# Aviation Investigation Final Report

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| **Location:** | Daytona Beach, Florida | **Accident Number:** | ERA17LA113 |
| **Date & Time:** | February 24, 2017, 06:39 Local | **Registration:** | N255JB |
| **Aircraft:** | Cirrus SR20 | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Loss of control in flight | **Injuries:** | 2 Serious |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The instrument-rated private pilot had filed an instrument flight rules (IFR) flight plan for the cross-country flight, but intended to depart under visual flight rules conditions and open his IFR flight plan shortly after takeoff. He stated that, during the preflight inspection, he did not see any low clouds and was able to see stars above him. The airplane departed shortly before sunrise, and the pilot stated that, while retracting the flaps after takeoff, he encountered low-level fog about 300 ft agl and the airplane entered instrument meteorological conditions. The pilot made a right turn to avoid the final approach course to the opposite runway, then saw a tree and attempted to avoid impacting it; he then recalled waking up in the airplane on the ground. Weather conditions near the accident site about the time of the accident included scattered clouds at 500 ft and a visibility of 6 miles in mist. The series of events described by the pilot was consistent with a loss of control due to spatial disorientation, likely due to the unexpected loss of visibility during the initial climb.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadvertent encounter with instrument meteorological conditions (fog) during initial climb, which resulted in a loss of control due to spatial disorientation.

## Findings

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| **Personnel issues** | Monitoring environment - Pilot |
| **Personnel issues** | Spatial disorientation - Pilot |
| **Environmental issues** | Fog - Effect on personnel |

# Factual Information

## History of Flight

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| **Initial climb** | Loss of control in flight (Defining event) |
| **Initial climb** | Controlled flight into terr/obj (CFIT) |
| **Initial climb** | VFR encounter with IMC |

On February 24, 2017, about 0639 eastern standard time, a Cirrus SR-20, N255JB, was destroyed when it impacted terrain shortly after takeoff from Spruce Creek Airport (7FL6), Daytona Beach, Florida. The private pilot and passenger were seriously injured. Instrument meteorological conditions prevailed and an instrument flight rules (IFR) flight plan had been filed. The personal flight, destined for Lumberton Regional Airport (LBT) Lumberton, North Carolina, was conducted under the provisions of 14 Code of Federal Regulations Part 91.

Track data obtained from Federal Aviation Administration (FAA) radar sensors depicted the airplane climbing out on runway heading to about 300 feet mean sea level, before beginning a descending right turn to the north. About two minutes later, radar contact was lost at an altitude of 50 feet on a northerly ground track.

The pilot stated during the preflight he did not see any low clouds and was able to see stars above him. The pilot intended to depart under visual flight rules (VFR) and open his IFR flight plan after he had reached 1,000 ft. At sunrise, he departed under VFR, while retracting the flaps on initial climbout he encountered instrument meteorological conditions (IMC). He stated, "I was not able to see the low fog until I encountered it." He turned right to avoid any traffic that may have been on final approach to the opposite runway then suddenly he saw a tree. He maneuvered the airplane in an attempt to avoid the tree, then recalled being on the ground, upside down in the airplane. He stated he had not yet begun to transition to instrument flying when he encountered IMC.

An FAA inspector examined the airplane at the accident site. According to the inspector, the engine was separated from the airframe. The wings, cockpit, fuselage, and empennage all sustained extensive impact damage.
A postaccident examination of the airframe and engine revealed no preimpact mechanical anomalies that would have prevented normal operation of the airplane.

The four-seat, low-wing, tricycle gear airplane was manufactured in 2000, and was equipped with a Continental IO-360. Its most recent inspection was completed in March 2017, at that time the airplane had 1,985 flight hours.

The pilot held a private pilot certificate with a rating for airplane single engine land and instrument airplane. His most recent FAA third-class medical certificate was issued on July 31, 2017. The pilot reported 790 total hours of flight experience at the time of the accident, and about 80 hours of actual instrument time.

The weather conditions reported at Dayton Beach Regional Airport, Daytona Beach, Florida, located about 7 nautical miles north of the accident site, at 0627, included scattered clouds at 500 feet, wind from 340 at 7 knots, visibility 6 statute miles, mist, temperature 19° C, dew point 19° C, and an altimeter setting 29.79 inches of mercury.

Spatial Disorientation

According to FAA Advisory Circular AC 60-4A, "Pilot's Spatial Disorientation," tests conducted with qualified instrument pilots indicated that it can take as long as 35 seconds to establish full control by instruments after a loss of visual reference of the earth's surface. AC 60-4A further states that surface references and the natural horizon may become obscured even though visibility may be above VFR minimums, and that an inability to perceive the natural horizon or surface references is common during flights over water, at night, in sparsely-populated areas, and in low-visibility conditions.

## Pilot Information

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| **Certificate:** | Private | **Age:** | 65,Male |
| **Airplane Rating(s):** | Single-engine land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | 3-point |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 3 With waivers/limitations | **Last FAA Medical Exam:** | July 31, 2015 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 790 hours (Total, all aircraft), 710 hours (Total, this make and model), 700 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Cirrus | **Registration:** | N255JB |
| **Model/Series:** | SR20 | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | 2000 | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 1059 |
| **Landing Gear Type:** | Tricycle | **Seats:** | 4 |
| **Date/Type of Last Inspection:** | March 31, 2016 Annual | **Certified Max Gross Wt.:** | 3000 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 1985 Hrs as of last inspection | **Engine Manufacturer:** | Continental |
| **ELT:** | Installed | **Engine Model/Series:** | IO-360 |
| **Registered Owner:** | | **Rated Power:** | |
| **Operator:** | On file | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Instrument (IMC) | **Condition of Light:** | Dawn |
| **Observation Facility, Elevation:** | KDAB,41 ft msl | **Distance from Accident Site:** | 7 Nautical Miles |
| **Observation Time:** | 11:27 Local | **Direction from Accident Site:** | 10° |
| **Lowest Cloud Condition:** | Scattered / 500 ft AGL | **Visibility** | 6 miles |
| **Lowest Ceiling:** | | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 6 knots / | **Turbulence Type Forecast/Actual:** | / None |
| **Wind Direction:** | 340° | **Turbulence Severity Forecast/Actual:** | / N/A |
| **Altimeter Setting:** | 29.79 inches Hg | **Temperature/Dew Point:** | 19°C / 19°C |
| **Precipitation and Obscuration:** | Moderate - None - Mist | | |
| **Departure Point:** | Daytona Beach, FL (7FL6) | **Type of Flight Plan Filed:** | IFR |
| **Destination:** | LUMBERTON, NC (LBT ) | **Type of Clearance:** | IFR |
| **Departure Time:** | 06:37 Local | **Type of Airspace:** | Class G |

## Airport Information

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| **Airport:** | SPRUCE CREEK 7FL6 | **Runway Surface Type:** | Asphalt |
| **Airport Elevation:** | 23 ft msl | **Runway Surface Condition:** | Vegetation |
| **Runway Used:** | 23 | **IFR Approach:** | None |
| **Runway Length/Width:** | 4000 ft / 176 ft | **VFR Approach/Landing:** | None |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Serious | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | 1 Serious | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 2 Serious | **Latitude, Longitude:** | 29.070833,-81.070831(est) |

## Administrative Information

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| **Investigator In Charge (IIC):** | Hill, Millicent |
| **Additional Participating Persons:** | Richard J Brown; FAA/FSDO ; Orlando, FL<br>Mike Council; Continental; Mobile, AL |
| **Original Publish Date:** | November 6, 2018 |
| **Note:** | The NTSB did not travel to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=94769 |