Aviation Investigation Final Report

Location:	Bunn, North Carolina	**Accident Number:**	ERA14LA199
Date & Time:	April 13, 2014, 15:42 Local	**Registration:**	N318BA
Aircraft:	AIRCRAFT INDUSTRIES A.S. L33 SOLO	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The glider was towed aloft and then released. Shortly after, the glider pilot radioed the towplane pilot and informed him that he was returning to the airport. Because of the short duration of the glider flight, the towplane pilot asked the glider pilot if he wanted to be towed aloft again, and he replied that he did. Witnesses on the ground reported observing the glider low on the downwind leg and then turning onto the base leg. Based on data from the onboard portable GPS receiver, the glider turned onto final approach and flew in a southerly direction toward the runway with its groundspeed decreasing from 34 to 25 knots during the last few seconds of the flight. The glider impacted the ground in a nose-low attitude, which caused the wing to separate.

Postaccident examination of the glider found no evidence of a preimpact failure or malfunction of the flight controls or air brakes, and the air brakes were retracted. The published stall speed for the glider with the air brakes retracted is about 34 knots indicated airspeed. Although the indicated airspeed during the final portion of the flight could not be determined, the evidence indicates that the pilot likely failed to maintain adequate airspeed while approaching the airport, which resulted in a stall/mush.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to maintain airspeed while approaching the airport, which resulted in a stall/mush.

Findings

Aircraft	Airspeed - Not attained/maintained
Aircraft	Angle of attack - Capability exceeded
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Approach-VFR pattern final	Aerodynamic stall/spin (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On April 13, 2014, about 1542 eastern daylight time (EDT), an Aircraft Industries a.s. (formerly LET Aeronautical Works) L33 SOLO glider, N318BA, collided with terrain approximately 400 feet north-northeast of Crooked Creek Airport (7NC5), Bunn, North Carolina. The private pilot sustained serious injuries, and the glider was substantially damaged. The glider was registered to and operated by North Carolina Soaring Association, under the provisions of 14 Code of Federal Regulations (CFR) Part 91 as a personal flight. Visual meteorological conditions prevailed at the time and no flight plan was filed. The flight originated from 7NC5 about 1525 EDT.

The pilot was towed aloft from runway 22 and released at approximately 2,000 feet mean sea level at a point approximately just over 1 mile northwest of 7NC5. The tow plane returned to 7NC5 and landed, then shortly thereafter, the tow plane pilot stated that the accident pilot reported that he was returning to 7NC5. The tow plane pilot asked him if he wanted another tow aloft since the flight was a short duration and he replied affirmative.

Witnesses who were on 7NC5 reported hearing the pilot announce that he was entering the traffic pattern for a right downwind for runway 22. The witnesses looked towards that direction and noted the glider was abeam the approach end of runway 22 but noted the glider appeared to be low. The glider turned onto base leg where trees obscured one witnesses view; however, another witness reported seeing the glider through the trees and observed the glider in a nose-low angle greater than 50 degrees, then observed what appeared to be the wings rotate as if in a ground loop but at a higher angle. The witnesses heard an impact and ran to the accident site. On arrival they noted the pilot was being attended to by homeowners that lived near the airport. Fire rescue responded and the pilot was transported by ambulance to a nearby fire station, and then was airlifted to a hospital for treatment of his injuries. Copies of the witness statements are contained in the NTSB public docket.

The accident site was located at 35 degrees 56 minutes 05 seconds North latitude and 078 degrees 14 minutes 32 seconds West longitude, or about 450 feet and 34 degrees from the approach end of runway 22. The wing was separated from the attach points of the fuselage; however, the 2 pins that secure each wing were in place. Postaccident inspection of the glider by the Federal Aviation Administration (FAA) inspector-in-charge (IIC), as well as by the Chief Tow Pilot of the glider owner revealed no evidence of preimpact failure or malfunction of the flight controls for roll, pitch, yaw, and air brakes. The FAA-IIC reported that the air brakes in the wings were retracted, although there was no way to determine the position of the air brake handle at impact. The right wingtip was bent up, and the leading edge of the left wing was crushed aft. A portable GPS receiver was removed from the glider for safekeeping before FAA arrival. The GPS receiver was later sent to the NTSB Vehicle Recorder Division, located in Washington, D.C., for read-out.

According to the NTSB Vehicle Recorder Division Specialist's GPS Device Factual Report, the data was downloaded without difficulty. Four sessions on the accident date were recorded, which included the accident flight. The downloaded data indicated that after being towed aloft, numerous changes in heading were noted. Plotting of the data revealed that between 1541:20, and 1541:35, the glider was north of the airport flying in an easterly direction consistent with a base leg, and slowed from 53 to 32 knots. The glider then flew in a southerly direction towards the airport, and between 1541:53 and 1541:57, the glider turned slightly to the right and the groundspeed decreased from 34 knots to 25 knots. The last recorded GPS target at 1541:57, was located at 35.93588 degrees North latitude and -78.2427 degrees West longitude. The accident site was located about 450 feet and 163 degrees from the last GPS target location.

According to the Type Certificate Data Sheet, the empty weight is approximately 463 pounds. The pilot's weight per his last medical application on October 16, 2013, was reported to be 219 pounds. Based on the glider empty weight and the pilot's weight at his least medical, the approximate gross weight at the time of the accident was 682 pounds.

According to the Flight Manual, the recommended approach speed with air brakes retracted is 49 knots indicated airspeed (KIAS). The stall speed chart in the Flight Manual indicates that at the approximate weight at the time of the accident, the stall speed is approximately 34 KIAS. Excerpts of the Flight Manual are contained in the NTSB public docket.

An aviation surface observation taken at Triangle North Executive Airport (LHZ), Louisburg, North Carolina, on the day of the accident at 1535, or about 7 minutes before the accident, indicates the wind was from 160 degrees at 11 knots with gusts to 15 knots, the visibility was 10 statute miles, and scattered clouds existed at 5,500 and 7,000 feet. The temperature and dew point were 25 and 13 degrees Celsius, respectively, and the altimeter setting was 30.13 inches of Mercury. The accident site was located about 7 nautical miles and 142 degrees from LHZ.

Pilot Information

Certificate:	Airline transport; Flight engineer; Private	**Age:**	57
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	Glider	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	October 16, 2013
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	November 22, 2013
Flight Time:	12650 hours (Total, all aircraft), 110 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	AIRCRAFT INDUSTRIES A.S.	**Registration:**	N318BA
Model/Series:	L33 SOLO	**Aircraft Category:**	Glider
Year of Manufacture:	1997	**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	970418
Landing Gear Type:	Ski/wheel	**Seats:**	1
Date/Type of Last Inspection:	May 29, 2013 Annual	**Certified Max Gross Wt.:**	750 lbs
Time Since Last Inspection:		**Engines:**	
Airframe Total Time:	592 Hrs at time of accident	**Engine Manufacturer:**	
ELT:	Not installed	**Engine Model/Series:**	
Registered Owner:	NORTH CAROLINA SOARING ASSOCIATION	**Rated Power:**	
Operator:	NORTH CAROLINA SOARING ASSOCIATION	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LHZ,368 ft msl	**Distance from Accident Site:**	7 Nautical Miles
Observation Time:	15:35 Local	**Direction from Accident Site:**	322°
Lowest Cloud Condition:	Scattered / 5500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots / 15 knots	**Turbulence Type Forecast/Actual:**	/ Unknown
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	/ Unknown
Altimeter Setting:	30.12 inches Hg	**Temperature/Dew Point:**	25°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bunn, NC (7NC5)	**Type of Flight Plan Filed:**	None
Destination:	Bunn, NC (7NC5)	**Type of Clearance:**	None
Departure Time:	15:25 Local	**Type of Airspace:**	

Airport Information

Airport:	Crooked Creek Airport 7NC5	**Runway Surface Type:**	Grass/turf
Airport Elevation:	250 ft msl	**Runway Surface Condition:**	Rough
Runway Used:	22	**IFR Approach:**	None
Runway Length/Width:	2500 ft / 80 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	35.934722,-78.242225

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Royden Henry; FAA FSDO; Greensboro, NC
Original Publish Date:	July 7, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=89061

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties … and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available here.