



Aviation Investigation Final Report

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

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

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

Factual Information

History of Flight

Takeoff	Aerodynamic stall/spin (Defining event)
Takeoff	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 TEK0 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

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

Passenger Information

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

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

Aircraft Make:	Piper	Registration:	N8983W
Model/Series:	PA 28-235 235	Aircraft Category:	Airplane
Year of Manufacture:	1964	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	28-10562
Landing Gear Type:	Tricycle	Seats:	
Date/Type of Last Inspection:	December 31, 2015 Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	2883.6 Hrs at time of accident	Engine Manufacturer:	LYCOMING
ELT:	C91 installed	Engine Model/Series:	O-540 SERIES
Registered Owner:	TEKO Air LLC	Rated Power:	250 Horsepower
Operator:	TEKO Air LLC	Operating Certificate(s) Held:	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

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

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

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

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	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

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

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

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](#).