Aviation Investigation Final Report

Location:	Brunswick, Georgia	**Accident Number:**	ERA15LA075
Date & Time:	December 13, 2014, 13:40 Local	**Registration:**	N955R
Aircraft:	JOHNSON DAVID EARL RENEGADE SPIRIT	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot had owned the experimental amateur-built airplane for about 3 years but had never flown it. He had performed several hours of taxi and ground tests while troubleshooting the operation of the engine that he had installed in the airplane. On the day of the accident, the pilot told an acquaintance that he had been having trouble with the airplane's brakes and that the engine was idling too high. After adjusting the carburetor, engine operation seemed to have improved, and the pilot said that he might try flying the airplane. The acquaintance cautioned the pilot against doing so given the condition of the brakes and inconsistent engine operation; however, the pilot proceeded to the runway and departed.

Two witnesses near the accident site saw the airplane in a left bank as though the pilot was attempting to return to the runway. One of the witnesses, who was a pilot, heard the engine lose power and saw the airplane descend in a manner consistent with an aerodynamic stall.

Postaccident examination revealed that all flight controls were continuous from the cockpit to their respective control surfaces. The fuel lines to the engine were unobstructed. Examination of the engine revealed continuity throughout and established compression on all cylinders; however, no further examination of the engine or its accessories was performed, and the reason for the loss of engine power could not be determined.

The airplane's descent and impact attitude were consistent with a loss of control due to an exceedance of the airplane's critical angle of attack and a subsequent aerodynamic stall following a loss of engine power.

Probable Cause and Findings

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

The pilot's decision to fly the airplane with known engine deficiencies and his subsequent exceedance of the airplane's critical angle of attack following a loss of engine power, which resulted in an aerodynamic stall and loss of control after takeoff.

Findings

Personnel issues	Decision making/judgment - Pilot
Aircraft	(general) - Malfunction
Aircraft	Angle of attack - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Takeoff	Loss of engine power (partial)
Takeoff	Aerodynamic stall/spin (Defining event)
Takeoff	Collision with terr/obj (non-CFIT)

On December 13, 2014, about 1340 eastern standard time, an experimental amateur-built Renegade Spirit, N955R, was substantially damaged when it impacted a residence shortly after takeoff from Malcom McKinnon Airport (SSI), Brunswick, Georgia. The private pilot was fatally injured. The airplane was owned and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed, and no flight plan was filed for the local personal flight, which was originating at the time of the accident.

An acquaintance of the pilot, who witnessed the airplane depart, reported that he and the pilot had been working on the airplane for several weeks and that the pilot was having trouble with the airplane's engine. On the day of the accident, the witness heard the pilot start the airplane; the engine began "coughing" and then shut down. The witness walked over to the pilot's hangar, and the pilot reported that the engine was idling "too high." The pilot also told the witness that he was having a problem with the brakes that was making it difficult to bring the airplane to a stop during taxi tests. The pilot adjusted the carburetor, which seemed to improve the engine's operation, and the pilot told the witness he was going to take the airplane out to the runway to taxi it and maybe fly it. The witness advised the pilot against this, stating that the engine was not operating consistently and that the brakes were not working correctly. The pilot replied that he could cut off the engine to bring the airplane to a stop and that the runway was "plenty long."

The witness watched the pilot taxi the airplane to runway 22 as the engine continued to "hesitate and cough." The pilot applied engine power, and the airplane accelerated down the runway. The airplane became airborne, settled onto the runway, and became airborne a second time. The witness stated that it appeared the pilot was having difficulty controlling the airplane and that it barely cleared trees at the end of the runway as it climbed. The airplane entered a left turn before it disappeared from his view.

A witness near the accident site stated that the airplane looked as if it had just taken off and was either attempting to turn back to the airport or land in a field. The airplane entered a steep descent and appeared to impact a nearby house.

A third witness, who was a pilot, reported that he heard the engine "cut off," and the airplane entered an "aggressive" left turn back toward the airport at an altitude of about 200 ft above ground level. The airplane began to lose altitude and then "dropped out of the sky as if it had stalled."

Pilot Information

Certificate:	Private	**Age:**	68,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 None	**Last FAA Medical Exam:**	October 30, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 3640 hours (Total, all aircraft), 0 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

The pilot held a private pilot certificate with a rating for airplane single-engine land. His most recent Federal Aviation Administration (FAA) third-class medical certificate was issued in October 2012. On the application for that certificate, he reported 3,640 total hours of flight experience and 0 hours in the previous 6 months. The pilot's logbooks were not recovered.

Aircraft and Owner/Operator Information

Aircraft Make:	JOHNSON DAVID EARL	**Registration:**	N955R
Model/Series:	RENEGADE SPIRIT	**Aircraft Category:**	Airplane
Year of Manufacture:	1995	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	103P
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Continental
ELT:		**Engine Model/Series:**	A-65
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

The airplane was manufactured in 1995 and originally equipped with a Formula Power Subaru EA-81 engine. The pilot purchased the airplane in 2011; the pilot's acquaintance reported that the pilot had never flown the airplane since purchasing it. According to the acquaintance, the pilot had replaced the engine with a Continental A65 and subsequently replaced the carburetor on the newly-installed engine; the engine had "never run correctly" since it was installed on the

airplane. At the accident site, the airplane's Hobbs meter read 6.4 hours; according to the acquaintance, this time was accumulated during ground and taxi tests. No maintenance records or operating limitations were recovered, and it could not be determined whether the airplane had a current condition inspection.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SSI,19 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.11 inches Hg	**Temperature/Dew Point:**	18°C / 0°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Brunswick, GA (SSI)	**Type of Flight Plan Filed:**	None
Destination:	Brunswick, GA (SSI)	**Type of Clearance:**	None
Departure Time:	13:40 Local	**Type of Airspace:**	Class G

The 1353 weather observation at SSI included wind from 210° at 4 knots, 10 statute miles visibility, clear skies, temperature 18°C, dew point 0°C, and an altimeter setting of 30.11 inches of mercury.

Airport Information

Airport:	McKinnon St Simons Island SSI	**Runway Surface Type:**	Asphalt
Airport Elevation:	19 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	22	**IFR Approach:**	None
Runway Length/Width:	5584 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	31.145555,-81.388336(est)

The FAA inspector who responded to the accident site reported that the airplane appeared to have descended almost straight down in a flat, upright position, and came to rest against a house about 1,000 ft southeast of the approach end of runway 4 at SSI. Trees surrounding the house that the airplane impacted showed no signs of damage. The forward portion of the fuselage, from the instrument panel forward, was destroyed during impact with the house. The engine was separated from the airframe and laying at the front of the wreckage. One blade of the propeller was sheared off, and the other blade was split in half. Fuel was leaking from the left upper wing tank and had saturated the ground around the wreckage. Continuity of the flight controls was confirmed from the cockpit to the respective control surfaces.

The engine was rotated by hand and displayed continuity throughout and compression on all cylinders. The magnetos exhibited no anomalies. The fuel lines to the engine were unobstructed.

Medical and Pathological Information

The Division of Forensic Sciences Coastal Regional Lab, Georgia Bureau of Investigation, Savannah, Georgia, performed an autopsy on the pilot. The cause of death was listed as "craniocerebral injuries due to aircraft accident."

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed forensic toxicological testing on specimens from the pilot. Amlodipine, bisoprolol, and trimethoprim, were detected in blood and urine. Salicylate was detected in urine. Amlodipine and bisoprolol are prescription medications used to treat high blood pressure. Trimethoprim is a prescription antibiotic, and salicylate, or aspirin, is an over-the-counter analgesic used in the treatment of mild pain. None of these drugs are impairing.

Administrative Information

Investigator In Charge (IIC):	Diaz, Allison
Additional Participating Persons:	Rick Hoy; FAA/FSDO; Atlanta, GA
Original Publish Date:	August 15, 2018
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=90495