



Aviation Investigation Final Report

Location:	Daytona Beach, Florida	Accident Number:	ERA18LA184
Date & Time:	July 5, 2018, 13:45 Local	Registration:	N42SX
Aircraft:	Swearingen SX300	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	1 Fatal, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot and pilot-rated passenger were landing at the conclusion of a personal flight. The passenger stated that, during the landing approach, he noted that the wing flaps were down, and three green landing gear lights were illuminated; the airspeed was about 90 knots on final approach. Just before landing, he heard the angle of attack indicator alarm and knew that the airplane had stalled. The airplane landed hard and the left main landing gear collapsed. The pilot initially applied full power to take off again; however, he then reduced the throttle to idle and applied full braking. The airplane slid off the left side of the runway and collided with the precision approach path indicator lights. The airplane continued across the grass until the right wing dug into the ground; it then cartwheeled, came to rest upright, and caught fire. Bystanders assisted the pilot and passenger in opening the canopy and egressing the airplane; the pilot succumbed to burn injuries about one week after the accident. The passenger stated that there were no preimpact mechanical malfunctions with the airplane, and examination of the wreckage revealed no anomalies.

The circumstances of the accident are consistent with the pilot's failure to maintain adequate airspeed during the landing flare, which resulted in exceedance of the airplane's critical angle of attack and an aerodynamic stall. The subsequent hard landing resulted in a landing gear collapse and loss of directional control.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain adequate airspeed during landing, which led to the airplane exceeding its critical angle-of-attack, experiencing an aerodynamic stall and hard landing, which resulted in a landing gear collapse, loss of directional control, and runway excursion.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Airspeed - Not attained/maintained
Aircraft	Angle of attack - Not attained/maintained
Aircraft	Directional control - Not attained/maintained

Factual Information

History of Flight

Landing-flare/touchdown	Loss of control in flight (Defining event)
Landing-flare/touchdown	Hard landing
Landing-flare/touchdown	Landing gear collapse
Landing-landing roll	Loss of control on ground
Landing-landing roll	Collision with terr/obj (non-CFIT)

On July 5, 2018, about 1345 eastern daylight time, an experimental, amateur-built Swearingen SX-300, N42SX, was destroyed during a runway excursion while landing at Spruce Creek Airport (7FL6), Daytona Beach, Florida. The private pilot was fatally injured, and the pilot-rated passenger sustained minor injuries. The airplane was owned by the pilot who was operating it as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Visual meteorological conditions prevailed, and no flight plan was filed for the flight, which originated from Flagler Executive Airport (FIN), Palm Coast, Florida.

The passenger stated that he and the pilot flew to FIN about 1130 for lunch. They purchased fuel at FIN and departed for 7FL6 about 1330. The passenger stated that the return flight was normal, and that, during the approach for landing, he noted that the wing flaps were down and three green landing gear lights were illuminated in the cockpit. He added that the airspeed indicator showed 90 knots while on final approach. Just before landing, he heard the angle of attack indicator alarm and "knew they stalled the airplane." The airplane landed hard and he heard a loud pop and felt the left main landing gear fracture. He told the pilot that the left main landing gear had broken, and the pilot initially applied full power to take off again; however, he then reduced the throttle to idle and applied full braking. The airplane slid off the left side of the runway and collided with the precision approach path indicator lights. The airplane continued to slide across the grass until the right wing dug into the ground; the airplane then flipped over and caught fire. Both occupants tried to open the canopy, but it was jammed. The passenger then tried to kick out the canopy but could not break the glass. Several bystanders ran to the airplane, helped open the canopy, and helped the two occupants egress. The passenger stated that there were no mechanical defects with the airplane before the accident.

A witness stated that he saw the airplane "touch down." He was not sure if it was the initial landing or after it had bounced once. He further stated that the airplane's left main landing gear was "trailing behind," and after it landed, the airplane slid off the left side of the runway, spun around, and caught fire.

An airport security video showed the airplane after it touched down on the runway. The video showed the airplane sliding down the runway with the left main landing gear collapsed. The airplane slid off the left side of the runway, cartwheeled before coming to rest upright, and subsequently caught fire.

Pilot Information

Certificate:	Private	Age:	61,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Glider	Restraint Used:	5-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	July 3, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	1650 hours (Total, all aircraft)		

Pilot-rated passenger Information

Certificate:	Private	Age:	35,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	January 27, 2016
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	950 hours (Total, all aircraft)		

The pilot held a private pilot certificate with ratings for airplane single-engine land, airplane multi-engine land, instrument airplane, and glider. He held a third-class medical certificate, issued July 3, 2018. At the time of the medical examination, the pilot reported 1,650 total hours of flight experience. His pilot logbook was not recovered.

Aircraft and Owner/Operator Information

Aircraft Make:	Swearingen	Registration:	N42SX
Model/Series:	SX300 NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	1993	Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	42
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	May 3, 2018 Condition	Certified Max Gross Wt.:	2200 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	660 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	IO-540-L1C5
Registered Owner:		Rated Power:	300 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

The two seat, low-wing, retractable gear airplane was built in 1993. It was powered by a Lycoming IO-540-L1C5, 300-horsepower engine, equipped with a three-bladed Hartzell propeller.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KEVB, 10 ft msl	Distance from Accident Site:	5 Nautical Miles
Observation Time:	17:50 Local	Direction from Accident Site:	106°
Lowest Cloud Condition:	Scattered / 1800 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	120°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.17 inches Hg	Temperature/Dew Point:	30°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Palm Coast, FL (FIN)	Type of Flight Plan Filed:	None
Destination:	Daytona Beach, FL (7FL6)	Type of Clearance:	None
Departure Time:	13:30 Local	Type of Airspace:	

At 1350, the recorded weather at New Smyrna Beach Municipal Airport, located 5 miles southeast of the accident site, included wind from 120°; at 10 knots; 10 statute miles visibility; temperature 30°C; dew point 24°C; altimeter 30.17 inches of mercury.

Airport Information

Airport:	Spruce Creek 7FL6	Runway Surface Type:	Asphalt
Airport Elevation:	24 ft msl	Runway Surface Condition:	Dry
Runway Used:	06	IFR Approach:	None
Runway Length/Width:	4002 ft / 176 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Fatal, 1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 1 Minor	Latitude, Longitude:	29.079721,-81.048332(est)

The wreckage was located about midfield and 60 ft from the left side of runway 6 and was consumed by a postcrash fire. The main wreckage came to rest upright on a heading of 320°. The instrument panel was consumed by fire and no readable instruments were recovered. Both wings separated from the fuselage; the left wing was located beside the fuselage with about 4 ft of the inboard section remaining. The rest of the wing was consumed by fire. The right wing was located under the fuselage and completely consumed by fire. All major components of the airplane were accounted for at the scene. Control cable continuity was confirmed.

The engine remained attached to the airframe. The engine, propeller, and accessories were fire-damaged. The spinner dome was melted on one side. The top spark plugs were removed, and the propeller was rotated by hand. Thumb compression was established on all cylinders. Valve train continuity was established by visual confirmation of rocker arm movement and movement of the accessory gears. A lighted borescope was used to observe the pistons and valves inside the cylinders; no anomalies were noted.

Medical and Pathological Information

An autopsy was performed on the pilot by the Office of the Medical Examiner, Orlando, Florida. The report listed the cause of death as complications of 50.5% total body surface area burns and inhalation injury.

The pilot succumbed to his injuries in the hospital 1 week after the accident and toxicology testing was not performed.

Administrative Information

Investigator In Charge (IIC):	Boggs, Daniel
Additional Participating Persons:	William Meenan; FAA FSDO; Orlando, FL Mke Childers; Lycoming Engines; Atlanta, GA
Original Publish Date:	July 8, 2019
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=97699

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).