Aviation Investigation Final Report

Location:	New Berlin, Texas	**Accident Number:**	CEN17FA208
Date & Time:	June 3, 2017, 16:30 Local	**Registration:**	N956ML
Aircraft:	Michael S. Logan Kitfox	**Aircraft Damage:**	Destroyed
Defining Event:	Aerodynamic stall/spin	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot departed on the local flight to practice touch-and-go takeoffs and landings in the experimental, amateur-built airplane. The airplane impacted flat, open terrain just after takeoff and was consumed by a post-impact fire. There were no witnesses to the accident. The wreckage was confined to a small area, and the orientation of the wreckage was consistent with an aerodynamic stall and spin. Examination of the airframe revealed no evidence of mechanical malfunctions or failures. Engine drive train continuity was established. The propeller blades and spinner did not exhibit evidence of rotation at the time of impact. The damage precluded a thorough examination of the engine ignition system.

The pilot's wife said that the pilot had been having ignition issues with the airplane, and described them as the engine missing or quitting entirely during high-powered run-ups. An acquaintance of the pilot reported that the pilot had resolved the ignition problem; however, the pilot did not specify how he had done so. There was no record that the airframe or engine had received a condition inspection in the previous 12 years, and the pilot did not hold a current flight review.

Given the orientation of the wreckage and the lack of rotational signatures on the propeller blades, it is likely that the engine experienced a total loss of power just after takeoff. The reason for the loss of power could not be determined based on the available evidence. Following the loss of power, the pilot failed to maintain adequate airspeed, which resulted in exceeding the airplane's critical angle of attack and a subsequent aerodynamic stall and subsequent spin.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A total loss of engine power for reasons that could not be determined based on the available information, and the pilot's subsequent failure to maintain adequate airspeed, which resulted in the airplane exceeding its critical angle of attack and experiencing an aerodynamic stall/spin.

Findings

Not determined	(general) - Unknown/Not determined
Aircraft	Engine out control - Not attained/maintained
Aircraft	Airspeed - Not attained/maintained
Aircraft	Angle of attack - Not attained/maintained

Factual Information

History of Flight

Initial climb	Aerodynamic stall/spin (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On June 3, 2017, about 1630 central daylight time, an experimental amateur-built SkyStar Kitfox Series 5 airplane, N956ML, impacted terrain next to Heritage Airpark (TE86), New Berlin, Texas. The private pilot was fatally injured, and the airplane was destroyed. The airplane was privately owned and operated under the provisions of Title 14 Code of Federal Regulations Part 91. Day visual meteorological conditions existed near the accident site and no flight plan had been filed. The local personal flight was originating from TE86 at the time of the accident.

According to Federal Aviation Administration (FAA) inspectors, the pilot's wife said her husband was going to practice touch-and-go takeoffs and landings. A witness saw the airplane taxiing for takeoff but did not see the impact. The witness said he heard a "pop" and observed smoke. The witness said he did not know if the "pop" was an engine backfire or the sound of impact. There were other no witnesses to the accident.

Pilot Information

Certificate:	Private	**Age:**	60,Male
Airplane Rating(s):	Single-engine land; Multi-engine land; Multi-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 None	**Last FAA Medical Exam:**	January 20, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	November 9, 2014
Flight Time:	1138 hours (Total, all aircraft), 211 hours (Total, this make and model), 1062 hours (Pilot In Command, all aircraft)		

The pilot held a private pilot certificate with airplane single and multiengine land and multiengine sea ratings. He held an FAA third-class airman medical certificate, dated January 20, 2016, with no restrictions or limitations. The pilot's logbook was reviewed by FAA inspectors and contained entries from November 26, 2014, to June 9, 2015. According to the logbook, the pilot had 1,138 total hours of flight experience, of which 211 hours were in the accident airplane make and model.

His most recent last flight review was completed November 9, 2014. On January 28, 2017, the pilot completed the ground portion of a flight review, but the flight portion was not documented.

According to FAA medical and insurance company records, the pilot estimated he had logged 1,155 total flight hours, 235 hours in the Kitfox, and 10 hours in the previous six months.

Aircraft and Owner/Operator Information

Aircraft Make:	Michael S. Logan	**Registration:**	N956ML
Model/Series:	Kitfox Series 5	**Aircraft Category:**	Airplane
Year of Manufacture:	2000	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	S9407-0038
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	April 23, 2005 Condition	**Certified Max Gross Wt.:**	1550 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Subaru NSI RAM Performance
ELT:	Installed	**Engine Model/Series:**	SHO EA81
Registered Owner:		**Rated Power:**	120 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The airplane, serial number 59407-0038, was built by the pilot from a kit, and was issued a special airworthiness certificate in the experimental category on March 15, 2000.

In February 2008, the pilot installed a a Subaru EA-81 NSI RAM performance engine, serial number 244159, rated at 120 horsepower.

The last condition inspection of the airframe and engine was on April 23, 2005. No times were listed. Other than two entries both dated May 25, 2005, no other entries were entered in the engine logbook.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KRND	**Distance from Accident Site:**	
Observation Time:	14:58 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Few / 4800 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 20000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.87 inches Hg	**Temperature/Dew Point:**	32°C / 20°C
Precipitation and Obscuration:			
Departure Point:	New Berlin, TX (TE86)	**Type of Flight Plan Filed:**	None
Destination:	New Berlin, TX (TE86)	**Type of Clearance:**	None
Departure Time:	16:30 Local	**Type of Airspace:**	Class G

Weather observed at 1658 at Randolph Air Force Base (KRND), Universal City, Texas, located 9 miles northwest of the accident site, indicated the wind was from 190° at 6 knots, visibility was 10 miles, there were a few clouds at 20,000 feet, the temperature was 32°C., the dew point was 20°C., and the altimeter setting was 29.84 inches of mercury.

Airport Information

Airport:	Heritage Airpark TE86	**Runway Surface Type:**	Grass/turf
Airport Elevation:	555 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	17	**IFR Approach:**	None
Runway Length/Width:	3100 ft / 70 ft	**VFR Approach/Landing:**	Touch and go;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	29.349897,-98.11045(est)

FAA inspectors examined the wreckage. They noted that the surrounding terrain consisted of flat farmland and grassland, and was suitable for a forced landing.

All the wreckage was confined to within a 15-foot radius and the ground fire extended within a 20-foot radius from the point of impact. The engine was skewed to the right, the left wing was trailing, the right wing was leading, and the empennage was angled to the right when viewed from the rear of the airplane. Although post-impact fire consumed the airplane, inspectors were able to establish flight control continuity.

The engine was inverted but remained attached to the airframe. Drive train continuity (propeller hub and gear box rotation) was established. Two of the three propeller blades and other cowling debris were located within 10 to 15 feet of the main body of wreckage. The propeller blades and spinner did not exhibit evidence of rotation. The leading edges and blade tips were undamaged. The third blade was not located.

According to the pilot's wife the pilot had been having ignition issues with the airplane. She thought the problem had been resolved. She described the problem as the engine missing or quitting entirely during high-powered run-ups. She suggested that the inspectors contact a local pilot who had the same aircraft type and engine combination.

The pilot stated that the accident pilot had contacted him about his airplane's ignition problems, but later indicated that he had found a solution; he never said what the solution was; no entries were made in the engine logbook. He said he was aware the pilot had converted the engine and had installed a dual ignition.

Damage from the post-impact fire precluded a thorough examination of the engine ignition system.

Medical and Pathological Information

An autopsy was performed on the pilot by the Travis County Medical Examiner's Office Austin, Texas. According to the report, the pilot's death was "the result of conflagration and blunt force injuries."

FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed a toxicological screen that revealed no evidence of carbon monoxide in blood, and no evidence of ethanol or drugs in urine. Cyanide tests were not performed. A toxicology screen performed by the Travis County Medical Examiner's Office yielded similar results.

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	Christian Morales; FAA Flight Standards District Offive; San Antonio, TX
Original Publish Date:	April 17, 2018
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=95288