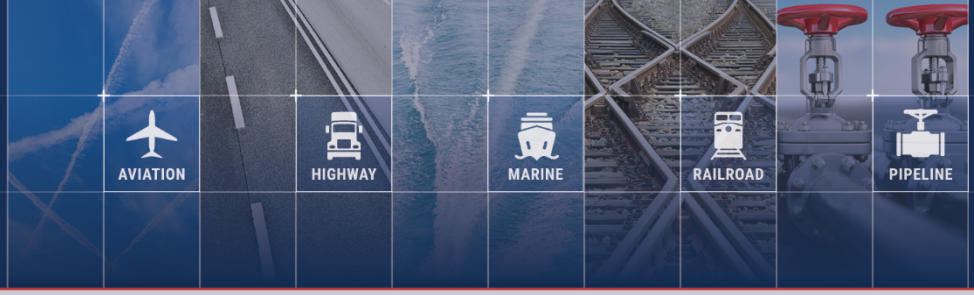


# Aviation Investigation Factual Report

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|---|---|---|---|
| **Location:** | FREMONT, Michigan | **Accident Number:** | CHI97FA300 |
| **Date & Time:** | September 25, 1997, 12:25 Local | **Registration:** | N777SU |
| **Aircraft:** | BEECH T34B | **Aircraft Damage:** | Destroyed |
| **Defining Event:** | | **Injuries:** | 2 Fatal |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Factual Information

HISTORY OF FLIGHT

On September 25, 1997, at 1225 eastern daylight time (edt), a Beech T-34B, N777SU, piloted by an airline transport pilot, was destroyed during a collision with the ground and post-impact fire following a witness reported rapid pitch up and wingover-type maneuver following takeoff. Visual meteorological conditions prevailed at the time of the accident. The 14 CFR Part 91 personal flight was not operating on a flight plan. The pilot and passenger were fatally injured. The flight departed Fremont, Michigan, at 1225 edt.

One witness, the airport manager, said the airplane climbed to about 10 feet above the runway after takeoff and retracted its landing gear. He said N777SU "Pulled up [to a] 75 to 80-degree climb [angle]. At the top of [the] climb [the] aircraft turned left past a 90-degree bank, like a crop duster would do." The witness said the "Nose fell out of the turn [and] the pilot leveled [the] wings." According to this witness, apparently the pilot "...pulled back hard..." as the airplane neared the ground.

He said the airplane collided with the ground at a 45-degree angle while the engine ran at full power.

A second witness said he observed the airplane takeoff, immediately retract its landing gear, and fly about 15-feet above the runway. He said, "At about the end of the runway the nose started to come up smoothly, then appeared to come up more abruptly until the airplane was nearly vertical. The plane continued straight up until it appeared to stall and fall off on the left wing." This witness said the airplane descended at an approximate 70-degree pitch down angle and turned about 135-degrees to the left. He said, "...I do not remember ever seeing the nose try to come up. The aircraft struck the ground in a severe nose down attitude... ." Two other witnesses had similar statements.

PERSONNEL INFORMATION

The pilot of N777SU possessed an airline transport rating for multi-engine land airplanes, and a commercial pilot's certificate for single-engine land airplanes. He had an airplane instrument rating and flight instructor certificates for airplanes and instrument single and multi-engine airplanes. His pilot logbook showed a total flight time of 4,016.8-hours as of September 19, 1997. 1,203.2-hours of this total time had been in single-engine airplanes.

The pilot began flying the Beech T-34B on June 15, 1997, according to his logbook. The logbook entry says, "Checkout by [other pilot's name]; stall, slow flight, familiarization, loops, barrel and aileron rolls, wingovers." This flight lasted 1.4 hours according to the pilot's

logbook. The "checkout" flight was not shown as a dual instructional flight in the logbook. The remainder of the logbook entries, except one, state, "... loops, rolls, and wing overs... ." Between the time the pilot received his checkout in the T-34B and September 22, 1997, the pilot flew the airplane for 11.1-hours.

N777SU's rear seat passenger/pilot on the accident flight possessed a commercial pilot's certificate with airplane single and multi-engine land ratings. He also possessed an instrument rating and had a flight instructor certificate for airplanes, single and multi-engine. Copies of the pilot's logbook showed he had a total time of 2,113.8-hours as of September 22, 1997. According to the logbook copy, the pilot had 1,781.3-hours of single-engine airplane flight time. There were no flight times entered into the logbook beyond September 22, 1997. The logbook did not show any Beech T-34 flight time.

AIRCRAFT INFORMATION

The airframe and powerplant logbooks were found in the burnt wreckage. Unburnt portions of the airframe and engine maintenance logbooks showed the airplane's last annual inspection was completed on May 30, 1997, at 2,940.2-hours total time.

WRECKAGE AND IMPACT INFORMATION

N777SU's wreckage was located about 750-feet west of runway 36's centerline and about 550-feet south of runway 27's centerline on a 030-degrees magnetic heading. The airplane's first ground collision point was about 85-feet west of the main wreckage. A second ground collision point was located about 50-feet west of the main wreckage. It was oval-shaped and 18-inches deep in its center. This depression had a 12-inch dirt mound along its east edge. A ground scar varying in width between about 4-feet and 6-feet was found among the first ground collision point and the main wreckage, This scar varied in depth between 4 and 6-inches. The ground scar was oriented on a 115-degree magnetic heading.

N777SU's airframe center section was destroyed by fire. This included the fuselage between the firewall and vertical stabilizer, and the wings between the left wing's mid-span point and the right wing's outboard section next to the aileron's mid-span location. The right aileron had separated from its attachment positions. It was buckled upward about 45-degrees at the 1/3 span location. The outboard right horizontal stabilizer and elevator assembly were buckled upward about 10- degrees at the mid-span location. The front section of the fuselage, from the front of the cowl aft to the firewall/forward cockpit glare shield, was crushed aft and upward. The forward and aft cockpit seat belt and shoulder harness buckles were found engaged. The belt and strap webbing materials were not attached due to fire damage. Burnt fragments of these materials were found in the wreckage.

Flight control system continuity was established for all 3-axes. The trim tabs were in a neutral position. This was confirmed by the trim tab actuators extension of 1-5/16 inches. The left wing-flap was in the retracted position. This was confirmed by the actuator's position of 1-5/8-

inches. The right wing-flap and actuator were consumed by the post-impact fire.

The propeller was attached to the engine. The three blades were in a low blade angle. One propeller blade was bent about 15-degrees aft at the blade's foot. Chord-wise scuffing was observed from the foot of the blade outward along the blade's front about 18-inches. The leading edge had intermittent chordwise scuff marks between the tip and large scuff mark at the blade's foot. A second blade was straight and had a 3-inch chordwise scuff mark on its leading edge about 12-inches outward from the blade's foot. The third blade was bent about 90-degrees aft and was resting against the bottom of the engine. The outboard third of the blade was bent about 30-degrees further aft. This blade had chordwise scuffing on the blade's face and front side. The propeller spinner was crushed aft into the propeller hub's forward end.

Inspection of the engine revealed mechanical continuity between the propeller crankshaft flange and the magneto drive gears. Both magnetos were broken off the engine. Each magneto sparked the 6-leads attached to it when the drive coupling was rotated by hand. A fluid with an odor similar to 100LL AVGAS was observed in the flow divider on top of the engine. Thumb compression was established for all 6-cylinders. The top spark plugs were examined and found with a gray-purple-tan color. There was no evidence of electrode contamination.

Most of the cockpit instruments were destroyed by the collision and subsequent fire. The manifold pressure gauge showed 28 inches pressure, the tachometer showed "0" RPM, the accelerometer needles showed plus 4.5g's, negative 3.5g's and negative 5.0g's.

The airspeed indicator had a needle slap mark on its face at the 124-knot position.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsies conducted on the pilot and the pilot-rated passenger were conducted by Dr. Mohammad Abbas, M.D., of the Michigan Forensic Medicine, P.C. on September 26, 1997. According to these reports, the pilot's fatal injuries were a result of "Asphyxia by products of combustion due to airplane crash." The pilot-rated passenger's fatal injuries were the result of, "Multiple injuries due to airplane crash."

The toxicological examination conducted by the Federal Avaition Administration's Civil Aero Medical Institute, Oklahoma City, Oklahoma, showed no carbon monoxide, cyanide, ethanol, or drugs for the pilot. The pilot-rated passenger's toxicological report was the same except 28.500 (ug/ml, ug/g) of salicylate that was detected in the urine sample. Salicylate, according to Tabor's Cyclopedic Medical Dictionary, is an ingredient used in the manufacture of common aspirin.

## Pilot Information

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|---|---|---|---|
| **Certificate:** | Airline transport; Commercial; Flight instructor | **Age:** | 28,Male |
| **Airplane Rating(s):** | Single-engine land; Single-engine sea; Multi-engine land | **Seat Occupied:** | Front |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | Yes |
| **Instructor Rating(s):** | Airplane multi-engine; Airplane single-engine; Instrument airplane | **Toxicology Performed:** | Yes |
| **Medical Certification:** | Class 1 Valid Medical--no waivers/lim. | **Last FAA Medical Exam:** | April 21, 1997 |
| **Occupational Pilot:** | Yes | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 4017 hours (Total, all aircraft), 11 hours (Total, this make and model), 3293 hours (Pilot In Command, all aircraft), 145 hours (Last 90 days, all aircraft), 85 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft) | | |

## Aircraft and Owner/Operator Information

| | | | |
|---|---|---|---|
| **Aircraft Make:** | BEECH | **Registration:** | N777SU |
| **Model/Series:** | T34B T34B | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Experimental (Special) | **Serial Number:** | BG-159 |
| **Landing Gear Type:** | Retractable - Tricycle | **Seats:** | 2 |
| **Date/Type of Last Inspection:** | May 30, 1997 Annual | **Certified Max Gross Wt.:** | 2985 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | | **Engine Manufacturer:** | CONTINENTAL |
| **ELT:** | | **Engine Model/Series:** | IO-550 |
| **Registered Owner:** | SUZANNE D. PARISH | **Rated Power:** | 285 Horsepower |
| **Operator:** | | **Operating Certificate(s) Held:** | None |
| **Operator Does Business As:** | | **Operator Designator Code:** | |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | MKG ,772 ft msl | **Distance from Accident Site:** | 23 Nautical Miles |
| **Observation Time:** | 11:55 Local | **Direction from Accident Site:** | 50° |
| **Lowest Cloud Condition:** | Scattered / 15000 ft AGL | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 10 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 290° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 29 inches Hg | **Temperature/Dew Point:** | 19°C / 13°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | (3FM ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | (3FM ) | **Type of Clearance:** | None |
| **Departure Time:** | 12:25 Local | **Type of Airspace:** | Class E |

## Airport Information

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| **Airport:** | FREMONT MUNICIPAL AIRPORT 3FM | **Runway Surface Type:** | |
| **Airport Elevation:** | 772 ft msl | **Runway Surface Condition:** | |
| **Runway Used:** | 0 | **IFR Approach:** | |
| **Runway Length/Width:** | | **VFR Approach/Landing:** | |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Destroyed |
| **Passenger Injuries:** | 1 Fatal | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 2 Fatal | **Latitude, Longitude:** | 43.459358,-85.950927(est) |

## Administrative Information

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| **Investigator In Charge (IIC):** | Gattolin, Frank |
| **Additional Participating Persons:** | WILLIAM NAYMICK; GRAND RAPIDS , MI |
| **Report Date:** | September 9, 1998 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=10444 |