Aviation Investigation Final Report

Location:	Waxhaw, North Carolina	**Accident Number:**	ERA12FA256
Date & Time:	March 26, 2012, 14:22 Local	**Registration:**	N61410
Aircraft:	ANDERSON JOHN H AVID FLYER MK 4	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to several pilot-rated eyewitnesses, the airplane was about 30 feet above ground level in about a 30-degree nose-up attitude, while performing a go-around. The pitch attitude of the airplane decreased about treetop level, and one eyewitness stated that the airplane was in a near-vertical nose-down attitude just before entering a spin, followed by the sound of the impact. Another witness indicated that the engine maintained power throughout the accident sequence. Examination of the airframe and engine revealed no evidence of mechanical malfunction or failures that would have precluded normal operation. While the airplane was equipped with a parachute system that was not armed by the pilot before flight, the low altitude at which the pilot lost control of the airplane would have made a successful deployment doubtful even with the system armed. A review of the pilot's medical history did not suggest impairment or incapacitation. It is likely that, considering the close proximity of the recorded groundspeed data to the published stall speed, that the airplane speed during the go-around decreased below the stall speed, which resulted in a low-altitude aerodynamic stall.

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 adequate airspeed during an attempted go-around, which resulted in a low-altitude aerodynamic stall.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

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

HISTORY OF FLIGHT

On March 26, 2012, about 1422 eastern daylight time, an experimental, amateur-built, Avid Flyer MK 4, N61410, impacted the ground during a balked landing at the JAARS-Townsend Airport (N52), Waxhaw, North Carolina. The certificated private pilot was fatally injured. The airplane came to rest in a nose down attitude at the base of several trees and sustained damage to the fuselage and all flight control surfaces. The airplane was registered to and operated by a private individual under the provisions of Title 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed and no flight plan was filed for the flight. The flight departed from the Fairfield County Airport (FDW), Winnsboro, South Carolina at 1341.

According to several pilot-rated witnesses, the airplane was observed in a nose-up pitch attitude of about 30 degrees, about 30 feet above the ground. The airplane was then observed at a lower pitch attitude near the top of a 70-foot-tall tree and was observed banking to the left and right about 30 degrees. The airplane went behind a 85-foot-tall pine tree and then the sound of an impact was heard. One eyewitness reported that just prior to the accident, the airplane entered a near vertical nose down attitude, entered a spin, and then disappeared into the trees. The eyewitnesses reported that the engine sounded as though it was producing full power during the accident sequence.

PERSONNEL INFORMATION

The pilot, age 63, held a private pilot certificate with ratings for airplane single-engine land and instrument airplane. His last Federal Aviation Administration (FAA) third-class medical certificate was issued November 3, 2010 and was not valid for any class after November 30, 2011. At the time of the accident, the pilot was utilizing his driver's license in-lieu of a medical certificate. According to the pilot's logbook, the most recent entry was dated February 21, 2012 and at the time indicated 264.8 hours of total flight experience, 218.9 hours of flight experience as pilot in command, and 9.2 hours of total flight experience in the accident aircraft make and model. The pilot's most recent flight review was conducted on September 19, 2011.

AIRCRAFT INFORMATION

The two-seat, high-wing, fabric-covered, steel-tube construction, single-engine, experimental-

amateur built airplane was equipped with a Jabiru 2200A, four-stroke, four-cylinder, air-cooled, reciprocating engine. The airplane had the "Speed wing" design and was also equipped with "STOLSPEED Vortex Generators." The airplane maintenance records indicated that the most recent conditional inspection was completed on October 1, 2011 with a total time in service of 128.5 hours as of that inspection. The most recent airframe maintenance logbook entry was completed on the day of the accident which indicated a tachometer time of 133.52 hours. The entry indicated that the transponder was removed and replaced and that the weight and balance change was negligible. According to FAA aircraft registration records, the airplane was issued an airworthiness certificate on May 29, 2002 and was purchased by the accident pilot on November 15, 2011.

The airplane was also equipped with a Ballistic Recovery System (BRS) which consisted of a solid propellant rocket motor, activation handle and cable, and a parachute container. The rocket motor is used to deploy a parachute capable of supporting up to 1,050 pounds. The airframe had no identification or warning labels associated with the BRS attached; however, while reviewing the logbooks the warning labels where located in a plastic bag inside the file folder containing loose papers associated with the airplane.

AIRPORT INFORMATION

The airport was a privately-owned airport and at the time of the accident it did not have an operating air traffic control tower. The airport was equipped with one runway designated as runway 4/22. The runway was reported as "in excellent condition" at the time of the accident. Runway 4/22 was a 3,309-foot-long by 40-foot-wide runway, and was located 602 feet above mean sea level (msl).

METEROLOGICAL IN FORMATION

The 1435 recorded weather observation at Lancaster Municipal Airport (LKR), Lancaster, South Carolina, located approximately 11 miles to the southwest of the accident location, included wind from 310 degrees at 3 knots, visibility 10 miles, clear skies, temperature 24 degrees C, dew point 5 degrees C and barometric altimeter 29.96 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

Initial examination revealed that the airplane impacted the ground in a small ravine located in a wooded area, about 700 feet to the east of the runway centerline, and came to rest in a nose down attitude between two trees that were about 6 feet apart. The right wing remained attached to the fuselage and the left wing was removed by rescue personnel. Both wings contained 32 plastic vortex generators on the top and just aft of the leading edge. The left wing’s flaperon was impact-separated from the wing at the attach points. The right wing's flaperon remained attached to the wing; however, two of the attach points were impact-separated.

The ballistic recovery system parachute was not deployed, and the rocket was disarmed at the accident site. The maintenance safety pin remained inserted in the pull handle, with the "Remove Before Flight" streamer attached, which was located between the two seats. When removed and examined, the pin did not exhibit any deformation or witness marks.

The fuel tank, located in the right wing, was not breached and contained approximately 5 gallons of a blue fluid similar in color to 100LL aviation fuel. The same color fluid was located in a fuel line forward of the firewall and connected to the engine. A sample of the fluid was collected and was free of foreign objects or water. The cockpit fuel selector valve was found in the "ON" position and operated normally. The engine remained attached to the firewall and the wooden propeller blades were impact-separated at the propeller hub. Control continuity was confirmed to all flight control surfaces from the control column and from the rudder pedals to their respective control surfaces or their respective fracture points.

The engine was examined and continuity was confirmed from the propeller hub to the rear accessory pad and compression was observed on all four cylinders when rotated by hand. No mechanical malfunctions or abnormalities were noted and rotation was smooth with a slight binding during approximately 20 degrees of rotation. The rear accessory gear was noted as making contact with the rear of the engine case during that same 20 degree rotational arc.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on March 27, 2012, by the Mecklenburg County Medical Examiner's Office, Charlotte, North Carolina, as authorized by the Laurens County Coroner's Office. The autopsy findings included "blunt force injuries of the thorax" and the report listed the specific injuries.

Toxicological testing was performed post mortem at the FAA’s Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma. The tests were negative for carbon monoxide, cyanide, and ethanol. Amlodipine was detected in the urine and blood. The medication as well as the pilot's history of hypertension and incidental, asymptomatic atrial fibrillation were reported to the FAA during the pilot's most recent third-class medical examination.

ADDITIONAL INFORMATION

The global positioning system (GPS) was recovered and sent to the NTSB's Vehicle Recorders Laboratory for download. The GPS recorded the accident flight and revealed that the airplane entered the left downwind leg to runway 22 at 1419:20 (HHMM:SS), at an altitude of 1322 feet msl, and at a groundspeed of 58 knots. At 1421:59 the airplane was at 696 feet msl and had a groundspeed of 59 knots. Subsequently, the recording indicated that the airplane began to veer to the left and at 1422:09 the airplane was at 656 feet msl and had a groundspeed of 44 knots, that groundspeed was maintained until the end of the recording at 1422:13. The recording ended in the vicinity of the accident location.

The Avid Yearbook

A publication provided by the kit manufacturer was located with the maintenance records for the aircraft. The book included directives, service letters, and performance numbers for the Mark IV which included the stall speed for the "Speedwing" design and indicated that the speed was about 42-46 mph [36–40 knots] depending on the weight of the aircraft.

Pilot Information

Certificate:	Private	**Age:**	63,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	November 3, 2010
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 19, 2011
Flight Time:	(Estimated) 265 hours (Total, all aircraft), 9 hours (Total, this make and model), 219 hours (Pilot In Command, all aircraft), 4 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	ANDERSON JOHN H	**Registration:**	N61410
Model/Series:	AVID FLYER MK 4	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	1414D
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	October 1, 2011 Condition	**Certified Max Gross Wt.:**	1050 lbs
Time Since Last Inspection:	8 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	128 Hrs as of last inspection	**Engine Manufacturer:**	Jabiru
ELT:	C91 installed, not activated	**Engine Model/Series:**	2200A
Registered Owner:	On file	**Rated Power:**	85 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LKR,468 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	14:35 Local	**Direction from Accident Site:**	212°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	310°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	24°C / 5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Winnsboro, SC (FDW)	**Type of Flight Plan Filed:**	None
Destination:	Waxhaw, NC (N52)	**Type of Clearance:**	None
Departure Time:	13:41 Local	**Type of Airspace:**	

Airport Information

Airport:	JAARS- Townsend Airport N52	**Runway Surface Type:**	Asphalt
Airport Elevation:	602 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	22	**IFR Approach:**	None
Runway Length/Width:	3309 ft / 40 ft	**VFR Approach/Landing:**	Go around

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:**	34.863609,-80.745277

Administrative Information

Investigator In Charge (IIC):	Etcher, Shawn
Additional Participating Persons:	Lewis Sain; FAA/FSDO; Charlotte, NC
Original Publish Date:	August 29, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=83226