last 90 days, of which 31.7 hours were in multi-engine airplanes and 187.9 hours were in single engine airplanes.

The CFI had flown 128.2 hours in the last 60 days, of which 11.8 hours were in multi-engine airplanes and 116.4 hours were in single engine airplanes.

The CFI had flown 35.8 hours in the last 30 days, of which 3.5 hours were in multi-engine airplanes and 32.3 hours were in single engine airplanes.

There were no flight logbook entries within 24 hours of the accident.

The CFI's logbook contained an endorsement for spin training, dated December 14, 1999. The spin training and corresponding endorsement is required for all flight instructor candidates. The CFI's endorsement read, "I have given [the CFI] flight training in spin entry, recovery techniques, and spins and she has demonstrated instructional competency in those maneuvers."

The dual student held a private pilot certificate with ratings for airplane single engine land and instrument airplane operations. The dual student's last medical examination was conducted on August 3, 1999, and he was issued a third-class medical certificate with no limitations or restrictions.

According to the dual student's flight logbooks, the dual student had a total flight time of 221.7 hours, of which 21.8 hours were in multi-engine airplanes and 199.9 hours were in single engine airplanes. The dual student had flown 21.8 hours in the Beech 95-B55, all of which were dual instruction.

The dual student had flown 32.3 hours in the last 90 days, of which 17.2 hours were in multi-engine airplanes and 15.1 hours were in single engine airplanes.

The dual student had flown 23.9 hours in the last 60 days, of which 8.8 hours were in multi-engine airplanes and 15.1 hours were in single engine airplanes.

The dual student had flown 7.0 hours in the last 30 days, of which 2.2 hours were in multi-engine airplanes and 4.8 hours were in single engine airplanes.

There were no flight logbook entries within 24 hours of the accident.

## AIRCRAFT INFORMATION

The airplane was a Beech 95-B55, serial number TC-1153. The Beech 95-B55 is a multi-engine, low-wing, all-metal airplane of semimonocoque design, powered by two reciprocating engines. The airplane can be configured to carry a maximum of six occupants.

The airplane was issued a Standard Airworthiness Certificate on September 22, 1968, and was certified for normal category operations. The airframe had accumulated a total flight time of 4,348.7 hours. The last annual inspection was performed on October 17, 2000, at 4,296 hours total time. The Hobbs meter at the last annual inspection was 533.0 hours and at the accident site the Hobbs meter read 585.7 hours.

The left engine was a 260 horsepower Teledyne Continental IO-470-L, serial number 454476. The engine had accumulated 879.7 hours since the last major overhaul, which was completed on September 8, 1996. The last inspection of the left engine was on October 17, 2000, at which time the engine had accumulated 827.0 hours since the last major overhaul.

The right engine was a 260 horsepower Teledyne Continental IO-470-L, serial number CS-201139-9L. The engine had accumulated 441.7 hours since the last major overhaul, which was completed on March 23, 2000. The last inspection of the right engine was on October 17, 2000, at which time the engine had accumulated 389.0 hours since the last major overhaul.

The left propeller was a two-bladed McCauley 2AF34C55-N-O, hub serial number 730844.

The right propeller was a two-bladed McCauley 2AF34C55-K-M-O, hub serial number 686154.

## METEOROLOGICAL INFORMATION

A weather observation station, located at the L.O. Simenstad Municipal Airport (OEO), about 17 nautical miles (nm) from the accident site on a 216 degrees magnetic heading, recorded the weather approximately three minutes after the accident as:

Observation Time: 1519 cst

Wind: 180 degrees magnetic at 13 knots gusting to 22 knots.

Visibility: 10 statute miles

Sky Condition: Sky Clear

Temperature: -01 degrees Celsius

Dew Point: -06 degrees Celsius

Pressure: 30.21 inches of mercury

Wind data was obtained from a weather station located approximately 63 nm southwest of the accident site. At 1800 cst the upper atmospheric winds were recorded as:

( Altitude [feet msl] - Wind Direction [true] @ Velocity [knots] )

942 - 190 @ 05

997 - 190 @ 07

1,998 - 200 @ 39

2,651 - 210 @ 40

2,999 - 215 @ 41

3,999 - 230 @ 44

4,813 - 225 @ 48

5,997 - 220 @ 48

6,998 - 230 @ 41

7,999 - 235 @ 41

8,999 - 235 @ 46

#### WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board's (NTSB) on-scene investigation began on December 4, 2000.

A global positioning system (GPS) receiver reported the accident site position as 45-degrees 32-minutes 17-seconds north latitude, 92-degrees 26-minutes 44-seconds west longitude, at approximately 1,276 feet msl. The accident site was located south of 230th Avenue and east of 140th Street in the township of Milltown, Wisconsin.

The aircraft was found nose down in a wooded area. The angle between the terrain and the lower fuselage was approximately 50 degrees. All components of the aircraft were located at the accident site. The left wing was bent forward and the right wing was bent rearward. The

entire leading edge of the right wing was buckled rearward against forward wing spar. The leading edge of the left wing had crush damage along its entire length. The left horizontal stabilizer and elevator were separated from the fuselage. The right horizontal stabilizer and elevator remained attached to the fuselage. The leading edge of the right horizontal stabilizer had multiple crush zones that were semicircular in shape. The rudder remained attached to the vertical stabilizer. Flight control continuity was established for the rudder, aileron, and elevator flight controls. Both engine nacelles were bent to the left and both engines remained attached to the airframe. The flaps were extended to the 30 degree position. The landing gear was extended. Both fuel selectors were in the main tank position. The main wing tanks were ruptured.

The CFI occupied the right seat during the accident flight. The right seat was secured in the full aft position. There was a handwritten placard that stated, "right seat fixed in the aft position." Four pillows were recovered at the accident site. An officer with the Polk County Sheriff Department reported that one of the pillows was found beneath the CFI and that there were two pillows behind her back. The forth pillow was found lying between the CFI and the dual student. See attached Polk County Sheriff Department Incident Report.

No additional anomalies were found with respect to the airframe or its flight control systems that could be associated with a pre-impact condition.

Left engine crankshaft and valve train continuity was established by rotating the crankshaft at the propeller flange. There was thumb compression on all cylinders. There was fuel in the lines leading to the fuel controller, in the fuel controller, and in the flow-divider. The fuel screen was noted to be wet, clear of debris, and had an odor that was consistent with aviation fuel. Both magnetos produced spark on all leads when rotated by hand.

Right engine crankshaft and valve train continuity was established by rotating the crankshaft at the propeller flange. There was thumb compression on all cylinders. There was fuel in the lines leading to the fuel controller, in the fuel controller, and in the flow-divider. The fuel screen was noted to be wet, clear of debris, and had an odor that was consistent with aviation fuel. Both magnetos produced spark on all leads when rotated by hand.

No anomalies were found with either engine, or their related systems, that could be associated with a pre-impact condition.

Both propellers remained attached to their respective engines. The left propeller's blades were bent aft and had minor impact surface damage. One of the right propeller's blades was bent aft and both blades had minor impact surface damage.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the CFI at the Ramsey County Medical Examiner's Office, St. Paul, Minnesota, on December 4, 2000.

A Forensic Toxicology Fatal Accident Report was prepared by the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma, for the CFI.

The toxicology results for the CFI were:

- \* No Carbon Monoxide detected in Blood
- \* No Cyanide detected in Blood
- \* No Ethanol detected in Blood
- \* No Drugs detected in Blood

An autopsy was performed on the dual student at the Ramsey County Medical Examiner's Office, St. Paul, Minnesota, on December 4, 2000.

A Forensic Toxicology Fatal Accident Report was prepared by the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma, for the dual student.

The toxicology results for the dual student were:

- \* No Carbon Monoxide detected in Blood
- \* No Cyanide detected in Blood
- \* No Ethanol detected in Urine
- \* No Drugs detected in Urine

#### TESTS AND RESEARCH

On November 22, 2000, the co-pilot's forward/aft seat-positioning system was listed as inoperative on an Aircraft Dispatch Approval Sheet. The Aircraft Dispatch Approval Sheet indicated the corrective action was, "... co-pilot seat need parts. (parts on order) seat locked in aft position." The seat was not repaired prior to the accident flight. A copy of the Aircraft Dispatch Approval Sheet is appended to this factual report.

The accident airplane was reported to be completely full of fuel prior to the accident flight. Copies of a fueling statement and fueling log are appended to this factual report.

The Pilot Operating Handbook (POH) for the Beech 95-B55 aircraft states that Federal Aviation Regulations (FAR) did not require spin demonstration for certification and that no

spin tests were conducted during the certification process. The POH states that the recovery technique listed is "... based on the best available information." The POH states that recovery from a spin will become more difficult if the pilot delays taking corrective action.

The POH states, "Always remember that extra alertness and pilot techniques are required for slow flight maneuvers, including the practice or demonstration of stalls or [flight at minimum controllable airspeed]."

The POH further states that, "Whenever a student pilot will be required to practice slow flight or single-engine maneuvers, be certain that the qualified instructor pilot has a full set of operable controls available. FAA regulations prohibit flight instruction without full dual controls."

POH selections covering spins and spin recovery techniques are appended to this factual report.

#### ADDITIONAL DATA/INFORMATION

Parties to the accident were the FAA, Raytheon Aircraft Company, and Teledyne Continental Motors.

The wreckage was released to a representative of the insurance company on December 6, 2000.

#### Flight Instructor Information

<b>Certificate:</b>	Flight Instructor; Commercial	<b>Age:</b>	31, Female
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	11/07/2000
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	08/02/2000
<b>Flight Time:</b>	986 hours (Total, all aircraft), 112 hours (Total, this make and model), 911 hours (Pilot In Command, all aircraft), 220 hours (Last 90 days, all aircraft), 36 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

## Student Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	44, Male
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	08/03/1999
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	04/26/2000
<b>Flight Time:</b>	222 hours (Total, all aircraft), 22 hours (Total, this make and model), 146 hours (Pilot In Command, all aircraft), 32 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Beech	<b>Registration:</b>	N7678N
<b>Model/Series:</b>	95-B55 95 - B55	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	TC-1153
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	10/17/2000, Annual	<b>Certified Max Gross Wt.:</b>	5000 lbs
<b>Time Since Last Inspection:</b>	52.7 Hours	<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	4348.7 Hours at time of accident	<b>Engine Manufacturer:</b>	Teledyne Cont
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	IO-470-L
<b>Registered Owner:</b>	Sullivan Communications Group	<b>Rated Power:</b>	260 hp
<b>Operator:</b>	Sullivan Communications Group	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	Wings, Inc.	<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	OEO, 903 ft msl	Distance from Accident Site:	17 Nautical Miles
Observation Time:	1519 CST	Direction from Accident Site:	216°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	0 ft
Wind Speed/Gusts:	13 knots / 22 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	180°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.21 inches Hg	Temperature/Dew Point:	-1° C / -6° C
Precipitation and Obscuration:			
Departure Point:	St. Paul, MN (STP)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1448 CST	Type of Airspace:	Class G

## Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	Andrew T Fox
Additional Participating Persons:	Larry Landis; Federal Aviation Administration, Minneapolis FSDO; Minneapolis, MN Harold R Barrentine; Raytheon Aircraft Company; Wichita, KS George M Hollingsworth; Teledyne Continental Motors; Reston, VA
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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .