Aviation Investigation Final Report

Location:	Winsted, Minnesota	**Accident Number:**	CHI03LA213
Date & Time:	July 16, 2003, 15:15 Local	**Registration:**	N7895A
Aircraft:	Allenberg Swick BC 12-D	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The airplane was destroyed when it impacted terrain after it banked to the left and descended in a 45-degree nose down angle following takeoff. The airplane was witnessed to have lost and regained engine power several times upon reaching an altitude of 150-200 feet above ground level and about 1/2 way down the departure runway. Examination of the wreckage revealed that the main fuel valve was in the off position and the header tank fuel valve was in the on position. The flight was to serve as a maintenance flight and an instructional flight. The private pilot stated that he thought that the certified flight instructor (CFI) did not have any flight time in the accident airplane. The private pilot accumulated a total flight time of 10.6 hours in the accident airplane, which he last flew about 7 months prior to the accident. The CFI was seated in the left seat and the private pilot was seated in the right seat with the only available control stick positioned between both seats.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The inadequate aircraft preflight by both pilots of the closed main fuel valve which led to fuel starvation of the engine. Additional causes were the lack of recent experience in the accident airplane and the inadvertent stall by both pilots after a loss of engine power.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: CLIMB

Findings
1. (C) FLUID,FUEL - STARVATION/EXHAUSTION
2. FUEL TANK SELECTOR POSITION - IMPROPER - PILOT IN COMMAND
3. (C) LACK OF RECENT EXPERIENCE IN TYPE OF AIRCRAFT
4. (C) AIRCRAFT PREFLIGHT - INADEQUATE

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CLIMB

Findings
5. (C) STALL - INADVERTENT

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
6. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On July 16, 2003, at 1515 central daylight time, an experimental amateur-built Allenberg Swick BC 12-D, N7895A, was destroyed on impact with terrain during climb from runway 09 (3,248 feet by 200 feet, turf) at Winsted Municipal Airport, Winsted, Minnesota. The airplane reportedly lost engine power at an altitude of 150-200 feet above ground level (AGL). Visual meteorological conditions prevailed at the time of the accident. The 14 CFR Part 91 flight was not operating on a flight plan. The certified flight instructor (CFI) received fatal injuries, and the private pilot received serious injuries. The local flight was originating at the time of the accident.

According to the private pilot, the purpose of the flight was to serve as a test flight after the airplane had undergone maintenance and for the private pilot to receive recent flight experience. The private pilot stated that he did not remember details of the accident flight.

A witness stated that he saw the airplane lose power three times during the takeoff. At time of the last power loss, the airplane was about 150-200 feet AGL and at the end of runway 09. The airplane went straight ahead for a couple hundred feet without power and then banked left and down about 45 degrees. About 50 feet AGL, the wings leveled off without the airplane flaring. The airplane impacted the ground at a 45-degree angle and flipped over.

During a telephone interview, the same witness said that the airplane first lost engine power when it was about 1/2 way down the runway and about 150-200 feet AGL.

PERSONNEL INFORMATION

The CFI, age 66, held a commercial pilot certificate with airplane single-engine land, airplane single-engine sea, airplane multiengine land, and instrument airplane ratings. He also held a CFI certificate with an airplane single-engine rating and a ground instructor certificate with a basic rating. A total flight time of 11,300 hours was reported at the time of application of his last airman medical certificate. The private pilot did not think that the CFI had any flight time in the make and model of the accident airplane.

The CFI was issued a second class airman medical certificate on September 4, 2002, with the following limitation/restriction: "must wear corrective lenses for near and distant vision."

The private pilot, age 48, held a private pilot certificate with an airplane single-engine land rating. He reported a total flight time of 233.5 hours, of which 10.6 hours were in the accident

airplane make and model. He reported that of the 10.6 hours, 5 hours were as pilot-in-command in the accident airplane. He reported a total flight time of 0 hours in all aircraft in the 30 and 90 days prior to the accident. He said that he had not flown the accident airplane since December 30, 2002.

The private pilot was issued a third class airman medical certificate on June 6, 2001, with the following limitation/restriction: "must wear corrective lenses."

AIRCRAFT INFORMATION

The experimental amateur-built airplane was powered by a Lycoming O-360-A1D, serial number L1418936A, engine, which had an inverted fuel and oil system. The airplane was registered to the private pilot on September 17, 2002. According to the "EAA Amateur Built Aircraft Logbook" identification page for the airplane, the listed maximum gross weight of the airplane was 1,400 lbs. According to weight and balance calculation dated October 6, 1989, the empty weight and center of gravity of the airplane were 968 lbs and 15.5 inches.

Fueling records dated July 15, 2003, showed that the private pilot purchased 18 gallons of fuel, listing 7895A in the "license number" column of the fuel records. The right seat pilot reported that there were 18 gallons of fuel at the time of takeoff. The CFI and the private pilot reported their weights, on their last airman medical applications, as 206 lbs and 196 lbs, respectively.

The airplane was equipped with one bench seat, and at the time of the accident, was configured with one control stick located in the middle of the cockpit and two sets of rudder pedals on the left and right sides of the cockpit. The cockpit configuration at the time of the accident had left and right side 4-point restraint systems. The CFI was seated in the left seat and the private pilot was seated in the right seat. The distance from seatbacks to dash within the wreckage was about 16 inches.

The tachometer indicated 342.7 hours.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the CFI was conducted by the Hennepin County Medical Examiner's Office on July 17, 2003.

The Federal Aviation Administration's (FAA's) Final Forensic Toxicology Fatal Accident Report of the CFI states: no carbon monoxide detected in blood, no cyanide detected in blood, no ethanol detected in urine, quinine detected in blood, quinine present in urine, 2.58 (ug/ml, ug/g) lidocaine detected in blood, and lidocaine present in urine.

Quinine is found in tonic water, and is used to treat severe malaria. It is also commonly used

to reduce the frequency of nocturnal leg cramps (a condition which may cause painful leg muscle spasm at night), and is available in an over-the-counter nutritional supplement marketed for this purpose.

Lidocaine is a local anesthetic, used in certain over-the-counter skin preparations and for minor surgical procedures. It is also given intravenously during medical resuscitation to control abnormal heart rhythms.

WRECKAGE AND IMPACT INFORMATION

Inspection of the accident site by a Federal Aviation Administration inspector revealed that the ground scarring and wreckage path was about 31 feet in length, oriented on a heading of 060/240 degrees, and offset 30 degrees left of runway 09. The main wreckage was inverted and oriented (tail to nose) along the departure runway heading.

During the inspection of the wreckage at the accident site, the airplane's wings were uprighted and the fuel tanks inspected by the removal of the fuel cap. With the wings still in an inverted position, the right fuel tank was about 1/2 full and the left tank contained about less than two gallons of fuel. The fuel lines leading to the fuel selector valve from both wings were broken apart. Fuel from both tanks was later drained with about six gallons from the right tank and about five ounces from the left tank. The fuel was reported as clear, blue, and contained no visible water, particulates, or other contamination. The fuel was consistent with 100 low lead fuel.

Elevator and rudder control continuity was confirmed.

After recovery of the wreckage, inspection of the header tank by an airframe and powerplant mechanic revealed that the fuel system header tank was intact and empty. The header tank fuel valve was in the on position. The main fuel selector valve was in the off position. The main fuel selector valve was operated with aid of pliers through all of its detents which were noted to operate. Inspection of the engine noted compression on all cylinders. The ignition system consisted of one magneto and a high energy ignition system. Inspection of the magneto revealed that it fired the lower spark plugs on all cylinders.

ADDITIONAL INFORMATION

The wreckage was released to the registered owner's insurance company.

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	66,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	September 4, 2002
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	11300 hours (Total, all aircraft), 0 hours (Total, this make and model)		

Pilot Information

Certificate:	Private	**Age:**	48,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	June 21, 2001
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	September 13, 2001
Flight Time:	234 hours (Total, all aircraft), 11 hours (Total, this make and model), 183 hours (Pilot In Command, all aircraft), 0 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Allenberg	**Registration:**	N7895A
Model/Series:	Swick BC 12-D	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	789JDA
Landing Gear Type:		**Seats:**	2
Date/Type of Last Inspection:	July 1, 2003 Condition	**Certified Max Gross Wt.:**	1400 lbs
Time Since Last Inspection:	0.1 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	O-360-AID
Registered Owner:	Joel R Swedberg	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	GYL,992 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	15:17 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots / 0 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	29°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Winsted, MN (10D)	**Type of Flight Plan Filed:**	None
Destination:	(10D)	**Type of Clearance:**	None
Departure Time:	15:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Winsted Municipal 10D	**Runway Surface Type:**	Grass/turf
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	09	**IFR Approach:**	None
Runway Length/Width:	3248 ft / 200 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Fatal, 1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	44.95,-94.066947

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Reo Pratt; Federal Aviation Adminstration; Minneapolis, MN
Original Publish Date:	June 30, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=57529