

# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# GAA17CA420	07/17/2017	2000 CDT	Regis# N445X	Lone Rock, WI	Apt: Tri-county Rgnl LNR
Acft Mk/Mdl COSTRUZIONI AERONAUTICHE TECNA	Acft SN 119			Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl ROTAX 914	Acft TT 66			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PORTER, MICHAEL	Opr dba:				Aircraft Fire: NONE
					AW Cert: LTSP

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## Events

3. Landing-landing roll - Nose over/nose down

## Narrative

The solo student pilot reported that he was practicing a stop and go landing on the asphalt runway.

He recalled that the downwind leg of the approach pattern, headed into a bright sunset. On short final, "a medium sized, reddish brown animal ran across the runway near the numbers from right to left." The pilot over flew the animal and the airplane bounced upon touchdown. He applied full power to abort the landing, but the airplane veered left and exited the left side of the runway. About 40-feet from the runway, the airplane encountered soft soil and nosed over.

During a conversation with the National Transportation Safety Board Investigator-in-charge, the student pilot stated that he may have become fixated on the animal during the approach. He could not recall whether he manipulated the yoke to avoid the animal.

The airplane sustained substantial damage to the left-wing strut.

The pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

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Accident Rpt# GAA18CA033	10/29/2017 1052 EDT	Regis# N401HK	Berlin, NH	Apt: Berlin Rgnl BML
Acft Mk/Mdl EVOLUTION AIRCRAFT INC REVO-NO	Acft SN 000623	Acft Dmg: SUBSTANTIAL	Fatal 0	Rpt Status: Prelim Prob Caus: Pending
Opr Name: EVOLUTION AIRCRAFT INC	Opr dba:	Ser Inj 0	Flt Conducted Under: FAR 091	Aircraft Fire: NONE

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# GAA18CA054 11/19/2017 1445 PST Regis# N7712 Point Mugu, CA Apt: N/a  
Acft Mk/Mdl QUICKSILVER MXL SPORT-NO SERIES Acft SN 4606220 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending  
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091  
Opr Name: SKY KNIGHTS FLIGHT CLUB Opr dba: Aircraft Fire: NONE

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Accident Rpt# WPR18LA009	10/15/2017 1000	Regis# N181TJ	Skull Valley, UT	Apt: N/a
Acft Mk/Mdl BARBER WARREN D TURBINE CUBS P A	Acft SN TC0705014	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360	Acft TT 380	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091	
Opr Name: DECKER TROY S	Opr dba:		Aircraft Fire: NONE	

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## Events

3. Landing-landing roll - Nose over/nose down

## Narrative

On October 15, 2017, about 1000 mountain daylight time, an experimental amateur built tailwheel equipped Barber Turbine Cubs PA-18, N181TJ, nosed over during a precautionary landing near Skull Valley, Utah. The private pilot and passenger were not injured. The airplane sustained substantial damage to both wings and empennage. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed and no flight plan was filed for the local flight which originated from West Jordan, Utah, about 0915.

In a written statement to the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the pilot reported that after a thorough pre-flight inspection, including checking for water in the fuel system, he conducted a local daytime flight. The pilot stated that he had just completed a low altitude pass at an altitude of about 250 to 300 feet above ground level to observe an object on the ground and was applying power to initiate a climb. During the application of power, the engine stumbled slightly and seemed to hesitate. The pilot applied carburetor heat after observing the outside air temperature to be 41ø F and thinking maybe carburetor ice. The pilot further stated that he applied full power and the engine again seemed to hesitate, and decided to initiate a precautionary landing to an open salt flat area.

The pilot further reported that he conducted a tail low wheel landing and as the airplane touched down, as weight was transferred to the wheels, the tail raised and the airplane nosed over. Following the accident, the pilot noted that both main wheel brakes were engaged when he attempted to rotate both the left and right main wheels. He added that neither himself or his passenger applied pressure to the heel brakes during the landing sequence.

During a telephone conversation with the pilot, he reported that he was using cabin heat during the entire flight due to the outside air temperature.

Review of a video provided by the pilot's mechanic, revealed that following the accident, the right main wheel was difficult to rotate.

Examination of the recovered wreckage revealed that both wings were removed to facilitate transport of the wreckage. The airplane was equipped with a Dynon FlightDEK-D180, which has an option to provide carburetor air temperature. Power was applied to the airframe, and the FlightDEK-D-180 functioned normally.

The cabin heat vent, located at the base of the firewall, aligned in the middle of the airframe, was free of restrictions, and the cabin heat lever actuated normally. The left and right brake master cylinders remained secured to their respective mounts. When actuated by hand, the right brake pedal needed minimal input to actuate the brake, however, the left brake pedal needed a significant amount of movement to actuate the brake. Both the left and right main landing gear wheels moved unrestrictedly. The brake reservoir cap was removed and a minimal amount of hydraulic fluid was observed. The vented cap was free of debris and restrictions. A heat gun was utilized to heat both the left and right master cylinders. After about 25 minutes of the application of heat to the right master cylinder, it was noted that the brake engaged, resulting in restricted movement of the right main wheel by hand. The application of heat to the left master cylinder resulted in no change.

The engine remained secure to its mount. All engine accessories remained attached to their respective mounts. All fuel lines remained attached. Throttle, mixture, and carburetor heat control continuity was established from the cockpit controls to the engine. The wooden propeller assembly remained attached to the crankshaft however, one of the propeller blades was separated at the propeller hub.

One of the two magnetos were equipped with an impulse coupling. When the engine crankshaft was rotated, spark was produced on the impulse coupling equipped magneto leads. The opposing magneto was not removed or examined.

The bottom four spark plugs were removed and examined. All four spark plugs exhibited gray deposits within the electrode area and exhibited normal operational signatures. The ignition harness was intact and undamaged.

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The carburetor was equipped with a carburetor temperature probe. It was noted that one of the two wires was separated from the crimped side of an electrical connector. The wire exhibited missing shielding at the end and no wire was observed within the electrical connector. The carburetor was removed and examined. The throttle and mixture levers moved from stop to stop by hand freely. The accelerator pump functioned normally when the throttle lever was actuated. The carburetor was disassembled and the internal floats were intact and moved freely. The needle valve and seat were intact.

The induction system was intact and free of debris with the exception of dirt wedged within the air filter. The exhaust system was intact and undamaged. The scot tubing for cabin heat remained attached and undamaged.

No evidence of any preexisting mechanical malfunction that would have precluded normal operation of the engine was found.

The Federal Aviation Administration (FAA) published Special Airworthiness Information Bulletin (SAIB) CE-09-35 on June 30, 2009, regarding carburetor ice prevention. The conditions encountered in this accident (ambient temperature 41o F, dew point 23o F) were in the area of icing at glide and cruise power.

# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# ERA16LA204	06/06/2016 1759 EDT	Regis# N808DD	Stafford, VA	Apt: Stafford Rgnl RMN
Acft Mk/Mdl BOBBI BOUCHER DUO DEUCE-NO	Acft SN 007	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-320-B1A	Acft TT 1	Fatal 0	Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: BOUCHER BOBBI	Opr dba:			Aircraft Fire: NONE

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## Events

1. Initial climb - Aerodynamic stall/spin

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## Narrative

On June 6, 2016, at 1759 eastern daylight time, an experimental, amateur-built Duo Deuce, N808DD, was substantially damaged during a collision with terrain after takeoff from Stafford Regional Airport (RMN), Stafford, Virginia. The commercial pilot, who was also the owner/builder was seriously injured. Visual meteorological conditions prevailed, and no flight plan was filed for the initial test flight, which was conducted under the provisions of 14 Code of Federal Regulations Part 91.

In an interview with a police officer just after the accident, the pilot reported that during the initial climb after takeoff, both engines experienced a "sudden" loss of power. She identified an open area for a forced landing, and upon touchdown, the airplane nosed over and came to rest inverted.

In an interview with a Federal Aviation Administration (FAA) aviation safety inspector, the pilot stated that the engine run-up was "normal and everything was fine." During the takeoff roll, the airplane reached "flying speed," the nose lifted from the runway, and she advanced the throttles to 2,700 rpm. As the airplane became airborne, the "left wing came up but the right wing was down." The pilot stated she added left rudder and left aileron, but realized the airplane was "eating up a lot of runway" and there was insufficient runway remaining on which to land. She turned the airplane right to avoid the interstate highway that ran perpendicular to the runway beyond the departure end. According to the pilot, "I stalled I guess, I hit the ground pretty hard."

In a subsequent telephone interview with an NTSB investigator, the pilot stated she did not recall the conversation with the police officer, and stated that the right engine stopped producing power. In a media interview several months later, the pilot reported she remembered "every detail" of the accident flight, and said that when she taxied the airplane onto the runway at RMN, the purpose was to perform a "high speed taxi" and that the subsequent takeoff was "inadvertent." After takeoff, the airplane experienced "engine failure" followed by an aerodynamic stall.

Several witnesses provided written statements. One witness was well-acquainted with the pilot and said that he was there to assist her with the flight. In his statement, he referred to the flight as both a "test flight" as well as the "first flight" for the airplane. The witnesses described the takeoff and climb as "slow," stating that the airplane was "wobbling" and the wings were "rocking." One witness estimated that the airplane climbed to about 300 feet above the runway before it slowly descended.

A review of videos recorded from two airport security cameras, as well as an on-board video recorded with the pilot's cellphone revealed a shallow takeoff and initial climb. Almost immediately after takeoff, the airplane's track diverged from the runway centerline off the right side of the runway and over the grass apron. The climb stopped at what appeared to be treetop height, the wings rocked, and the airplane continued to pitch up as it descended until ground contact. The instrument panel could not be viewed, but the propeller speeds appeared constant and both propellers appeared to be turning at the same speed during the takeoff roll and the entire flight until ground contact.

Examination of photographs revealed the airplane remained largely intact, with the left engine separated. Both wings and the tail section were substantially damaged.

According to FAA records, the pilot held a commercial pilot certificate with ratings for airplane single and multiengine land and sea, and a flight instructor certificate with ratings for airplane single and multiengine. She was issued an FAA second-class medical certificate on October 29, 2015, and reported 6,420 total hours of flight experience on that date.

The two-seat, twin-engine, low-wing airplane, equipped with two Lycoming IO-320-B1A engines was initially registered in 2013, and issued an airworthiness certificate on March 19, 2016. The pilot modified a Van's Aircraft, Inc., RV-8 single engine airplane kit. Instead of the nose-mounted, single-engine configuration for which the kit was designed, the airplane was configured with two wing-mounted engines.

Examination of maintenance records revealed the engines were previously owned, and installed on an airplane that was involved in an accident on February 19, 2008. Each engine experienced a propeller strike event during that accident sequence. The records did not indicate that a mandatory sudden-stoppage inspection had been performed on either engine after the event and prior to their installation on N808DD.

The airplane's instrument panel was equipped with an iPad mount, and a telephone was mounted above and behind the pilot. Both the iPad and the telephone were requested so that the original media could be examined. The pilot refused to provide either device; however, she provided a 33-second-long video file, which was consistent with the vantage point of the cockpit mounted cell phone.

Throughout the takeoff roll, flight, and subsequent impact with terrain, the effect of the video camera's rolling shutter effects on the representation of each propeller did not substantially change. Because the distortion of each propeller due to rolling shutter was consistent, the recording suggested each propeller's rpm remained at an unquantified but mostly steady state.

The airplane was subsequently recovered to Shannon Regional Airport, Fredericksburg, Virginia, where it was examined by representatives of the NTSB and Lycoming Engines. In addition, a test run of the right engine, which remained mounted in its nacelle and attached to the airframe was performed.

The constant-speed propeller was damaged during the accident sequence. It was removed, an expansion plug was seated in the front of the crankshaft, and a fixed-pitch propeller was mounted. The airplane was pushed out to the taxiway apron, jumper cables were attached to an airport service vehicle and the airplane's battery, and an engine start was attempted utilizing the airplane's own fuel system.

The engine was started, and it ran smoothly and continuously until engine oil sprayed in the propeller wash. The engine was stopped, the propeller was removed, the crankshaft expansion plug was reseated, the engine was serviced with oil, and another engine start was initiated.

The engine started and idled smoothly, and ran continuously without interruption. The throttle was increased and decreased, and the engine ran smoothly through the power changes. Engine oil pressure and fuel flow indications were consistent with the throttle position as it was changed.

With full throttle application, approximately 2,200 rpm was observed on the aircraft tachometer. The engine ran roughly, consistent with a lean fuel/air mixture setting. Fuel flow as noted on the digital flow meter was approximately 19 gallons per hour (gph). Typical fuel flow requirements for the subject engine operating at this power setting would be 8.5 gph based on a lean limit mixture setting and approximately 10 gph based on a best power mixture setting. The abnormality noted with the digital flow indication system was consistent with air entering the fuel system, resulting in acceleration of the flow scan vein and high fuel flow indications. The fuel flow abnormality as noted was consistent with air entering upstream of the engine on the airframe side of the fuel system.

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Accident Rpt# GAA18CA056 11/23/2017 1100 MST Regis# N234PB Overgaard, AZ Apt: Mogollon Airpark AZ82  
Acraft Mk/Mdl BUEHLMANN PETER KITFOX MODEL 4 Acft SN ICU096 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending  
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091  
Opr Name: PETER JOSEF BUEHLMANN Opr dba: Aircraft Fire: NONE

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# ANC18LA008	11/11/2017 935 CST	Regis# N754T	Eufaula, AL	Apt: Weedon Field EUF
Acft Mk/Mdl CLOUD JEFFREY FERRELL LONG EZ	Acft SN 1763-L	Acft Dmg: SUBSTANTIAL	Fatal 0	Rpt Status: Prelim Prob Caus: Pending
			Ser Inj 0	Fit Conducted Under: FAR 091
Opr Name: CLOUD JEFFREY FERRELL	Opr dba:			Aircraft Fire: NONE
				AW Cert: SPX

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## Events

1. Enroute - Part(s) separation from AC

## Narrative

On November 11, 2017, about 0935 central standard time (CST), a Cloud Jeffery Ferrell Long EZ, an experimental amateur-built airplane, N754T, landed short of the runway during a forced landing at Wheedon Field (KEUF), Eufaula, Alabama. The private pilot and sole passenger sustained no injuries and the airplane was substantially damaged. The flight was being operated as a 14 Code of Federal Regulations (CFR) Part 91 visual flight rules personal flight. Visual meteorological conditions prevailed and no flight plan was filed. The flight departed Marianna, Florida (KMAI) destined for Falcon Field, Atlanta, Georgia (KFFC) about 1000 eastern standard time. However, due to deteriorating weather conditions en route, the destination was changed to KEUF while airborne. No flight plan had been filed.

According to a statement from the pilot, while flying about 7,500 ft msl, about 9 miles northeast of KEUF, "suddenly and without warning the aircraft violently began shuddering." The pilot immediately shut down the engine and turned the airplane towards KEUF. During the turn, he noticed the right rudder control surface was damaged. Due to winds and orientation to the runway when the engine was shut down, the airplane was unable to reach the runway and landed about 200 ft prior to the runway edge in a rough, grassy area. Upon exiting the airplane, the pilot discovered a portion of the trailing edge of the propeller had separated and penetrated the lower half of the right rudder control surface, which resulted in substantial damage. The separated portion of the propeller was not located at the accident site and is still missing.

The remaining portion of propeller was removed and retained for further analysis.

The closest official weather observation station is Columbus Airport (KCSG), Columbus, Georgia, which is located about 35 miles northeast of the accident site. At 0851, a METAR was reporting, in part, wind 090Ø at 11 knots; visibility 10 statute miles; clouds and ceiling clear; temperature 50Ø F; dew point 39Ø F; altimeter 30.35 inches of Mercury.

# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# GAA17CA545	09/02/2017 900 EDT	Regis# N168BD	Elba, AL	Apt: N/a
Acft Mk/Mdl DEDEAUX GARY G GN-1-NO SERIES	Acft SN 4705G	Acft Dmg: SUBSTANTIAL	Fatal 0	Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL C85-12F		Ser Inj 0	Flt Conducted Under: FAR 091	
Opr Name: TOMMY N. BURRIL	Opr dba:		Aircraft Fire: NONE	
			AW Cert: SPE	

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## Summary

The pilot of the tailwheel-equipped airplane reported in a written statement that, after a "successful pre-check," he initiated power for takeoff, and once airborne, "the plane was losing power enough that [the] plane would not clear [the] tree line at the end of the runway." He added that, about 10 ft above the runway, he aborted the takeoff by "throttling back" and made a hard landing on the grass runway. The pilot reported that during the landing, the main landing gear collapsed, and the airplane slid for about 50 ft on the runway before stopping.

The left wing, fuselage, and engine mounts sustained substantial damage.

The Federal Aviation Administration (FAA) aviation safety inspector reported that, about 3 weeks after the accident, the pilot called him to add to his original statement. According to the inspector, the pilot reported that the engine was not losing power, he overreacted to the situation, and put the airplane back on the ground too quickly. The pilot further reported that the airplane did not gain altitude because he did not apply elevator input quickly enough to execute a proper takeoff. The pilot added that he rotated at the speed he normally does when he flies single pilot, but during this flight, he had one passenger on board.

The pilot did not submit the NTSB Form 6120.1 Pilot/ Operator Aircraft Accident/ Incident Report and did not return phone calls from the NTSB investigator-in-charge.

## Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's incorrect pitch control during the initial climb, which resulted in his decision to abort the takeoff and a subsequent hard landing.

## Events

1. Initial climb - Loss of control in flight
2. Takeoff-rejected takeoff - Miscellaneous/other
3. Takeoff-rejected takeoff - Loss of control in flight
4. Landing - Hard landing

## Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Pitch control-Incorrect use/operation - C
3. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot
4. Environmental issues-Physical environment-Runway/land/takeoff/taxi surface-Soft surface-Contributed to outcome

## Narrative

The pilot of the tailwheel-equipped airplane reported in a written statement that, after a "successful pre-check," he initiated power for takeoff and once airborne, "the plane was losing power enough that [the] plane would not clear [the] tree line at the end of the runway." He added that, about 10 ft. above the runway, he aborted the takeoff by "throttling back" and made a hard landing on the grass runway. The pilot reported that during the landing, the main landing gear collapsed, and the airplane slid for about 50 ft. on the runway before stopping.

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The FAA inspector added during a telephone conversation with the NTSB investigator-in-charge, the pilot reported that, he rotated at the speed he normally does when single pilot, but during this flight he had one passenger on board.

The pilot failed to submit the NTSB Form 6120.1 Pilot/ Operator Aircraft Accident/ Incident Report and did not return the phone calls from the NTSB investigator-in-charge.

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# WPR18LA036	11/25/2017 1515 PST	Regis# N599RA	Willows, CA	Apt: Willows-glenn County WLW
Acft Mk/Mdl DOSHIER WILBERT A GT-500-NO SERIES	Acft SN 0151	Acft Dmg: SUBSTANTIAL	Fatal 0	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl ROTAX 582UL-99		Ser Inj 0	Flt Conducted Under: FAR 091	
Opr Name: CORPORON ROBERT M	Opr dba:		Aircraft Fire: NONE	

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## Events

1. Takeoff - Loss of engine power (total)

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## Narrative

On November 25, 2017, about 1515 Pacific standard time, a Doshier Wilbert (Quicksilver) GT-500, N599RA, was substantially damaged during forced landing following a loss of engine power at Willows-Glenn County Airport (WLW), Willows, California. The private pilot was not injured. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed no flight plan had been filed.

In a telephone conversation with the National Transportation Safety Board investigator-in-charge, the pilot reported he had departed runway 16 for a local flight. At about 70 feet above ground level, he experienced a momentary engine sputter followed by a complete loss of engine power. The pilot attempted to land straight ahead; however, he reported that it was likely he did not maintain proper airspeed which resulted in an aerodynamic stall and impact with terrain. Both fuel tanks were topped off prior to takeoff and no recent maintenance was performed on the airplane.

# National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA517 09/04/2017 1400 Regis# N682PS Kanab, UT Apt: Kanab Muni KNB  
Acft Mk/Mdl JEFF JARDINE KITFOX S7 SUPERSPORT Acft SN KA12244242 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending  
Eng Mk/Mdl ROTAX 912 ULS Acft TT 122 Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091  
Opr Name: FRITZ, PAUL J. Opr dba: Aircraft Fire: NONE  
AW Cert: SPX

## Summary

The pilot reported that, after a local flight, during touchdown, the airplane veered to the left, and he applied full power to go around. He added that the airplane became airborne, drifted to the left over brush, and then started to sink because the airplane "did not have enough airspeed to maintain flight." Subsequently, the airplane settled into the brush about 50 ft left of the runway. The left wing struck the ground, and the airplane spun 180° to a stop.

The left wing and aileron sustained substantial damage.

The pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

An automated weather observation station 23 nautical miles southwest of the accident site reported, about the time of the accident, wind from 320° at 12 knots, gusting to 15 knots, temperature 100°F (38°C), dewpoint 41°F (5°C), and barometric setting of 30.15 inches of mercury. The calculated density altitude was 8,352 ft. According to the Federal Aviation Administration density altitude Koch Chart, the airplane would likely have experienced a 72% decrease in the normal climb rate.

## Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain directional control during landing and the airplane's subsequent failure to attain a climb rate during an attempted go-around in high-density altitude conditions.

## Events

1. Landing-landing roll - Loss of control on ground
2. Approach-VFR go-around - Other weather encounter
3. Approach-VFR go-around - Loss of control in flight
4. Approach-VFR go-around - Collision with terr/obj (non-CFIT)

## Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Climb rate-Not attained/maintained
4. Environmental issues-Conditions/weather/phenomena-Temp/humidity/pressure-High density altitude-Effect on equipment

## Narrative

The pilot reported that after a local flight, during touchdown, the airplane veered to the left, and he applied full power to go around. He added that, the airplane became airborne, drifted to the left over brush, and then started to sink because the airplane "did not have enough airspeed to maintain flight." Subsequently, the airplane settled into the brush about 50 ft. left of the runway, where the left wing struck the ground and the airplane spun 180° to a stop.

The left wing and aileron sustained substantial damage.

The pilot did not report that there were any preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

An automated weather observation station, about the time of the accident, 23 nautical miles southwest of the accident site, reported wind from 320° at 12 knots, gusting 15 knots, temperature 100°F (38°C), dewpoint 41°F (5°C), and barometric setting of 30.15" Hg. The calculated density altitude was 8,352 ft. According to the Federal Aviation Administration density altitude Koch Chart, the airplane would had likely experienced a 72% decrease to the normal climb rate.

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# GAA18CA057 11/24/2017 1200 MST Regis# N666BK Moab, UT Apt: NON  
Acft Mk/Mdl KARPAYEV VLADYSLAV V RV-9-A Acft SN 91449 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending  
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091  
Opr Name: KARPAYEV, VLADYSLAV V. Opr dba: Aircraft Fire: NONE

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# National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR17LA003	10/09/2016 1400	Regis# N914NK	Roberts, ID	Apt: Private PRIV
Acft Mk/Mdl MELBORN JOE B KOLB SPORT 600-NO	Acft SN 792	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl ROTAX 914UL	Acft TT 575	Fatal 0	Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: REQUA KERRY	Opr dba:		Aircraft Fire: NONE	AW Cert: SPE

## Events

1. Enroute-climb to cruise - Loss of engine power (partial)

## Narrative

### HISTORY OF FLIGHT

On October 9, 2016, about 1400 mountain daylight time, an experimental amateur-built Kolb Sport 600 airplane, N914NK, was substantially damaged during a forced landing in Roberts, Idaho, following a loss of engine power. The private pilot and his passenger received minor injuries. The airplane was owned and operated by the pilot under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the cross-country flight that departed a private airstrip at approximately 1400 mountain daylight time. The personal flight was destined for Joslin Field - Magic Valley Regional Airport (TWF), Twin Falls, Idaho.

The property owner reported that the pilot completed a high-speed taxi test and subsequently returned to the tie-down area at which time he told the property owner that he had encountered some vapor lock. He further communicated to the property owner that he felt comfortable with the engine's ability to develop power after the previous taxi test. The pilot had indicated to the property owner that he had experienced vapor lock during previous flights.

According to the pilot, he departed runway 24 after a successful pre-flight inspection and engine run-up. As the airplane reached approximately 100 ft above ground level (agl), the pilot perceived that the engine was losing power. He then lowered the nose and initiated a left turn teardrop maneuver to land on runway 06. The pilot engaged the airplane's auxiliary fuel pump in an effort to maintain engine power, but the propeller stopped rotating a few seconds later. Towards the end of the turn, the pilot leveled out early to land parallel to the runway, as he determined that the airplane would not reach the dirt landing strip. The airplane touched down about 200 ft south of the runway in sage brush, and subsequently impacted terrain before it nosed over and came to rest inverted, which resulted in substantial damage to the rudder.

According to the owner of the airport property, the runway is a dirt strip about 2,200 ft long by 40 ft wide in a 24/06 runway configuration. A fly-in was held on the day of the accident with about 17 airplanes in attendance. At the conclusion of the event, the property owner walked out to the tie-down area with the accident pilot to see his airplane; the pilot and his wife then boarded the airplane. The airplane then lifted off the surface of runway 24 about 1,000 ft down the runway. During climbout the property owner observed the airplane veer to the right, and approximately 100 ft agl the airplane began a left turn, but did not appear to be accelerating. The pilot later told the property owner that the engine lost power during the turn and that he determined he would not be able to make it to runway 06. The airplane touched down on uneven terrain and flipped over inverted after it impacted a 4-foot-deep hole that contained debris. With assistance from his guests, the property owner turned the airplane over. Almost immediately, a blue colored liquid with an odor and appearance similar to 100 low lead (100 LL) aviation grade gasoline started to leak from the airplane.

## PERSONNEL INFORMATION

The pilot held a private pilot certificate with ratings for single-engine land and single-engine sea. He did not possess a valid medical certificate at the time of the accident. According to the pilot, he had accumulated 10 total flight hours in the 30 days that preceded the accident, 500 flight hours in the airplane make and model, and 1,864 total flight hours in all aircraft.

## AIRCRAFT INFORMATION

Construction of the airplane was completed in 2004 by the airplane's previous owner and subsequently registered to the accident pilot on May 11, 2010. The airplane was powered by a Rotax 914, turbo-charged, direct drive, air/liquid cooled, 115 hp engine. The airplane's most recent conditional inspection was completed on February 2, 2016, at which time the airplane and engine had accumulated 521.3 total flight hours. The airplane's tachometer displayed 577 hours at the time of the accident.

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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Postaccident examination by a Federal Aviation Administration inspector revealed that the right wing fuel tank was approximately half full, and the left fuel tank was low. According to the pilot, the recovery team drained approximately 6 gallons of fuel from the right tank, and 1 gallon from the left before the airplane was moved. He stated that he purchased 14.1 gallons of 100 LL aviation grade gasoline at Jerome County Airport, Jerome Idaho, before he departed for Roberts. The pilot normally uses automobile gasoline.

The airplane was equipped with two composite wing fuel tanks, each with a capacity of 12 gallons (11.25 gallons usable). The dihedral angle of the wings is 0° with a 1° angle of incidence. Fuel quantity was gauged by fuel senders located in each wing connected to a fuel quantity indicator in the cockpit. Each of the three tanks are inter-vented and each wing tank was vented to the outside. The airplane was not equipped with a fuel selector valve. Fuel was fed by gravity down two fuel lines in the cabin to a 0.2 gallon aluminum header tank located behind the seat back. The fuel flowed to a fuel strainer, through a fuel shutoff valve, and then to a main boost pump and an auxiliary boost pump before it arrived at the engine. Both pumps were actuated by separated switches at the instrument panel; the main boost pump was located on the pilot's side and the auxiliary boost pump on the passenger's side. The design allowed fuel to be fed from both tanks simultaneously, and there was no provision for the pilot to make a fuel tank selection.

An examination of the fuel lines did not reveal any obstructions or preaccident breaches.

The airplane was equipped with a Garmin Area 500 GPS unit. The unit recorded multiple flights prior to the accident flight; however, the accident flight was not recorded. The unit data showed a flight from KJER to U56, which is about 10 nm east of Roberts and a total distance of 127 miles over 1.2 hours of flight time.

## METEOROLOGICAL INFORMATION

The 1353 recorded weather observation at Idaho Falls Regional Airport, Idaho Falls, Idaho, about 14 nm southeast of the accident site, included wind from 210° true at 15 knots with gusts to 22 knots, visibility 10 statute miles, clear skies, temperature 21° C, dew point 01° C, and an altimeter setting of 30.07 inches of mercury.

## WRECKAGE AND IMPACT INFORMATION

### Engine and Fuel System Examinations

The engine was examined at a recovery facility in Idaho by a representative of the engine manufacturer under the supervision of the NTSB Investigator-in-Charge. The inspection included an examination of the carburetors and two engine test runs.

According to the airplane's maintenance logbooks, both carburetors were removed on May 12, 2016, and sent to California Power Systems for overhaul. The logbook entry that captured the removal of the carburetors was recorded at a total tachometer time of 537.1 total flight hours, 38 flight hours before the accident flight. The entry from the carburetor overhaul facility stated that a "Rotax carb overhaul kit [was] installed as per Rotax Heavy Maintenance Manual." The entry further stated that the "Jet needle was moved to a leaner setting per customer request." During a follow-up conversation, the accident pilot reported that he requested the adjustment because he was operating the airplane at high field elevations. The component examination revealed that the needle jets to both carburetors were in the number 1 positions, the leanest setting. Both pistons exhibited no visual scoring, which indicated that the carburetors were properly balanced. Each carburetor main jet was free of obstructions.

A maintenance manual excerpt furnished by the engine manufacturer showed that carburetor needle clips should remain in the number 2 position.

According to a representative of the carburetor overhaul facility, the pilot's service facility purchased an overhaul kit that did not come with carburetor floats. When the components arrived at the overhaul facility, the units were disassembled and the symmetrical floats were flipped, which they stated was a standard industry practice. However, the engine manufacturer requires the installation of new floats instead of reinstalling them upside down. Both sets of carburetor floats were removed and weighed. The floats were placed in glasses filled with 100 LL aviation grade gasoline and allowed to soak overnight for a period of 12 hours, which is in accordance with the engine manufacturer's test procedure. At the end of the test period, the right carburetor floats' weight increased to 8.9 grams and the left carburetor floats' weight increased to 10.1 grams. It is presumed that any remaining fuel within the floats would have evaporated between the accident and the postaccident engine examination, a span of approximately 2 months. According to the Rotax maintenance manual, the floats are required to be weighed every 200 hours. Additionally, the guidance states that the carburetors must be removed and inspected every 200 hours.

In an effort to test engine operation, a fuel tank was plumbed directly into the header tank through the left wing fuel line at the wing root. Water was fed into the radiator to prevent the engine from overheating, as the radiator was damaged during the accident. Two complete engine tests were subsequently performed: the first was accomplished with the main fuel pump on, and the second was performed with both the main and auxiliary fuel pumps on. The throttle was advanced to full power approximately 5 times during these tests to capture the performance of the engine with only the main fuel pump engaged, and then with both the main and auxiliary fuel pumps on. The following engine parameters were documented during each test at idle power, maximum rated power, and maximum continuous power: fuel pressure, oil temperature, oil pressure, exhaust gas temperature, cylinder head temperature, and manifold pressure.

During the first test, the engine lost power for approximately 1 second at 2,500 rpm and 24 in. Hg manifold pressure when the throttle was advanced to full power. The results of the first complete engine test were within the ranges prescribed by the engine manufacturer.

Prior to the second complete engine test the throttle was advanced twice to the full forward position with only the main fuel pump on, and once with both the main and auxiliary fuel pumps on. During both tests, the engine lost power for about 1 second at 2,500 rpm and 24 in. Hg. manifold pressure. A 4th and 5th test were administered with the main fuel pump on and both the main and auxiliary fuel pumps on, respectively. During these final tests, the engine advanced to full power smoothly without any interruptions.

The results of the second complete engine test were within the ranges prescribed by the engine manufacturer.

## Vapor Lock

The pilot had indicated to the property owner that he had experienced vapor lock during previous flights.

A representative of the engine manufacturer reported that the accident airplane type was susceptible to vapor lock, particularly in the presence of high ambient temperatures, which may increase the temperature under the cowling and lead to fuel system heat soak. Additionally, the representative stated that low fuel in either wing may allow air to be ingested, which may lead to vapor lock and fuel starvation.

According to the FAA Pilot's Handbook of Aeronautical Knowledge, vapor lock is defined as "a problem that occurs when the liquid fuel changes state from liquid to gas while still in the fuel delivery system. This disrupts the operation of the fuel pump, which causes a loss of feed pressure to the carburetor or fuel injection system, and results in transient loss of power or complete stalling. Restarting the engine from this state may be difficult. The fuel can vaporize due to being heated by the engine, by the local climate or due to a lower boiling point at high altitude."

The FAA Airplane Flying Handbook defines vapor lock as "a condition in which air enters the fuel system and it may be difficult, or impossible, to restart the engine. Vapor lock may occur as a result of running a fuel tank completely dry, allowing air to enter the fuel system."

On the day of the accident the pilot was attempting to depart with the engine still hot from the previous flight.



# National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA536 07/30/2017 1000 EDT Regis# UNREG Westfield, PA Apt: Sharretts PN91  
Acft Mk/Mdl MENZIMER GARY RAY FIRESTAR-II Acft SN F2626 Acft Dmg: DESTROYED Rpt Status: Factual Prob Caus: Pending  
Eng Mk/Mdl ROTAX 503 Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091  
Opr Name: FRED A. SHARRETTS Opr dba: Aircraft Fire: NONE  
AW Cert: SPE

## Summary

The pilot of the experimental amateur-built airplane reported in a written statement that he had recently purchased the accident airplane, and upon receiving it, he completed numerous taxi runs in a straight line but did not attempt to take off due to poor weather. He added that the airplane was hard to taxi in a straight line. He further reported that, days later, with improved weather, he decided to complete a "test flight."

He reported that, during the initial climb, the airplane "immediately started to drift to the left," and as the airplane continued to climb, the airplane "continued to make a left turn." He added that he applied right rudder and aileron and increased the power from 1/2 to 3/4 full but that the airplane continued to the left. He reported that he flew in the local area for about 20 minutes and could not resolve the left turning issue and that he was then concerned about the remaining fuel quantity, so he attempted to land at his private airstrip. He reported that he attempted two approaches, but the airplane continued turning to the left toward trees, and he performed go-arounds. During the third approach, he decided he would attempt to "touch down as quickly as possible," but during the landing flare, the airplane continued to the left and impacted trees.

The airplane was destroyed.

The pilot reported, "after replaying the accident in my mind, I decided that when I was doing my test taxiing, I might have been introvertly [sic] pressing the left trim button on the control stick.ŷI might have done this several times which resulted in the crash."

The pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

The pilot did not submit the NTSB Form 6120.1 Pilot/ Operator Aircraft Accident/ Incident Report. He also did not report that he had received any recent flight training.

A Federal Aviation Administration aviation safety inspector reported that he located the electric rudder trim switch on top of the control stick and observed the rudder trim servo in the full-left-trim position. He further reported that the accident airplane was unregistered because the registration certificate had lapsed. He reported that the pilot, who was also the owner of the airplane, was required to renew the registration certificate. He added that the pilot reported to him that he had not flown as pilot-in-command for 20 years.

A technical representative for the experimental airplane kit manufacturer reported that the original kit design did not include electric trim for any flight control surfaces.

## Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's improper decision to operate an airplane without recent flight training and his inadvertent application of left electric rudder trim before flight and a subsequent loss of airplane control.

## Events

1. Taxi - Miscellaneous/other
2. Landing - Loss of control in flight
3. Landing - Collision with terr/obj (non-CFIT)

## Findings - Cause/Factor

1. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - C
2. Personnel issues-Experience/knowledge-Training-Recent instruct/training recvd-Pilot - C
3. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
4. Aircraft-Aircraft systems-Flight control system-Rudder tab control system-Unintentional use/operation - C
5. Environmental issues-Physical environment-Object/animal/substance-Tree(s)-Contributed to outcome

## Narrative

The pilot of the experimental amateur-built airplane reported in a written statement that he had recently purchased the accident airplane and upon receiving it, he completed numerous taxi runs in a straight line, but did not attempt to takeoff due to poor weather. He added that the airplane was hard to taxi in a straight line. He further reported that days later, with improved weather, he decided to complete a "test flight."

During the initial climb, he reported that the airplane "immediately started to drift to the left" and as the airplane continued to climb, the airplane "continued to make a left turn." He added that he applied right rudder, aileron, and increased the power from 1/2 to 3/4 full, but again the airplane continued to the left. He reported that he flew in the local area for about 20 minutes and could not resolve the left turning issue, and he then had concerns about the remaining fuel quantity, so he attempted to land at his private airstrip. He reported that he attempted two approaches, but the airplane continued turning to the left toward trees

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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and he performed go-arounds. During the third approach, he decided he would attempt to "touch down as quickly as possible," but during the landing flare the airplane continued to the left and impacted trees.

The airplane was destroyed.

The pilot reported, "after replaying the accident in my mind, I decided that when I was doing my test taxiing, I might have been introvertly [sic] pressing the left trim button on the control stick. I might have done this several times which resulted in the crash."

The pilot did not report that there were any preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

The pilot failed to submit the NTSB Form 6120.1 Pilot/ Operator Aircraft Accident/ Incident Report. He also did not report that he had received any recent flight training.

A Federal Aviation Administration Aviation Safety Inspector reported that, he located the electric rudder trim switch on top of the control stick and observed the rudder trim servo in the full left trim position. He further reported that, the accident airplane was unregistered since the registration certificate had lapsed. He reported that the pilot, who was also the owner of the airplane, was required to renew the registration certificate. He added that the pilot reported to him that he had not flown as pilot in command for 20 years.

A technical representative for the experimental airplane kit manufacturer reported that the accident airplane builder kit original design does not include electric trim for any flight control surfaces.

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# CEN18LA042	11/27/2017 1800 MST	Regis# N956GM	Louviers, CO	Apt: N/a		
Acft Mk/Mdl MOTLEY GARY W ZENITH CH750	Acft SN C75-10359	Acft Dmg: SUBSTANTIAL	Fatal 0	Ser Inj 0	Rpt Status: Prelim	Prob Caus: Pending
Opr Name: MOTLEY GARY W	Opr dba:	Fit Conducted Under: FAR 091	Aircraft Fire: NONE	AW Cert: SPX		

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## Events

1. Enroute - Loss of engine power (total)
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## Narrative

On November 27, 2017, about 1800 mountain standard time, the pilot of a Zenith CH750 Cruiser, N956GM, made a forced landing near Louviers, Colorado, after the engine lost power. The pilot, the sole occupant on board, was not injured. The airplane was substantially damaged. The airplane was registered to and operated by the pilot under the provisions of Title 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed at the time of the accident, and no flight plan had been filed. The local flight originated from 5T6 approximately 1730

The pilot told a Federal Aviation Administration inspector, that the engine, a Viking 130GDI, overheated and seized.

# National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR16LA184 09/17/2016 1125 PDT Regis# N70GG Reno, NV Apt: Reno/stead RTS  
Acft Mk/Mdl OGG RICHARD A OGG GLASAIR I Acft SN 7 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending  
Eng Mk/Mdl LYCOMING IO-360-A1P Acft TT 697 Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091  
Opr Name: OGG RICHARD A Opr dba: Aircraft Fire: IFLT

## Summary

The airline transport pilot reported that the engine operated normally during the takeoff and initial climb to join up in race formation for the start of a closed course air race. During the initial climb, the pilot tested the nitrous system with no anomalies noted.

At the start of the race, the airplanes began a descent toward the first pylon. The pilot reported that she smoothly opened the throttle to full and turned the nitrous system on. The airplane flew normally as it accelerated, and the engine sounds were normal. As the airplane passed pylon No. 5, the engine suddenly stopped producing power. The pilot then pulled up and declared a mayday. She subsequently saw smoke begin to fill the cabin and flames on both sides of the engine cowling and in the cockpit under the instrument panel. The pilot subsequently landed on a runway, and emergency personnel extinguished the fire.

The airplane owner reported that the engine had backfired before the loss of power. The backfire caused an explosion in the induction system, which broke the induction elbow. The throttle body and nitrous injector dropped into the bottom of the cowling and sprayed flammable fluid into the engine compartment, which resulted in the fire and loss of power.

## Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The failure of an induction elbow following an engine backfire, which resulted in an in-flight fire and loss of engine power.

## Events

1. Maneuvering - Loss of engine power (total)
2. Emergency descent - Off-field or emergency landing

## Findings - Cause/Factor

1. Aircraft-Aircraft power plant-Power plant-Air intake-Not specified - C

## Narrative

On September 17, 2016, about 1125 Pacific daylight time, an experimental amateur built Ogg Glasair I, N70GG, experienced an in-flight fire during a closed course air race flight at the Reno-Stead Airport (RTS), Reno, Nevada. The airplane was registered to a private individual, and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91. The airline transport pilot, the sole occupant of the airplane, was not injured; the airplane sustained substantial damage. Visual meteorological conditions prevailed, and no flight plan had been filed for the air race flight, which originated from RTS about 10 minutes prior to the accident.

The pilot reported that at takeoff, she put the throttle into the full open position, and the engine ran normally. During the climb, she turned on the nitrous switch for a few seconds to test the system which was working correctly. A normal increase in power was felt, and all engine parameters were in the green. She turned off the nitrous system and reduced throttle appropriately to join the race formation.

At the start of the race, all airplanes are aligned abreast of each other. The pilot reported that in race formation the wingman's eye is on the airplane to the left to keep arranged distance for safety. Wingman do not have much time to spend reading each engine parameter. She glanced at the instrument panel prior to the race, and all engine parameters were in the green.

At the start of the race, the airplanes begin a descent toward the first pylon. The pilot reported that she smoothly opened the throttle to full and turned the nitrous system on. She felt acceleration, the airplane flew normally, and the engine sounds were normal. While passing pylon number 5, the engine suddenly stopped producing power. The pilot stated that she pulled up and declared a mayday with the intent to land on runway 18, but then heard that the fire trucks were positioning for runway 14. The pilot pulled the propeller lever, but the propeller pitch did not change. Smoke began to fill the cockpit and flames were seen on both sides of the engine cowling and in the cockpit under the instrument panel. The propeller stopped turning; the pilot placed the mixture in the idle cutoff position and the fuel selector valve to the OFF position. She landed on runway 14, exited the airplane, and emergency response personnel extinguished the fire.

Examination of the airplane revealed that the forward part of the fuselage and inboard portion of the left wing sustained fire and structural damage.

The owner reported that the engine had backfired prior to the loss of power. The backfire caused an explosion in the induction system, breaking the induction

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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elbow. The throttle body and nitrous injector dropped into the bottom of the cowling spraying flammable fluid into the engine compartment, which resulted in the fire and loss of power.

# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# CEN17CA371	09/29/2017 1230 CDT	Regis# N712RL	Itasca, TX	Apt: N/a
Acft Mk/Mdl VANS RV7-A		Acft SN 71000	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360A1A		Acft TT 997	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: CSM AVIATION LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPE

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## Events

1. Enroute-cruise - Fuel exhaustion
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## Narrative

The pilot reported that during his preflight inspection, he perceived both fuel tanks were full. Based on previous flights, full fuel tanks allowed for about five hours of endurance. About four hours after departure, the pilot noticed a low fuel quantity on cockpit gages, but continued the flight toward the planned destination airport. Several minutes later, the engine lost power and the pilot performed a forced landing to a field. The airplane impacted a power line and nosed-over, resulting in substantial damage to the right wing and fuselage.

Postaccident examination revealed the airplane fuel tanks contained no useable fuel. Following the accident, the pilot stated he should have landed earlier to refuel. He also discovered that a co-owner had not filled the fuel tanks after the previous flight, as he expected.

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# CEN17LA236    06/18/2017 715 MDT    Regis# N999WX    Canon City, CO    Apt: Fremont County 1V6  
Acft Mk/Mdl WELLS JOHN L JR STOL CH 701-NO    Acft SN 7-6078    Acft Dmg: SUBSTANTIAL    Rpt Status: Factual    Prob Caus: Pending  
Fatal 0    Ser Inj 0    Flt Conducted Under: FAR 091  
Opr Name: WELLS JOHN L JR    Opr dba:    Aircraft Fire: NONE

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## Events

1. Initial climb - Fuel starvation
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## Narrative

On June 18, 2017, about 715 mountain daylight time, an amateur-built Wells STOL CH701 airplane, N999WX, sustained substantial damage to the fuselage and firewall during a forced landing to a field near Canon City, Colorado, after the airplane's engine lost power during initial climb after takeoff from the Fremont County Airport (1V6), Canon City, Colorado. The pilot received minor injuries. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The flight was originating from 1V6 when the accident occurred.

The pilot reported that the airplane experienced a partial loss of engine power during initial climb about 6,500 feet msl. As he attempted to return to 1V6, the engine suddenly lost complete power. A forced landing was completed to rough terrain. The airplane incurred damage to the right wing and fuselage during the landing attempt. The pilot reported that after the accident he found that the fuel hose from the left fuel tank had deteriorated from the inside causing an obstruction to the normal flow of fuel.

# National Transportation Safety Board - Aircraft Accident/Incident Database

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Accident Rpt# ERA16FA033	11/06/2015 1135 EST	Regis# N56553	Okeechobee, FL	Apt: N/a
Acft Mk/Mdl ZENITH CH701-NO SERIES		Acft SN CH 701 ITEC	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl ROTAX 912ULS		Acft TT 62	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: MUSGROVE ROBERT E		Opr dba:		Aircraft Fire: GRD
				AW Cert: SPX

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## Summary

The private pilot was repositioning the experimental light-sport airplane that had neither been flown nor received a condition inspection in about 4 years. Witnesses near the accident site reported that the airplane was rocking back and forth when one or both wings folded up and back. The airplane entered an uncontrolled descent, impacted the ground in a residential area, and was destroyed by a postcrash fire. Two windscreen fragments, including one that was about 18 inches by 11.5 inches, were found on the ground about 150 ft northeast of the initial ground scar, opposite the airplane's direction of travel. Examination of the engine did not reveal any preimpact mechanical malfunctions; however, impact and fire damage precluded a functional check of the engine and its fuel and ignition systems. Metallurgical examination of the wings' front and rear struts revealed severe internal corrosion in all the struts and multiple separations. Lack of bending deformation suggested that the initial failure of the wing struts occurred in the left wing forward strut, likely as a result of normal operational loads applied to a severely corroded strut with a severely reduced cross-sectional area. The airplane was manufactured about 8 years before the accident and purchased by the current owner about 7 years before the accident. The pilot was operating the airplane without a current condition inspection or ferry permit authorization. Witness statements, the discovery of the windscreen fragments about 150 ft before the airplane's first contact with ground, and metallurgical examination of the wing struts suggest that the airplane experienced an in-flight structural failure due to corrosion of the wing struts, which resulted in a loss of airplane control.

## Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: An in-flight structural failure due to a severely corroded wing strut, which resulted in a loss of airplane control.

## Events

1. Prior to flight - Aircraft inspection event
2. Enroute - Aircraft structural failure
3. Uncontrolled descent - Collision with terr/obj (non-CFIT)
4. Post-impact - Fire/smoke (post-impact)

## Findings - Cause/Factor

1. Aircraft-Aircraft structures-Wing structure-(general)-Failure - C
2. Aircraft-Aircraft structures-Wing structure-(general)-Fatigue/wear/corrosion - C

## Narrative

### HISTORY OF FLIGHT

On November 6, 2015, about 1135 eastern standard time, an experimental light-sport Zenith CH701 amphibious airplane, N56553, impacted the ground in Okeechobee, Florida. The private pilot was fatally injured, and the airplane was destroyed. The airplane was privately owned and operated, and the personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the flight, which departed Homestead General Aviation Airport (X51), Homestead, Florida, destined for River Acres Airport (FD70), Okeechobee, Florida.

According to the owner, the airplane was based at X51 and had not been flown since early 2012; the airplane's last condition inspection was performed during November 2011. The pilot was flying the airplane to FD70 to facilitate a condition inspection and some cosmetic repairs to the airplane before listing it for sale for the owner.

A private pilot, who witnessed the accident from about 1/4 mile south of the accident site, stated that he saw the airplane flying about 100 ft above the ground. It was "flying erratically," and "rocking back and forth." He then heard a loud "snap" sound, which was immediately followed by one or both wings folding up and back about 45°. The airplane entered a steep, "60-degree nosedive" and descended below his field of view. The witness added that he heard the engine during the entire accident sequence and did not note any power interruptions.

A second witness, who saw the accident from about 1/4 mile east of the accident site, stated that the airplane was "tilting its wings," as if the pilot was acknowledging people on the ground below, when the right wing "folded up 90 degrees, like when you park airplanes on an aircraft carrier."



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# National Transportation Safety Board - Aircraft Accident/Incident Database

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A third witness, who was working on a rooftop about 1/4 mile north-northwest of the accident site, stated that he saw the airplane descending in an approximate 30° nose-down angle and rolling right "wing over wing." The airplane completed four or five revolutions before he lost sight of it, and he then heard the sound of an impact.

A fourth witness, who was located about 3/4 mile east of the accident site, reported that the airplane was flying west and passed overhead at an altitude about 600 to 700 ft. The engine sounded like it was "cutting in and out of power." He saw the airplane circle then slow, and the wings rocked back and forth before the airplane descended from view.

The airplane impacted the ground in a residential area and was destroyed by a postcrash fire.

## PERSONNEL INFORMATION

The pilot, age 62, held a private pilot certificate with a rating for airplane single-engine land. The pilot's logbook was not recovered from the accident site. According to the pilot's family representative, the pilot's logbooks were likely destroyed during the accident and no documentation regarding his flight experience was available.

The pilot reported 2,000 hours of total flight experience on his most recent application for a Federal Aviation Administration (FAA) third-class medical certificate, which was issued on June 2, 2006.

## AIRCRAFT INFORMATION

The single-engine, two-seat, kit-built, high-wing, amphibious airplane was issued a special airworthiness certificate in the experimental light-sport aircraft category on December 13, 2007. It was powered by a Rotax 912ULS, 100-horsepower engine, equipped with a three-blade Warp Drive composite propeller assembly.

According to information obtained from FAA airworthiness records and maintenance logbooks, the airplane was purchased by the owner during February 2008. Its most recent condition inspection was completed on November 24, 2011. At that time, the airplane's Hobbs meter indicated 62.1 hours, and the engine, which was installed in November 2010, had been operated for 100.5 total hours since new.

The owner and his family reported that, during May 2010, while on a flight to Key Largo, Florida, the airplane's engine overheated and lost power, and the owner performed an off-shore forced landing in saltwater. The airplane was subsequently disassembled and washed with freshwater. The engine was replaced and the airplane was transported to the accident pilot's hangar at FD70 where it was reassembled by the accident pilot. It then underwent the November 2011 condition inspection, which was performed by an airframe and powerplant mechanic at the Indiantown Airport (X58), Indiantown, Florida.

In early 2012, the owner flew the airplane from X58 to X51 where it remained and was not flown until the day of the accident.

According to the owner, on the day of the accident, the airplane departed with about 15 gallons of fuel in each left and right wing fuel tank.

According to an FAA inspector, there was no record of a special flight (ferry) permit requested or issued for the accident flight.

## METEOROLOGICAL INFORMATION

At 1135, the weather conditions reported at Okeechobee County Airport (OBE), which was located about 4 nautical miles north of the accident site, included wind from 90° at 9 knots, 10 statute miles visibility, scattered clouds at 4,000 ft, a temperature of 28°C, a dew point of 21°C, and an altimeter setting of 30.16 inches of mercury.

## WRECKAGE INFORMATION

All major portions of the airplane were accounted for at the accident site. Two windscreen fragments, including one that was about 18 inches by 11.5 inches, were found on the ground about 150 ft northeast of the initial ground scar, opposite the airplane's direction of travel.

The airplane came to rest inverted. The cockpit and cabin were consumed by a postcrash fire. Both wings and the landing gear were severely fire damaged. Ground scars and debris were located on a heading about 260°. The fuselage and right wing came to rest about 39 ft from an initial ground scar, just east of a concrete driveway. There were impact and scraping marks across the driveway.

The left wing was separated; however, it was located next to the fuselage and extended to about 61 ft from the initial ground scar. The upper surface of the left wing was generally intact and minimally distorted from impact. The inboard section of the left wing was consumed by fire. The two bolts that attached the left wing to the fuselage contained melted material from the spar; however, both were still bolted to the fuselage. The upper surface of the right wing was generally intact and minimally distorted from impact; however, the wing tip leading edge was deformed consistent with ground contact. The deformation was angled about 30° from the leading edge aft and outboard. The two bolts that attached the right wing to the fuselage contained melted material from the spar; however, both were still bolted to the fuselage.

Due to the condition of the wreckage, flight control system continuity was not established. The steel tubes, including the "Y" portions of the yoke for the flaperons and elevator control, were located but severely fire damaged. All aluminum components were absent. The two flaperon pushrods from the main control to the aileron bellcranks were attached. All bolts and nuts attached to the steel portions of the control system were present. The steel portions of the elevator control were present, with all bolts and nuts attached. The aluminum portions were not present. The rudder hinge bolts were present. The rudder cables were attached to the rudder pedals. The left rudder cable was attached to the left rudder control horn. The attaching hardware at the right rudder control horn had melted and the cable was separated.

All portions of the airplane's wing struts were located. One or more portions of the struts contained bends, impact damage, fire damage, corrosion, and/or separations; however, all their respective attachment bolts and nuts were in place and secure. The wing struts were removed and forwarded to the NTSB Materials Laboratory, Washington, DC, for further examination.

The engine was severely impact- and fire-damaged. Most accessories, including the carburetors, were impact-separated and fire-damaged. The No. 3 cylinder was fractured in several locations and fragmented during removal from the crankcase. The engine was partially disassembled at the accident site. The crankshaft could not be rotated and the engine was subsequently further disassembled and inspected at a maintenance facility under the supervision of an FAA inspector. The main bearings, crankshaft, and connecting rods were intact and displayed no evidence of oil starvation. The camshaft lobes were in good condition and did not exhibit any gouges, grooves, or wear. Examination of the respective cylinder heads, valves, and pistons did not reveal any preimpact mechanical anomalies.

The propeller hub remained attached to the engine. One of the composite propeller blades was broken at the root. The blade was located in the debris path and exhibited impact damage at the tip and chordwise scratches along most of its leading edge. The remaining two propeller blades were fire-damaged.

## MEDICAL AND PATHOLOGICAL INFORMATION

The Office of the Chief Medical Examiner, District 19, Fort Pierce, Florida, performed an autopsy on the pilot. According to the autopsy report, the cause of death was "multiple blunt trauma injuries." Toxicological testing performed on specimens from the pilot by a local laboratory were negative for alcohol and drugs.

Toxicological testing performed on specimens from the pilot by the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, was negative for alcohol. Amlodipine, a non-impairing prescription medication normally used to treat high blood pressure, was found in urine and blood specimens.

## TESTS AND RESEARCH

### Wing Struts Examination

Examination of the wings' front and rear struts was performed by an NTSB senior metallurgist. The strut pieces had been exposed to fire and the exterior paint was charred and missing in several locations. When handled, copious quantities of corrosion deposits would exit the open areas of all the struts. Each strut was manufactured from two pieces of tubing welded together within a surrounding sleeve. The tube end construction differed from sample engineering drawings available from the kit manufacturer; the tube ends on the accident airplane were shaped and welded to form closed tube ends instead of the round, open tube

ends depicted on the manufacturer's drawings.

The left wing struts were separated at multiple locations. Visual and magnified optical examination found that the wall thickness of the forward tube of the left wing had been reduced to knife edges by internal corrosion which extended for significant lengths beyond the location of both separations.

The right wing struts were separated at the inboard ends and bent and deformed in several locations. Magnified optical examination found the separations to be consistent with overstress fractures after significant bending/buckling deformation. Longitudinal sectioning of the aft strut tube at the separation revealed significant internal corrosion and localized wall loss at portions of the separation.

## ADDITIONAL INFORMATION

### Handheld GPS

A Garmin GPSMAP 276C was recovered at the accident site; it was examined and downloaded at the NTSB Vehicle Recorder Laboratory. The data extracted included 81 track logs; however, there was no data recorded on the date of the accident.

### Zenith Service Letter / Notification

After the accident, ZenAir, the kit manufacturer for Zenith Aircraft, issued a Service Letter (SL)/Notification, which included an inspection of wing strut assemblies for internal corrosion. The SL specifically recommended that the wing struts be removed from the airplane and inspected for rust within the next 50 hours, and then annually on a continuing basis.

# National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN16FA014	10/17/2015	841 CDT	Regis# N999ZF	Cortland, NE	Apt: N/a
Acft Mk/Mdl ZIDEK VANS RV-4			Acft SN 2407	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-320-D1C			Acft TT 591	Fatal 2 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JERRY A. ALLDER			Opr dba:		Aircraft Fire: GRD
					AW Cert: SPE

## Summary

The private pilot and passenger were conducting a personal flight in the single-engine airplane. According to available radar data and an interview with the pilot's brother, the pilot completed several intentional low-altitude passes (at or below 100 ft above the ground) over his brother's property/residence. The pilot's brother, who witnessed the accident, stated that following the final low pass, the airplane pitched up into a climbing right turn. He stated that, during the climbing turn, the airplane suddenly pitched nose-down and descended rapidly. The airplane recovered briefly to a wings-level attitude before the wings rocked left and right and the airplane entered a descending right turn into terrain. A postaccident examination established that the airplane had crashed in a nose-low attitude and was destroyed by impact and postimpact fire damage. The examination did not reveal any anomalies that would have precluded normal operation of the airplane during the flight. Based on the witness description and the impact geometry, it is likely that the pilot did not maintain adequate airspeed during the climbing right turn, which resulted in the airplane exceeding its critical angle of attack and experiencing an aerodynamic stall at a low altitude. Due to the pilot's decision to intentionally maneuver at a low altitude, there was insufficient altitude to fully recover from the aerodynamic stall before impact.

## Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's decision to intentionally maneuver at a low altitude and his failure to maintain adequate airspeed during the climbing right turn, which resulted in the airplane exceeding its critical angle of attack and experiencing an aerodynamic stall.

## Events

1. Maneuvering-low-alt flying - Loss of control in flight
2. Maneuvering-low-alt flying - Aerodynamic stall/spin
3. Post-impact - Fire/smoke (post-impact)

## Findings - Cause/Factor

1. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Airspeed-Not attained/maintained - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of attack-Not attained/maintained - C
4. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C

## Narrative

### HISTORY OF FLIGHT

On October 17, 2015, about 0841 central daylight time, an experimental, amateur-built Vans RV-4 single-engine airplane, N999ZF, collided with terrain while maneuvering near Cortland, Nebraska. The private pilot and the pilot-rated passenger were fatally injured, and the airplane was destroyed. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 without a flight plan. Day visual meteorological conditions prevailed at the accident site. The personal flight departed Crete Municipal Airport (CEK), Crete, Nebraska, at 0833, and the intended destination was Lincoln Airport (LNK), Lincoln, Nebraska.

According to available air traffic control radar track data, after departing CEK on runway 17, the airplane proceeded southeast and climbed to an altitude of about 2,600 ft mean sea level (msl). At 0836:30, the airplane turned south and descended to 2,400 ft msl. At 0837:44, the airplane turned east and continued to descend. Between 0839:23 and 0841:42, the airplane completed four low-altitude passes centered over a small lake located about 1/3 mile northeast of the intersection of West Ash Road and Southwest 29th Road. The small lake was located adjacent to a residence owned by the pilot's brother. The low-altitude passes and associated course reversals were completed within a 1/2 mile radius of the small lake. According to available topography data, the terrain elevation immediately surrounding the lake was about 1,470 ft msl.

According to radar track data, the airplane's first low pass over the lake was from southeast to northwest at an altitude at or below 100 ft above ground level (agl). The airplane then entered a climbing right turn to about 1,900 ft msl before it descended back toward the lake from north to south at an altitude at or below 100 ft agl. The airplane then completed a 180° turn at 1,600 ft msl before it descended for a low pass from south to north at an altitude at or below 100 ft agl. The airplane then entered a climbing right turn to about 1,800 ft msl before it descended for a fourth and final low pass from northeast to southwest at an altitude at or below 100 ft agl. Following the fourth low pass, the airplane entered a climb on a southwest heading to about 2,000 ft msl before it entered a sharp

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# National Transportation Safety Board - Aircraft Accident/Incident Database

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right turn toward north. The final radar return was recorded at 0841:42 and showed the airplane at 1,700 ft msl and about 472 ft east of the initial ground impact point.

The pilot's brother stated that he witnessed the airplane complete several low-altitude passes over his property immediately before the accident. He stated that following the final low pass, the airplane pitched up into a climbing right turn. He stated that, during the climbing turn, the airplane suddenly pitched nose-down and descended rapidly. The airplane recovered briefly to a wings-level attitude before it quickly rolled wings-left and -right and entered a descending right turn into terrain.

## PERSONNEL INFORMATION

### --- Pilot ---

According to Federal Aviation Administration (FAA) records, the 68-year-old pilot held a private pilot certificate with a single-engine land airplane rating. His most recent FAA third-class medical certificate was issued on November 1, 2013, with a limitation for corrective lenses. On the application for his current medical certificate, the pilot reported having accumulated 323 total hours of flight experience, of which 35 hours were flown within the previous 6 months.

The pilot's flight history was established using his logbook. The final logbook entry was dated October 14, 2015, at which time he had accumulated 512.5 hours total flight time. All logged flight time had been completed in single-engine airplanes. He had logged 501.9 hours as pilot-in-command, 3.4 hours at night, and 4.3 hours in simulated instrument conditions. He had flown 91.7 hours during the year before the accident, 47.8 hours during the 6 months before the accident, 15.8 hours during the 90 days before the accident, and 5.9 hours during the month before the accident. The pilot had accumulated 148.3 hours in the accident airplane make/model. His last flight review was completed in the accident airplane on July 16, 2014.

### --- Pilot-Rated Passenger ---

According to FAA records, the 54-year-old passenger held a private pilot certificate with a single-engine land airplane rating. His most recent FAA third-class medical certificate was issued on February 4, 2013, with a limitation for corrective lenses. The medical certificate expired on February 28, 2015. On the application for his expired medical certificate, the pilot reported having accumulated 222.4 total hours of flight experience, of which 18.5 hours were flown within the previous 6 months. The pilot's flight history was established using his logbook. The final logbook entry was for a flight review on July 18, 2014, at which time he had accumulated 245.8 hours total flight time. The pilot had not logged any flight time during the year before the accident.

## AIRCRAFT INFORMATION

The airplane, serial number 2407, was a single-engine, low-wing, fixed conventional landing gear, monoplane of conventional aluminum construction, configured to seat two occupants in a tandem seating arrangement. The airplane was powered by a 160-horsepower, 4-cylinder Lycoming IO-320-D1C reciprocating engine, serial number L-5910-55A. The engine provided thrust through a fixed-pitch, two-blade, Sensenich 70CM7S16-0-79 propeller, serial number 31698K. The airplane had a useful load of 628 pounds, a maximum allowable takeoff weight of 1,600 pounds, and a total fuel capacity of 32 gallons. A previous owner assembled the airplane from a kit. The FAA issued the airplane a special airworthiness certificate with an experimental classification and associated operating limitations on October 22, 1996. The pilot was the registered owner of the airplane, and FAA records indicated that he purchased the airplane in November 2013.

The airplane's recording tachometer was destroyed during the postimpact fire, which precluded a determination of the airplane's total service time at the time of the accident. According to the maintenance logbooks, the last condition inspection was completed on November 15, 2014, at 590.5 total airframe hours. At the time of the condition inspection, the engine had also accumulated 590.5 hours since new. The final logbook entry, dated October 8, 2015, was for an engine oil change at 674.5 total airframe/engine hours. A postaccident review of the maintenance records found no history of unresolved airworthiness issues.

## METEOROLOGICAL INFORMATION

At 0854, the LNK automated surface observing system located about 25 miles north of the accident site reported: wind 120ø at 9 knots, a clear sky, 10 miles surface visibility, temperature 8øC, dew point -1øC, and an altimeter setting of 30.49 inches of mercury

## WRECKAGE AND IMPACT INFORMATION

The accident site was in a harvested soybean field. The wreckage debris path was oriented on a 265ø magnetic heading and measured about 92 ft long. The initial impact crater contained the propeller and the right main landing gear. The impact crater also exhibited a well-defined propeller slash mark in the terrain. The estimated angle between the propeller slash mark and the surrounding terrain was about 30ø. The two-blade propeller exhibited chordwise scratches near both blade tips. One propeller blade exhibited significant S-shape bending along its span. A large area of burnt ground and vegetation surrounded the main wreckage, which consisted of the fuselage, empennage, both wings, and the engine. A majority of the fuselage, including the cockpit and cabin, had been consumed during the postimpact fire. Flight control continuity could not be established due to impact and fire damage; however, all observed separations were consistent with overstress or damage caused by prolonged exposure to fire.

The engine remained partially attached to the firewall. Internal engine and valve train continuity were confirmed as the engine crankshaft was rotated. Compression and suction were noted on all cylinders in conjunction with crankshaft rotation. The internal oil pump discharged oil in conjunction with crankshaft rotation. The mechanical fuel pump exhibited fire damage and did not function. Neither magneto provided a spark when rotated by hand; however, both magnetos exhibited damage consistent with impact and prolonged exposure to fire. The upper spark plugs were removed and exhibited features consistent with normal engine operation. The fuel metering assembly had separated from the engine and exhibited impact related damage. The postaccident examination revealed no evidence of preimpact mechanical malfunctions or failures that would have precluded normal engine operation.

## MEDICAL AND PATHOLOGICAL INFORMATION

The Douglas County Coroner's Office, located in Omaha, Nebraska, performed autopsies on the pilot and pilot-rated passenger at the request of the Gage County Attorney. The cause of death for both individuals was attributed to multiple blunt-force injuries sustained during the accident.

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicology tests on specimens obtained during each autopsy. The pilot's toxicology results were negative for ethanol. Ibuprofen was detected in the urine. Ibuprofen, sold under multiple brand names, is a nonsteroidal anti-inflammatory analgesic drug that is not considered impairing.

The pilot-rated passenger's toxicology results were negative for carbon monoxide and ethanol. Oxymetazoline was detected in urine but not in blood. Oxymetazoline, sold under multiple brand names, is an over-the-counter topical decongestant that is not considered impairing.