National Transportation Safety Board
Aviation Accident Final Report

Location:	Lee's Summit, MO	**Accident Number:**	CEN15CA165
Date & Time:	03/01/2015, 1530 CST	**Registration:**	N3575X
Aircraft:	PIPER PA 28-181	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The pilot-receiving-instruction reported that the purpose of the flight was to receive a checkout in the flying club airplane. After completing three uneventful takeoffs and landings, the flight instructor asked the pilot-receiving-instruction to perform a simulated soft-field takeoff from a high-altitude airport. The pilot-receiving-instruction had not performed the requested maneuver previously, which was described as a soft-field takeoff at 50-percent engine power to simulate the atmospheric conditions of a high-altitude airport. Before attempting the takeoff, both pilots agreed that the pilot-receiving-instruction would manipulate the flight controls and that the throttle would be separately controlled by the flight instructor. The pilot-receiving-instruction reported that during the takeoff, shortly after becoming airborne, while still in ground-effect, the airplane encountered an aerodynamic stall. The pilot-receiving-instruction briefly reduced airplane pitch to recover from the aerodynamic stall, but as the airplane drifted toward the right side of the runway he subsequently increased yoke backpressure to keep the airplane airborne. The pilot-receiving-instruction reported that the airplane encountered a second aerodynamic stall after he increased airplane pitch. The airplane subsequently drifted left, crossing back over the runway, before the airplane landed along the left side of the runway. The flight was terminated and the aircraft inspected for damage. The airplane exhibited damage to the tail skid, tail tie-down ring, left wingtip, the nose and left main landing gear, and the propeller. An additional examination established that the aft fuselage bulkhead had sustained substantial damage when the tail struck the runway. The pilot-receiving-instruction reported there were no mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

The flight instructor reported that the engine power had been set at 2,100 rpm to simulate the available engine power while operating at a high-altitude airport. He reported that the pilot-receiving-instruction had used excessive pitch control inputs during the initial takeoff roll to keep the nose wheel off the runway, the airplane veered to the right before coming airborne, and that the airplane encountered an aerodynamic stall upon liftoff. The flight instructor reported that the airplane subsequently bounced, drifted to the left, and eventually landed along the left side of the runway.

The flight crew's decision to have the flight instructor separately control the throttle during the accident takeoff likely prevented the pilot-receiving-instruction from adequately recovering from the initial aerodynamic stall. Additionally, following the initial aerodynamic stall, there was likely inadequate coordination between the flight crew to reestablish control of the airplane before it impacted the ground.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot-receiving-instruction's excessive pitch control during takeoff, which resulted in an aerodynamic stall shortly after liftoff and the subsequent loss of control. Contributing to the accident was the flight crew's decision to have the flight instructor separately control the throttle while the pilot-receiving-instruction manipulated the flight controls, which resulted in inadequate coordination between the flight crew during the attempted stall recovery.

Findings

Aircraft	
	Angle of attack - Not attained/maintained (Cause)
Personnel issues	Aircraft control - Student pilot (Cause)
	Decision making/judgment - Flight crew (Factor)
	Lack of communication - Pilot (Factor)
	Lack of communication - Student pilot (Factor)

Factual Information

History of Flight

Takeoff	Aerodynamic stall/spin (Defining event) Loss of control in flight Abnormal runway contact

Pilot Information

Certificate:	Private	**Age:**	31, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without Waivers/Limitations	**Last Medical Exam:**	04/19/2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	02/16/2015
Flight Time:	112 hours (Total, all aircraft), 6 hours (Total, this make and model), 79 hours (Pilot In Command, all aircraft), 34 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Flight Instructor Information

Certificate:	Airline Transport; Flight Instructor; Flight Engineer	**Age:**	77, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	No
Medical Certification:	Class 3 With Waivers/Limitations	**Last Medical Exam:**	09/29/2014
Occupational Pilot:		**Last Flight Review or Equivalent:**	04/13/2013
Flight Time:	(Estimated) 24945 hours (Total, all aircraft), 14438 hours (Pilot In Command, all aircraft), 34 hours (Last 90 days, all aircraft), 23 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	PIPER	**Registration:**	N3575X
Model/Series:	PA 28-181	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	28-8090199
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	01/01/2015, Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	8605 Hours	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-360-A4M
Registered Owner:	Wing Flying Club, Inc.	**Rated Power:**	180 hp
Operator:	Wing Flying Club, Inc.	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	LXT, 1004 ft msl	**Observation Time:**	1515 CST
Distance from Accident Site:	0 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:		**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:		**Temperature/Dew Point:**	0°C / -7°C
Lowest Ceiling:	Overcast / 3000 ft agl	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	6 knots, 310°	**Visibility (RVR):**	
Altimeter Setting:	30.38 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lee's Summit, MO (LXT)	**Type of Flight Plan Filed:**	None
Destination:	Lee's Summit, MO (LXT)	**Type of Clearance:**	None
Departure Time:	1500 CST	**Type of Airspace:**	Class G

Airport Information

Airport:	Lee's Summit Municipal Airport (LXT)	**Runway Surface Type:**	Concrete
Airport Elevation:	1004 ft	**Runway Surface Condition:**	Dry
Runway Used:	36	**IFR Approach:**	None
Runway Length/Width:	4016 ft / 75 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None		

Administrative Information

Investigator In Charge (IIC):	Andrew T Fox	**Adopted Date:**	12/17/2015
Additional Participating Persons:	Thomas Bartels; Federal Aviation Administration, Kansas City FSDO; Kansas City, MO		
Publish Date:	12/17/2015		
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=90833		