Aviation Investigation Final Report

Location:	Cartersville, Georgia	**Accident Number:**	ERA09LA203
Date & Time:	March 19, 2009, 11:08 Local	**Registration:**	N312RW
Aircraft:	Wayne O Robinson S6S Rans	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	2 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was departing in an experimental, amateur-built airplane, equipped with a non-certificated 65-horsepower engine. Shortly after takeoff, the airplane lost partial engine power, banked 90 degrees left, nosed down and collided with the ground while attempting to return to the runway. Examination of the engine ignition system found that it was equipped with two coil packs. Chafing was observed on two wires from the aft coil pack. If the chafed wire running to the ignition made contact with the adjacent ground wire, or the engine block, the aft cylinder would have stopped producing power, and the remaining cylinder would have had difficulty continuing normal operation.

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 following a partial loss of engine power during initial climb, which resulted in an aerodynamic stall. Contributing to the accident was chafed wires in the ignition system.

Findings

Personnel issues	Incorrect action performance - Pilot
Aircraft	Airspeed - Not attained/maintained
Aircraft	Electrical pwr sys wiring - Damaged/degraded

Factual Information

History of Flight

Initial climb	Loss of engine power (partial)
Emergency descent	Aerodynamic stall/spin (Defining event)

On March 19, 2009, at 1108 eastern daylight time, an experimental, amateur-built S6S Rans, N312RW, received substantial damage when it collided with the ground following a loss of engine power after takeoff from the Cartersville Airport (VPC), Cartersville, Georgia. The certificated private pilot and passenger received serious injuries. Visual meteorological conditions prevailed and no flight plan was filed for the local flight. The airplane was registered to a private individual and operated by the private pilot under the provision of 14 Code of Federal Regulations Part 91.

Witnesses stated that shortly after takeoff, the engine lost power and the pilot attempted to return to the runway. While turning at a steep bank angle, approximately 90 degrees left bank, the airplane nosed down and collided with the ground. Witnesses called local authorities and proceeded to the accident site to lend assistance.

Examination of the airplane found that it had impacted the ground in about a 30-degree nose down attitude. The engine was displaced back into the firewall and the firewall was displaced into the cockpit. Both wings sustained leading edge impact damage, and both main landing gear were observed bowed outward. The cargo area, empennage, rudder, and horizontal stabilizers were undamaged. Flight control continuity was established throughout the airplane. Examination of the airframe and flight controls revealed no anomalies.

Examination of the engine revealed it was equipped with two coil packs, one for each cylinder. Both coil packs were removed and the wiring harness to the ignitions switch was also removed. Chafing was observed on two wires in the rear coil packs wiring. One wire, light brown in color, was connected to the coil pack and to a ground nut on the alternator. It was observed chafed near a plastic wire connector, traversing along the rear of the engine. A second wire was observed chafed at the same location, but was black and yellow in color and was connected at the ignition switch and the aft coil pack.

The two-seat, high-wing, fixed tricycle gear airplane, serial number 11041619S, was issued a Federal Aviation Administration experimental airworthiness certificate on January 25, 2008. It was powered by a non-certificated Rotax 582 DCDI, 65-horsepower engine. According to the aircraft flight logbook, the last conditional inspection was performed on August 7, 2008. At that time, the airplane had accumulated 40 hours of operation. At the time of the accident, the airplane had accumulated 103 hours of operation.

Pilot Information

Certificate:	Private	**Age:**	49,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:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	February 7, 2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 1500 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Wayne O Robinson	**Registration:**	N312RW
Model/Series:	S6S Rans	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	11041619S
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	August 7, 2008 Condition	**Certified Max Gross Wt.:**	1200 lbs
Time Since Last Inspection:	63 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	103 Hrs at time of accident	**Engine Manufacturer:**	Rotax
ELT:	C91 installed, activated, did not aid in locating accident	**Engine Model/Series:**	582 DCDI
Registered Owner:	On file	**Rated Power:**	65 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:	VPC,759 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	19°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	Broken / 6000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.17 inches Hg	**Temperature/Dew Point:**	19°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cartersville, GA (VPC)	**Type of Flight Plan Filed:**	None
Destination:	Cartersville, GA (VPC)	**Type of Clearance:**	None
Departure Time:	11:08 Local	**Type of Airspace:**	

Airport Information

Airport:	Cartersville Airport VPC	**Runway Surface Type:**	Asphalt
Airport Elevation:	759 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	19	**IFR Approach:**	None
Runway Length/Width:	5760 ft / 100 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

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:**	34.123054,-84.848609

Administrative Information

Investigator In Charge (IIC):	Wilson, Ralph
Additional Participating Persons:	Kathy Tibbs; FAA/FSDO; College Park, GA
Original Publish Date:	June 17, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=73513