



Aviation Investigation Final Report

Location:	Salina, Kansas	Accident Number:	GAA16CA331
Date & Time:	June 17, 2016, 20:45 Local	Registration:	N853KS
Aircraft:	Beech F33	Aircraft Damage:	Substantial
Defining Event:	Aerodynamic stall/spin	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor reported that he and his student pilot had remained in the traffic pattern, and had been practicing short field landings and power off 180 degree accuracy turns. The flight instructor further reported that he instructed his student to perform a short field landing for their sixth and final landing, and once "they had the runway made", he would take the flight controls. He intended to demonstrate how "ground effect plays a part in our landings and how one can use it to their advantage if you were in a situation where one would be short on a power off 180 accuracy landing or in a real world situation".

About 50 feet above the ground and over the runway threshold the flight instructor took the controls from the student pilot. He further reported that while he was talking to his student pilot about how "ground effect can extend your landing distance if you carry extra airspeed", he noticed that the pitch attitude was higher than normal and before he could add power or reduce the pitch attitude, the right wing "gave way" and impacted the ground, which resulted in substantial damage to the right aileron.

The pilot verified that there were no preimpact mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

The Federal Aviation Administration has published the Airplane Flying Handbook FAA-H-8083-3A (2004). This handbook discusses stalls and states in part:

The key to stall awareness is the pilot's ability to visualize the wing's angle of attack in any particular circumstance, and thereby be able to estimate his/her margin of safety above stall. This is a learned skill that must be acquired early in flight training and carried through the pilot's entire flying career. The pilot must understand and appreciate factors such as airspeed, pitch attitude, load factor, relative wind, power setting, and aircraft configuration in order to develop a reasonably accurate mental picture of the wing's angle of attack at any particular time. It is essential to flight safety that a pilot takes into consideration this visualization of the wing's angle of attack prior to entering any flight maneuver.

Stall accidents usually result from an inadvertent stall at a low altitude in which a recovery was not accomplished prior to contact with the surface.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The flight instructor's exceedance of the airplane's critical angle of attack during landing, which resulted in an aerodynamic stall and a collision with terrain.

Findings

Personnel issues	Aircraft control - Instructor/check pilot
Aircraft	Angle of attack - Capability exceeded

Factual Information

History of Flight

Landing	Aerodynamic stall/spin (Defining event)
Landing	Abnormal runway contact

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	26, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	May 2, 2016
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	May 10, 2016
Flight Time:	(Estimated) 1026.5 hours (Total, all aircraft), 169.3 hours (Total, this make and model), 980.7 hours (Pilot In Command, all aircraft), 181.6 hours (Last 90 days, all aircraft), 55.5 hours (Last 30 days, all aircraft), 7.5 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Private	Age:	20, Female
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	August 15, 2014
Occupational Pilot:	No	Last Flight Review or Equivalent:	July 15, 2015
Flight Time:	(Estimated) 288.3 hours (Total, all aircraft), 35.2 hours (Total, this make and model), 250 hours (Pilot In Command, all aircraft), 29.7 hours (Last 90 days, all aircraft), 13.8 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N853KS
Model/Series:	F33 A	Aircraft Category:	Airplane
Year of Manufacture:	1993	Amateur Built:	
Airworthiness Certificate:	Utility	Serial Number:	CE-1765
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	June 6, 2016 100 hour	Certified Max Gross Wt.:	3400 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	6066.3 Hrs at time of accident	Engine Manufacturer:	Continental
ELT:	C126 installed, not activated	Engine Model/Series:	IO-520-BB
Registered Owner:	KANSAS STATE UNIVERSITY SALINA	Rated Power:	285 Horsepower
Operator:	KANSAS STATE UNIVERSITY SALINA	Operating Certificate(s) Held:	Pilot school (141)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Dusk
Observation Facility, Elevation:	KSLN, 1282 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	01:53 Local	Direction from Accident Site:	38°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	130°	Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	29.92 inches Hg	Temperature/Dew Point:	33°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salina, KS (SLN)	Type of Flight Plan Filed:	Unknown
Destination:	Salina, KS (SLN)	Type of Clearance:	VFR
Departure Time:	19:45 Local	Type of Airspace:	Class D

Airport Information

Airport:	SALINA RGNL SLN	Runway Surface Type:	Asphalt;Concrete
Airport Elevation:	1288 ft msl	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	12301 ft / 150 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	38.789165,-97.660835(est)

Administrative Information

Investigator In Charge (IIC):	Vanover, Jackie
Additional Participating Persons:	Megan R Sayre; FAA; Wichita, KS
Original Publish Date:	September 12, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=93457

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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](#).