



National Transportation Safety Board Aviation Accident Final Report

Location:	Ambler, PA	Accident Number:	ERA17LA333
Date & Time:	09/24/2017, 1715 EDT	Registration:	N830S
Aircraft:	BUSCHMANN/VANZEE VARI EZ	Aircraft Damage:	Substantial
Defining Event:	Fuel contamination	Injuries:	1 Serious
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The private pilot was conducting a personal flight in the experimental, amateur-built airplane. During the initial climb, the engine lost total power when the airplane was about 200 ft above ground level. The airplane descended and impacted trees beyond the departure threshold; the airplane was destroyed. A witness reported hearing the engine "sputter," and another witness reported that the engine sounded like it did not reach full rpm during takeoff. An engine examination revealed that the gascolator and carburetor contained water-contaminated fuel. The examination did not reveal any other preimpact mechanical malfunctions or anomalies that would have precluded normal operation. Due to his injuries, the pilot was unable to recall the events leading up to the accident. Although he indicated that he routinely completed thorough preflight inspections, he likely either did not sample the fuel or did not adequately eliminate water from the fuel before takeoff. Thus, it is likely that the loss of engine power was due to water contamination of the fuel.

Probable Cause and Findings

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

Water contamination of the fuel that was not detected during a preflight inspection, which resulted in a total loss of engine power.

Findings

Aircraft	Fuel storage - Damaged/degraded (Cause) Fuel - Fluid condition (Cause)
Personnel issues	Preflight inspection - Pilot (Cause)

Factual Information

On September 24, 2017, about 1715 eastern daylight time, an experimental amateur-built Vari EZ, N830S, was destroyed when it impacted trees and terrain near Ambler, Pennsylvania. The private pilot sustained serious injuries. The airplane was registered to and operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Visual meteorological conditions prevailed at the time of the accident, and no flight plan was filed for the flight that departed Wings Field Airport (LOM), Blue Bell, Pennsylvania, just prior to the accident.

According to a witness, during takeoff, the engine sounded like it did "not reach full rpm" and it took the entire 3,700-ft-long runway for the airplane to lift off the ground. Then, about 200 ft above ground level the engine "stopped." Another witness reported hearing the engine "sputter." The airplane was "wobbling," descended, and impacted trees prior to coming to rest near a house.

Initial examination of the airplane by a Federal Aviation Administration inspector revealed that both fuel tanks were ruptured, and fuel was leaking from the wings. The canopy was separated from the fuselage and the forward section of the fuselage exhibited crush damage. The engine remained attached to the airframe and the propeller remained attached to the engine.

According to FAA records, the airplane was manufactured in 1984 and registered the pilot in May 2017. It was equipped with a Lycoming O-235-C series, 100-horsepower engine that drove a Sensenich propeller. According to airplane maintenance logbooks, the most recent condition inspection was completed on April 1, 2017, at 691.0 total aircraft hours.

The engine was removed from the airframe to facilitate further examination. The rocker box covers were removed, and rocker arm movement was noted on all cylinders when the propeller was rotated by hand. Compression and suction were noted on all cylinders. All spark plugs were removed and exhibited normal wear when compared to the Champion Check-A-Plug chart. The magneto was removed, operated, and spark was noted on all towers. Corrosion was noted throughout the engine. It was noted at the crankshaft end of the No. 2 connecting rod and all gears in the accessory section of the engine.

The gascolator was removed and water was noted in the fuel. Also, debris was noted in the fuel that restricted the flow of fluid from the gascolator. The carburetor was removed and disassembled. Water was noted in the carburetor when tested with water finding paste. The left fuel tank fuel cap was impact separated and the tank was breached. The debris noted in the fuel was consistent with a substance that was dried on the interior of the left fuel tank.

The right fuel tank contained fuel and tested negative for water. When water was poured over the right fuel tank cap while it was seated, then the cap was removed, the fuel in the right tank tested positive for water with water finding paste.

According to the pilot, as a result of his injuries from the accident, he was unable to recall any of the events leading up to the accident. However, he stated that it was routine practice for him

to complete a thorough preflight inspection and does not believe there would be a reason that a thorough preflight was not completed on the day of the accident. He also stated that the airplane was kept outside.

History of Flight

Prior to flight	Fuel contamination (Defining event)
Initial climb	Loss of engine power (total) Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Private	Age:	29, 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:	No
Medical Certification:	Class 3	Last FAA Medical Exam:	01/01/2017
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	BUSCHMANN/VANZEE	Registration:	N830S
Model/Series:	VARI EZ	Aircraft Category:	Airplane
Year of Manufacture:	1984	Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	2069
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	04/01/2017, Condition	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	691 Hours as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	Installed	Engine Model/Series:	O-235-C
Registered Owner:	On file	Rated Power:	100 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:	LOM, 302 ft msl	Distance from Accident Site:	3 Nautical Miles
Observation Time:	1715 EDT	Direction from Accident Site:	202°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	50°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.04 inches Hg	Temperature/Dew Point:	30° C / 18° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Blue Bell, PA (LOM)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1715	Type of Airspace:	

Airport Information

Airport:	Wings Field Airport (LOM)	Runway Surface Type:	Asphalt
Airport Elevation:	302 ft	Runway Surface Condition:	
Runway Used:	06	IFR Approach:	None
Runway Length/Width:	3700 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	40.143333, -75.244444 (est)

Administrative Information

Investigator In Charge (IIC):	Heidi Kemner	Report Date:	04/20/2020
Additional Participating Persons:	Eric Bubny; FAA/FSDO; Philadelphia, PA David Harsanyi; Lycoming Engines; Williamsport, PA		
Publish Date:	04/20/2020		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=96064		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).