



# Aviation Investigation Final Report

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<b>Location:</b>	Lee's Summit, Missouri	<b>Accident Number:</b>	CEN16FA378
<b>Date &amp; Time:</b>	September 20, 2016, 18:20 Local	<b>Registration:</b>	N8983W
<b>Aircraft:</b>	Piper PA 28-235	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Aerodynamic stall/spin	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The pilot and one passenger were on a cross-country flight in a single-engine airplane. Review of the airplane's radar flight track revealed that it was on a southerly heading to the destination airport and made a straight-in approach to runway 18. As the airplane neared the airport, a passenger filmed the approach section of the flight using her phone. A review of the footage showed that the approach appeared normal; however, during the landing flare, the airplane drifted slightly right. The camera then recorded the sound of the engine power increasing, followed immediately by the airplane touching down right of the runway centerline. The engine power then increases (likely either for a touch-and-go or for a go-around) and the airplane begins to climb in a right bank. The camera also captured images of the control yoke, which showed the pilot manipulating it aft and turning it left.

Several witnesses also reported seeing segments of the accident flight, and several of the airport's security cameras captured portions of the flight. A review of the videos and witness statements confirmed that the airplane touched down on the runway and then lifted off in a nose-high, right-wing-low attitude. The airplane then entered a steep right climbing turn; one witness reported that the airplane reached about 200 to 300 ft above ground level. The airplane then completed a 180° turn with about a 90° bank angle; entered a rapid descent; impacted terrain in a right-wing-down, nose-low attitude; slid along the ramp; and came to rest on its right side.

An examination of the engine and airframe did not reveal any preimpact abnormalities. Based on the available information, the pilot overcontrolled the airplane during takeoff, which resulted in it exceeding its critical angle of attack that led to an aerodynamic stall and loss of airplane control.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper control inputs during takeoff, which resulted in the exceedance of the airplane's critical angle of attack and subsequent departure stall, and loss of airplane control.

## Findings

<b>Personnel issues</b>	Incorrect action selection - Pilot
<b>Personnel issues</b>	Aircraft control - Pilot
<b>Aircraft</b>	Angle of attack - Not attained/maintained
<b>Personnel issues</b>	Total experience in position - Pilot

## Factual Information

### History of Flight

<b>Takeoff</b>	Aerodynamic stall/spin (Defining event)
<b>Takeoff</b>	Loss of control in flight

On September 20, 2016, about 1820 central daylight time, a Piper PA-28-235 airplane, N8983W, impacted terrain near Lee's Summit, Missouri. The pilot and passenger were fatally injured, and the airplane was substantially damaged. The airplane was registered to and operated by TEKO Air, LLC, Des Moines, Iowa, as a 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions existed near the accident site about the time of the accident, and no flight plan had been filed. The cross-country flight originated from Ankeny Regional Airport, Des Moines, Iowa, and was en route to Lee's Summit Municipal Airport (KLXT), Lee's Summit, Missouri.

A review of the airplane's radar flight track revealed that the airplane was on a southerly heading to KLXT and then made a straight-in approach to runway 18. As the airplane neared KLXT, a passenger filmed the approach section of the flight using her phone, which was found on scene. The camera captured portions of the approach to the runway. The approach appeared normal; however, during the landing flare, the airplane drifted slightly right. The camera then recorded the sound of the engine power increasing, followed immediately by the airplane touching down right of the runway centerline. The camera captured images of the control yoke, which showed the pilot manipulating it aft and turning it left. The sound was consistent with the engine at high power until the end of the recording. The National Transportation Safety Board's (NTSB) Personal Electronic Device Specialist's Factual Report is located in the docket for this accident.

Several witnesses reported seeing segments of the accident flight. Additionally, several of the airport's security cameras captured portions of the flight. A review of the security camera videos and witness statements revealed that the airplane touched down on runway 18 and then lifted off in a nose-high, right-wing-low attitude. The airplane then made a steep, right climbing turn; one witness reported that the airplane reached about 200 to 300 ft above ground level. The airplane completed a 180° turn with about a 90° bank angle and then entered a rapid descent, impacted terrain in a right-wing-down, nose-low attitude, slid along the ramp, and came to rest on its right side.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	53
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Lap only
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	September 28, 2015
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	92.3 hours (Total, all aircraft), 64 hours (Total, this make and model)		

## Passenger Information

<b>Certificate:</b>		<b>Age:</b>	24
<b>Airplane Rating(s):</b>		<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>		<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>		<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>		<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>		<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>			

The pilot held a private pilot certificate, which was issued on June 9, 2016, with an airplane single-engine land rating. Additionally, he held a control tower operator certificate. The pilot was issued a third-class medical certificate on Sept 29, 2015. A review of the pilot's logbook revealed that he had 92.3 total flight hours, 18.2 hours of which were accrued since the pilot certificate was issued, with the last entry dated September 14, 2016.

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N8983W
<b>Model/Series:</b>	PA 28-235 235	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1964	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	28-10562
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>	December 31, 2015 Annual	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2883.6 Hrs at time of accident	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	C91 installed	<b>Engine Model/Series:</b>	0-540 SERIES
<b>Registered Owner:</b>	TEKO Air LLC	<b>Rated Power:</b>	250 Horsepower
<b>Operator:</b>	TEKO Air LLC	<b>Operating Certificate(s) Held:</b>	None

The accident airplane was a Piper PA-28-235, which is a low-wing, single-engine airplane with fixed landing gear. It was powered by a reciprocating 235-horsepower Lycoming, six-cylinder engine that drove a fixed-pitch propeller. A review of the airplane's maintenance records revealed that the last annual inspection was conducted on December 31, 2015, at a total time of 2,780.32 hours. A review of the engine maintenance records revealed that the engine was removed, overhauled, and reinstalled on August 22, 2016, at an airframe tachometer time of 2,822.2 hours. The tachometer read 2,883.6 hours at the accident site.

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KLXT	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	17:53 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	190°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.04 inches Hg	<b>Temperature/Dew Point:</b>	32°C / 23°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Ankeny, IA (KIKV)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Lee's Summit, MO (KLXT)	<b>Type of Clearance:</b>	VFR flight following
<b>Departure Time:</b>		<b>Type of Airspace:</b>	

At 1853, the weather observation facility at KLXT recorded wind from 190° at 10 knots, 10 miles visibility, clear sky, temperature 90°F, dew point 73°F, and an altimeter setting of 30.04 inches of mercury.

## Airport Information

<b>Airport:</b>	Lee's Summit KLXT	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	1004 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	18	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	4016 ft / 75 ft	<b>VFR Approach/Landing:</b>	Straight-in

KLXT is a publicly owned, nontowered airport located 3 miles north of Lee's Summit, Missouri. Pilots are to use the common traffic advisory frequency for communications. KLXT has two concrete runways 18/36, which is 4,016 ft by 75 ft, and 11/29, which is 3,800 ft by 75 ft. The airport is at an elevation of 1,004 ft mean sea level.

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Fatal	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Fatal	<b>Latitude, Longitude:</b>	38.960556,-94.375556

The on-site examination of the wreckage revealed that the airplane impacted terrain and an asphalt ramp just behind a building west of runway 18. Propeller cuts in the asphalt and ground scars were consistent with a right-wing-down, nose-low impact. The right wing had separated from the fuselage and was located about 92 ft from, and west of, the initial impact point. The wreckage path was 305 ft long and proceeded from the initial impact point on a heading of about 340° to the main wreckage, which consisted of the fuselage, left wing, empennage, and engine compartment. The two-bladed propeller had separated from the engine's crankshaft flange and was located about 20 ft beyond the main wreckage. About 8 inches of one propeller blade was torn off, whereas the other blade was severely distorted. There was no postcrash fire.

The airplane's left wing remained with the fuselage but was only partially attached. An undetermined amount of fuel remained in the left- and right-wing fuel tanks. An area near the right wing showed evidence of a fuel spill.

The main cabin floor and engine firewall were pushed back into the cabin area, and the front, right side of the fuselage had also sustained extensive damage. The top engine cowling was impact separated and was located along the wreckage path. The empennage sustained major damage to the right side of the stabilator.

Left aileron continuity was established from the control surface to the bellcrank; the aileron control and balance cable were attached to the left bellcrank, aileron control wheel chain, and right bellcrank. The right aileron remained attached; however, the control rod was broken, and the bellcrank had separated, pulled through wing ribs, and was found with the fuselage. Rudder control continuity was established to the cockpit rudder pedals. The flap handle was in the retracted position; however, due to damage to the flap controls, the actual position of the flaps during landing could not be determined.

The engine sustained impact damage and was examined on-site by the NTSB and a technical representative from the engine manufacturer. The engine was cut from the airframe and hung by a forklift to aid examination. The bottom set of spark plugs were removed and exhibited light-colored combustion deposits, and the electrodes exhibited normal wear signatures. The engine was rotated by hand; a thumb suction compression test was conducted, and continuity through the engine valve train and accessory section was confirmed. The left and right magnetos were removed from the engine and tested by hand; spark was observed on each terminal. The fuel pump and carburetor were examined, and no abnormalities were noted.

No preimpact abnormalities were noted during the airframe or engine examinations.

## Medical and Pathological Information

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The Office of the Jackson County Medical Examiner, Kansas City, Missouri, conducted an autopsy on the pilot. The cause of death was determined to be "multiple blunt force injuries."

The Federal Aviation Administration's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, conducted toxicological testing on specimens from the pilot. The tests were negative for ethanol and tested drugs.



## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hatch, Craig
<b>Additional Participating Persons:</b>	James Seabolt; FAA FSDO; Kansas City, MO Michael McClure; Piper Aircraft Company; Vero Beach, FL John Butler; Lycoming Aircraft Engines; Williamsport, PA
<b>Original Publish Date:</b>	January 23, 2018
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=94044">https://data.ntsb.gov/Docket?ProjectID=94044</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).