



Aviation Investigation Final Report

Location:	Santa Fe, New Mexico	Accident Number:	WPR19FA106
Date & Time:	April 8, 2019, 15:38 Local	Registration:	N118LS
Aircraft:	Tecnam P2002	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor and student pilot were conducting a touch-and-go landing. Surveillance footage showed that, shortly after takeoff, the airplane appeared to stop climbing. The right wing then dropped and the airplane entered a steep, nose-down attitude and impacted the ground. A postimpact fire ensued. Examination of the airframe and engine revealed no anomalies that would have precluded normal operation.

At the time of the accident, the density altitude was calculated to be about 8,600 ft. Given the available evidence, it is likely that the engine's performance was degraded by the high density altitude and the airplane's critical angle of attack was exceeded during the initial climb after takeoff, which resulted in an aerodynamic stall and loss of control.

Probable Cause and Findings

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

The flight instructor's failure to maintain adequate airspeed during the initial climb after takeoff, which resulted in an exceedance of the airplane's critical angle of attack, an aerodynamic stall, and loss of control.

Findings

Personnel issues	Aircraft control - Instructor/check pilot
Environmental issues	Gusts - Effect on equipment
Personnel issues	Use of medication/drugs - Student/instructed pilot
Environmental issues	High density altitude - Effect on operation

Factual Information

History of Flight

Initial climb	Loss of control in flight (Defining event)
Initial climb	Aerodynamic stall/spin
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On April 8, 2019, about 1538 mountain daylight time, a Costruzioni Aeronautiche Tecnam P2002 Sierra light sport airplane, N118LS, was destroyed when it was involved in an accident near Santa Fe, New Mexico. The flight instructor and student pilot were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

The student and instructor were conducting a touch-and-go landing. A witness located near the departure end of the runway reported that the airplane did not climb very high before it appeared to "go sideways" and "nosedived sideways into the ground."

Review of the surveillance camera video showed the accident airplane departing from runway 33. The airplane appeared to stop climbing; shortly thereafter, the right wing dropped, and the airplane entered a steep nose-down attitude and impacted the ground. A postimpact fire ensued.

Student pilot Information

Certificate:	Student	Age:	60, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Sport pilot None	Last FAA Medical Exam:	
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 60 hours (Total, all aircraft)		

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	60, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Glider	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine	Toxicology Performed:	Yes
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	December 21, 2018
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	(Estimated) 10589 hours (Total, all aircraft)		

The instructor, age 72, held a flight instructor certificate with a rating for airplane single engine. He held a commercial pilot certificate with ratings for airplane single-engine land, instrument airplane, and glider. His most recent second-class Federal Aviation Administration (FAA) airman medical certificate was issued on December 21, 2018, with a limitation for corrective lenses. The pilot reported on his medical certificate application that he had accumulated 10,589 total hours of flight experience, with 291 hours in the previous 6 months.

The student pilot was issued an FAA third-class airman medical and student pilot certificate on June 15, 2001, which was not valid for any class after June 30, 2003. The pilot reported on the application for the medical certificate that he had accumulated 60 total hours of flight experience, with no flight time in the previous 6 months.

Aircraft and Owner/Operator Information

Aircraft Make:	Tecnam	Registration:	N118LS
Model/Series:	P2002	Aircraft Category:	Airplane
Year of Manufacture:	2006	Amateur Built:	
Airworthiness Certificate:	Special light-sport (Special)	Serial Number:	174
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	February 1, 2019 Condition	Certified Max Gross Wt.:	1320 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	1962.5 Hrs as of last inspection	Engine Manufacturer:	Rotax
ELT:	Installed	Engine Model/Series:	912 UL S2
Registered Owner:		Rated Power:	100 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None
Operator Does Business As:	Sierra Aviation	Operator Designator Code:	

The low-wing airplane was powered by a 100-horsepower Rotax 912 UL S2 series reciprocating engine. The engine was equipped with a GT Propellers fixed pitch propeller.

A review of the airframe logbook revealed that the most recent condition inspection was completed on February 1, 2019, at an airframe total time of 1,962.5 hours and an engine time of 491.7 hours.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KSAF, 6344 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	14:53 Local	Direction from Accident Site:	122°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	6 knots / 14 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	240°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.15 inches Hg	Temperature/Dew Point:	23°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Santa Fe, NM (SAF)	Type of Flight Plan Filed:	None
Destination:	Santa Fe, NM	Type of Clearance:	Unknown
Departure Time:	14:50 Local	Type of Airspace:	

At 1453, the recorded weather conditions at Santa Fe Regional Airport (SAF), Santa Fe, New Mexico, included wind from 240° at 6 knots with gusts to 14 knots, 10 statute miles visibility, clear sky, temperature 23°C, dew point 8°C, and an altimeter setting of 30.15 inches of mercury. The density altitude was calculated to be about 8,600 ft.

Review of weather conditions at SAF at the time of the accident revealed no forecasts for any moderate turbulence or low-level windshear. No AIRMETS, SIGMETS, or CWAs for significant weather were active in the area. A weather sounding model depicted no turbulence other than gusting wind at the accident site.

Airport Information

Airport:	Santa Fe Muni SAF	Runway Surface Type:	Asphalt
Airport Elevation:	6348 ft msl	Runway Surface Condition:	Dry; Rough; Vegetation
Runway Used:	33	IFR Approach:	None
Runway Length/Width:	6316 ft / 100 ft	VFR Approach/Landing:	Touch and go

Santa Fe Municipal Airport is a publicly owned, towered airport, with a reported field elevation of 6,348 ft mean sea level (msl). The airport was equipped with three asphalt runways; runway 15/33 was 6,316 ft long by 100 ft wide.

Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	35.621946,-106.10339(est)

The airplane first impacted terrain about 527 ft northeast of the departure end of runway 33, at an elevation of about 6,303 ft. All major components of the airplane were contained within the main wreckage site. Wreckage debris was scattered about 100 ft from the main wreckage. The first identified point of contact was a large area of disturbed dirt, about 2 ft long by 2 ft wide and 2 inches deep, where several pieces of green position light lens were located. The disturbance was about 91 ft from the main wreckage. Another ground disturbance, about 2.5 ft long, 2 ft wide, and an inch deep, was located about 18 ft further along the wreckage path, where propeller splinters and the top third of a blade were located. Ground scars emanated from this area of disturbed dirt to the main wreckage. The debris path was oriented on an approximate 005° magnetic heading. The fuselage came to rest upright on a heading of about 175° magnetic. A postimpact fire consumed the left wing and cabin area.

Postaccident examination of the airframe and engine revealed no preimpact anomalies that would have prevented normal operation.

Medical and Pathological Information

The Santa Fe County Coroner's Office, Santa Fe, New Mexico, conducted the autopsy on the pilots. The medical examiner determined that the causes of death for both were attributed to "multiple blunt force injuries."

The FAA Forensic Sciences Laboratory performed toxicological testing on the instructor and student pilot. Specimens from the instructor were negative for carbon monoxide, cyanide, volatiles, and all tested-for drugs.

Specimens from the student pilot were negative for carbon monoxide and ethanol. Tetrahydrocannabinol (THC, the primary psychoactive component of marijuana) was detected in blood and urine, and carboxy-delta-9-tetrahydrocannabinol was detected in the blood and urine. Pioglitazone was also detected in the blood. Pioglitazone is a prescription medication used with a diet and exercise program and sometimes with other medications, to treat type 2 diabetes.

Administrative Information

Investigator In Charge (IIC): Nixon, Albert

Additional Participating Persons: David Jones; Federal Aviation Administration; Albuquerque, NM

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Investigation Class: 3

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=99233>

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](#).