



National Transportation Safety Board Aviation Accident Final Report

Location:	Jefferson, GA	Accident Number:	ERA12LA141
Date & Time:	01/08/2012, 1130 EST	Registration:	N4626
Aircraft:	BOWERS FLY BABY 1-A	Aircraft Damage:	Destroyed
Defining Event:	Aerodynamic stall/spin	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airplane was about 200 feet above ground level when it stalled, spun about one-half turn to the right, impacted the ground in a nose down attitude, and burned. A witness reported that the pilot was attempting to diagnose an engine problem prior to departure. The witness also said that the engine was running rough and backfiring. A postaccident examination revealed that the right magneto distributor gear was unsecured inside the housing, and galling signatures were present. The galling signatures were consistent with damage found after the gear became loose while the engine was under power. Since limited maintenance records were available, it could not be determined how many flight hours had accumulated since the last engine overhaul; however, it is probable that the cotter pin was not installed in either magneto rotor drive shaft and that the right magneto's castellated nut came loose during engine operation. It is probable that the unsecured distributor gear reduced engine performance, which resulted in a partial loss of engine power. The probability also exists that, at the time of the accident, the airplane was being operated in conditions conducive to serious carburetor icing at cruise power; however, the investigation could not conclusively determine that carburetor icing occurred.

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 airplane control which resulted in an aerodynamic stall and spin. Also causal was the partial loss of engine power during the initial climb due to the improper installation of a magneto. Contributing to the accident was the pilot's decision to take off with an engine problem and the mechanic's failure to detect the missing magneto rotor cotter pins during the last engine overhaul.

Findings

Aircraft	Magneto/distributor - Incorrect service/maintenance (Cause) Airspeed - Not attained/maintained (Cause)
Personnel issues	Installation - Other/unknown (Cause) Aircraft control - Pilot (Cause) Decision making/judgment - Pilot (Factor) Post maintenance inspection - Maintenance personnel (Factor)
Environmental issues	Conducive to carburetor icing - Not specified

Factual Information

HISTORY OF FLIGHT

On January 8, 2012, about 1130 eastern standard time, an experimental, amateur-built Bowers Fly Baby 1-A, N4626, was destroyed when it impacted the ground immediately after takeoff from Jackson County Airport (19A), Jefferson, Georgia. Day, visual meteorological conditions prevailed and no flight plan was filed. The certificated private pilot was fatally injured. The local, personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

According to one eyewitness, the airplane departed runway 35, climbed to between 100 and 200 feet above ground level (agl), stalled, spun about one-half turn to the right, and impacted the ground approximately 45 degrees nose down. The eyewitness further reported that prior to departure, the pilot had reported that he was attempting to diagnose an engine problem; however, the engine sounded as though it was producing power during the takeoff roll.

PERSONNEL INFORMATION

The pilot, age 51, held a private pilot certificate for airplane single-engine land, and a third class medical certificate issued August 6, 2009. According to Federal Aviation Administration (FAA) records, the pilot reported 2,082 total flight hours.

AIRCRAFT INFORMATION

The single-seat, open-cockpit, folding-wing monoplane was manufactured in 1972. It was powered by a Continental A-65-F, 65-horsepower engine. Review of copies of the airframe maintenance logbook records showed a conditional inspection was completed November 29, 2011, at a recorded tachometer reading of 1,425.5 hour, or 343.0 total hours time in service. According to the engine maintenance logbook, the engine was found to be airworthy and installed on the airplane on November 29, 2011 by a certificated airframe and powerplant mechanic; however, the entry indicated that the total time and time since major overhaul were unknown. No other engine logbooks were located. According to an email from the mechanic, he received the engine as part of a project in April, 2010 and there were no logbooks. He further reported that the engine, when installed on the accident airplane, ran "smooth and strong" when started.

METEOROLOGICAL INFORMATION

The 1135 recorded weather observation at 19A included calm wind, visibility 7 miles, scattered clouds at 4,600 feet agl, broken clouds at 12,000 feet agl, temperature 12 degrees C, dew point 12 degrees C, and barometric altimeter 30.21 inches of mercury.

AIRPORT INFORMATION

The airport was equipped with a single runway oriented north to south and designated as 17/35. The runway was 5,009-feet-long and 75-feet-wide, and constructed of asphalt. The airport did not have an air traffic control tower. Communication was accomplished utilizing a common traffic advisory frequency; however, transmissions were not recorded.

WRECKAGE AND IMPACT INFORMATION

According to an FAA inspector that responded to the accident location, flight control cable continuity was confirmed to all flight controls and the airplane was consumed by a post-crash

fire. He further reported that an engine cowling had been replaced sometime prior to the accident flight in order to accommodate the engine installation.

A post-accident examination was conducted on the engine and propeller by an FAA inspector. Corrosion was noted on the spark plugs and a considerable amount of water was found within the engine. The engine and both magnetos were thermally damaged. The spark plugs were removed and appeared to be oil-coked. Continuity was confirmed from the propeller flange to the rear accessory pad and all cylinders operated normally. The left magneto was removed from the accessory pad and the cotter pin for the drive shaft castellated nut could not be located. The right magneto was then removed. The distributor gear was unsecured inside the housing and the castellated nut, cotter pin, and washers for the drive shaft could not be located. The inside of the housing had signatures similar to galling. No other preimpact anomalies were found that would have precluded normal operation.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on January 10, 2012, by the Georgia Bureau of Investigation, Division of Forensic Sciences, as requested by the Jackson County Coroner. The autopsy findings included multiple injuries, and the report listed the specific injuries. The cause of death was reported as multiple injuries.

The FAA's Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot and no drugs of abuse were detected.

ADDITIONAL INFORMATION

The carburetor icing probability chart from the FAA Special Airworthiness Information Bulletin (SAIB): CE-09-35 Carburetor Icing Prevention, June 30, 2009, shows a probability of serious icing at cruise power at the temperature and dew point reported at the time of the accident.

According to the Illustrated Parts Catalog for the engine, both magnetos were Eisemann model AM-4. According to figure 17 "Rotor Shaft Assembly" in the Eisemann Magnetos Service Handbook for the AM-4, a cotter pin was to be installed through the castellated nut and rotor shaft.

History of Flight

Prior to flight	Aircraft maintenance event
Initial climb	Aerodynamic stall/spin (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)
Post-impact	Explosion (post-impact) Fire/smoke (post-impact)

Pilot Information

Certificate:	Private	Age:	50, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Unknown
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:	08/06/2009
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	2082 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BOWERS FLY BABY	Registration:	N4626
Model/Series:	1-A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental Light Sport	Serial Number:	71-28
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:		Certified Max Gross Wt.:	924 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	CONT MOTOR
ELT:		Engine Model/Series:	C85 SERIES
Registered Owner:	On file	Rated Power:	85 hp
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	19A, 951 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1135 EST	Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 4200 ft agl	Visibility	7 Miles
Lowest Ceiling:	Broken / 12000 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.21 inches Hg	Temperature/Dew Point:	12° C / 12° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Jefferson, GA (19A)	Type of Flight Plan Filed:	None
Destination:	Jefferson, GA (19A)	Type of Clearance:	None
Departure Time:	1130 EST	Type of Airspace:	

Airport Information

Airport:	Jackson County Airport (19A)	Runway Surface Type:	Asphalt
Airport Elevation:	951 ft	Runway Surface Condition:	Dry
Runway Used:	35	IFR Approach:	None
Runway Length/Width:	5009 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	1 Fatal	Latitude, Longitude:	34.172222, -83.556944 (est)

Administrative Information

Investigator In Charge (IIC):	Shawn Etcher	Report Date:	04/10/2013
Additional Participating Persons:	Eric Pisz; FAA/FSDO; Atlanta, GA		
Publish Date:	04/10/2013		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=82646		

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