# Aviation Investigation Final Report

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| **Location:** | Woodbine, New Jersey | **Accident Number:** | MIA08LA166 |
| **Date & Time:** | August 16, 2008, 10:05 Local | **Registration:** | N494ES |
| **Aircraft:** | Costruzioni Aeronautiche P2002 Sierra | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Loss of control in flight | **Injuries:** | 1 None |
| **Flight Conducted Under:** | Part 91: General aviation - Instructional | | |

## Analysis

The student pilot departed and remained in the traffic pattern intending on performing touch-and-go landings. While on final approach with full flaps extended, flying at 10 feet above ground level, the pilot slowed the airplane to 38 knots indicated airspeed (KIAS), though 40 KIAS is the recommended touchdown speed. He reportedly landed, bounced 10 to 15 feet, and applied power to go-around, and he allowed the airplane to decelerate and stall. The airplane was equipped with an electronic flight instrumentation system (EFIS0 that records parameters every 5 seconds including time, date, indicated airspeed, GPS coordinates, ground speed, pitch, pressure altitude, vertical G's, roll, heading, and slip. Readout of the EFIS revealed the entire accident flight was recorded. Data downloaded from the EFIS indicated that before the airplane stalled the pitch attitude (in degrees) increased to 11.94. The airplane rolled to the left and impacted grass to the left of the runway. There was no preimpact failure or malfunction of the airplane or its systems. The 75 hour student pilot stated that he was under stress due to an issue related to work, and he should not have been flying that day. He also reported, "he was much less focused than he should have been."

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The student pilot's failure to maintain airspeed during a go-around. Contributing to the accident was the student pilot's degraded emotional/mental state due to stress.

## Findings

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| **Aircraft** | Airspeed - Not attained/maintained |
| **Personnel issues** | Aircraft control - Pilot |
| **Personnel issues** | Stress - Pilot |

# Factual Information

## History of Flight

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| **Approach-VFR go-around** | Loss of control in flight (Defining event) |
| **Landing-flare/touchdown** | Attempted remediation/recovery |
| **Uncontrolled descent** | Collision with terr/obj (non-CFIT) |

On August 16, 2008, about 1005 eastern daylight time, a Special Light-Sport (S-LSA) Costruzioni Aeronautiche Tecnam P2002 Sierra airplane, N494ES, registered to and operated by a private individual, stalled during landing at Woodbine Municipal Airport (1N4), Woodbine, New Jersey. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 Code of Federal Regulations (CFR) Part 91, local instructional flight from 1N4. The airplane was substantially damaged and the student pilot, the sole occupant, was not injured. The flight originated about 0959, from 1N4.

The student pilot stated that he was under stress due to an issue related to work, and he should not have been flying that day. He also reported, "he was much less focused than he should have been", and he intended on performing touch-and-go landings. After takeoff the flight remained in the traffic pattern for runway 31, and the downwind leg was flown at 1,300 feet above mean sea level (msl) instead of 1,000 feet msl. He turned base leg, then turned onto final approach. While on final approach with full flaps extended he performed a forward slip to lose altitude because the flight was too high, but recognized the flight was too low at the end of the slip. He applied aft elevator input in an attempt to extend the glide but did not apply power. The airplane descended from approximately 15 feet, contacted the runway, and bounced 10 to 15 feet. While in a nose-high attitude, he added power to go-around but inadvertently performed a power-on stall. The airplane rolled left, pitched nose down, and impacted grass off the left side of the runway. He further stated there was no preimpact failure or malfunction of the airplane or its systems, and there was no turbulence.

The pilot began flight training on December 2, 2006, and continued to July 13, 2007, during which time he accumulated 35.5 hours in Cessna 172 airplanes. No flight time during that time was logged as pilot-in-command (PIC), and no flights were logged between July 13, 2007, and May 5, 2008. At that time he resumed flight instruction in a Tecnam Sierra airplane. He continued to receive flight instruction and first soloed on July 28, 2008. At the time of his first solo flight, he had accumulated approximately 31 hours during 25 flights since resuming his flight instruction. Including his first sole flight, he logged 3.5 hours as PIC during the course of 7 flights. Excluding the accident flight, he logged a total time of 75 hours.

The airplane was equipped with an Advanced Flight Systems, Inc., EFIS that records parameters every 5 seconds including time, date, indicated airspeed, GPS coordinates and ground speed, pitch, pressure altitude, vertical G’s, roll, heading, and slip. The EFIS was

removed and retained for readout by the National Transportation Safety Board (Safety Board) Vehicle Recorder Division.

Readout of the EFIS revealed the entire accident flight was recorded. A plot of downloaded data depicted the maximum altitude flown on the downwind leg was 1,170 feet, and the airplane then descended to 890 feet at the end of the downwind turn. The airplane at that time was flying at 66 knots indicated airspeed (KIAS) or 70 knots ground speed. The flight turned onto left base and descended to approximately 550 feet and slowed to 48 KIAS, or 50 knots ground speed. The flight turned onto final approach and flew towards the runway descending to 10 feet above ground level while decelerating to 38 KIAS. The airplane pitch up moment increased to a maximum of 11.94 degrees, and approximately 5 seconds later the recorded indicated airspeed was 11 knots, the pitch was negative 7.14 degrees, and the heading changed to approximately 209 degrees.

Safety Board review of the Flight Manual revealed the optimal touchdown speed with full flaps is 40 knots and the “Balked Landing” procedures specify to apply full throttle and accelerate to 60 KIAS, retract the flaps to 15 degrees, then accelerate to 65 KIAS, and adjust the trim.

The pilot reported that the aircraft was 220 pounds below gross weight at the time of the accident; the stall speed at gross weigh with full flaps extended is 24 KIAS. The calculated rate of climb during a balked landing based on the temperature (24 degrees Celsius), altimeter (30.01 inches of Mercury), and airport elevation (42 feet), would have been approximately 500 feet-per-minute.

## Student pilot Information

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| **Certificate:** | Student | **Age:** | 58,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:** | No |
| **Medical Certification:** | Class 3 With waivers/limitations | **Last FAA Medical Exam:** | March 29, 2007 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 75 hours (Total, all aircraft), 40 hours (Total, this make and model), 4 hours (Pilot In Command, all aircraft), 36 hours (Last 90 days, all aircraft), 16 hours (Last 30 days, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Costruzioni Aeronautiche | **Registration:** | N494ES |
| **Model/Series:** | P2002 Sierra | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Special light-sport (Special) | **Serial Number:** | 201 |
| **Landing Gear Type:** | Tricycle | **Seats:** | 2 |
| **Date/Type of Last Inspection:** | Unknown | **Certified Max Gross Wt.:** | 1320 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 51 Hrs at time of accident | **Engine Manufacturer:** | Bombardier-Rotax GmbH |
| **ELT:** | C91A installed, activated, did not aid in locating accident | **Engine Model/Series:** | 912 ULS |
| **Registered Owner:** | David C. Rola | **Rated Power:** | 100 Horsepower |
| **Operator:** | David C. Rola | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | WWD,23 ft msl | **Distance from Accident Site:** | 15 Nautical Miles |
| **Observation Time:** | 10:15 Local | **Direction from Accident Site:** | 215° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 6 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 330° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 30.01 inches Hg | **Temperature/Dew Point:** | 24°C / 17°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Woodbine, NJ (1N4 ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | (1N4 ) | **Type of Clearance:** | None |
| **Departure Time:** | 09:59 Local | **Type of Airspace:** | |

## Airport Information

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| **Airport:** | Woodbine Municipal Airport 1N4 | **Runway Surface Type:** | Asphalt |
| **Airport Elevation:** | 42 ft msl | **Runway Surface Condition:** | Dry |
| **Runway Used:** | 31 | **IFR Approach:** | None |
| **Runway Length/Width:** | 3073 ft / 75 ft | **VFR Approach/Landing:** | Go around;Traffic pattern |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 None | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 None | **Latitude, Longitude:** | 39.219165,-74.794723(est) |

## Administrative Information

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| **Investigator In Charge (IIC):** | Monville, Timothy |
| **Additional Participating Persons:** | Darryl Fortner; FAA/FSDO; Philadelphia, PA |
| **Original Publish Date:** | October 19, 2009 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=68710 |