



# Aviation Investigation Final Report

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<b>Location:</b>	Woody Creek, Colorado	<b>Accident Number:</b>	CEN20LA069
<b>Date &amp; Time:</b>	January 27, 2020, 15:24 Local	<b>Registration:</b>	N288WT
<b>Aircraft:</b>	Cirrus SR22	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Sys/Comp malf/fail (non-power)	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

Before departing on the instrument flight rules cross-country flight, the pilot cleaned melting snow off the airplane and visually inspected the airframe flight control surfaces for snow and ice contamination, which included checking the pitot tube for contamination and proper function of the pitot heat.

The pilot reported that, just after takeoff, the indicated airspeed decreased from normal climb speed to less than 20 knots. Immediately thereafter, the primary flight display showed red X's in place of the airspeed indication, and the backup airspeed indicator became unreliable. The airspeed indicator became functional again for a short time before airspeed indications were lost after the airplane entered instrument meteorological conditions. As the airplane was approaching rising terrain, the pilot chose to activate the airframe parachute system (CAPS), and the airplane descended under the CAPS canopy to the mountainous terrain.

Recorded data indicated that the pitot heat remained on throughout the flight. The data corroborated the pilot's reported loss of airspeed indications after takeoff but showed that airspeed indications returned about 1 minute later for the remainder of the flight, until the CAPS activation. The flight director was activated during the takeoff and climb before the autopilot was activated. The data indicated that the autopilot was turned off then turned back on until the CAPS was deployed.

An internally mounted alternate static pressure source provided backup static pressure if the primary static source should become blocked. Whether the alternate static source was opened during the accident flight could not be determined.

Given the available information, the static system most likely had trapped water that caused the unreliable display information.

## Probable Cause and Findings

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

Water trapped in the static system, which resulted in incorrect airspeed display information and the pilot's forced landing.

### Findings

<b>Aircraft</b>	Central display - Malfunction
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## Factual Information

### History of Flight

Enroute	Sys/Comp malf/fail (non-power) (Defining event)
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On January 27, 2020, about 1524 mountain standard time, a Cirrus SR22T airplane, N288WT, was substantially damaged when it was involved in an accident near Woody Creek, Colorado. The private pilot and pilot-rated passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, before starting the airplane, he cleaned melting snow off the airframe and preheated the engine. During preflight, the pilot visually inspected the airframe and flight control surfaces for snow and ice contamination. He also inspected the pitot tube to ensure that it was unobstructed and properly heated. A review of airport surveillance video confirmed that the pilot conducted preflight activities consistent with snow removal, which included using a broom to remove snow in the vicinity of the static ports.

After checking the weather and loading the airplane, the pilot conducted another preflight inspection to confirm that there was no snow or ice remaining on the airplane. After starting the engine, he immediately turned on the pitot heat. Before takeoff, he ensured that the entire airframe was covered with Tecalemit-Kilfrost-Sheepbridge Stokes (TKS) deicing fluid.

The pilot began the takeoff roll on runway 33 about 1520. Shortly after takeoff, the indicated airspeed decreased from normal climb speed to less than 20 knots. Immediately thereafter, the primary flight display (PFD) completely lost airspeed indication and displayed red X's. At the same time, the backup airspeed indicator became unreliable.

The pilot decided to return to the airport, and as he maneuvered the airplane, the airspeed indicator became operational again. After confirming the airplane's speed, the pilot began to retract the flaps, activated his flight plan on the avionics, and engaged the autopilot. Shortly thereafter, the airplane entered instrument meteorological conditions, the airspeed indicator once again failed, and the autopilot disengaged. Realizing that he was approaching rising terrain without airspeed indication or visual reference to the ground, the pilot decided to activate the Cirrus Airframe Parachute System (CAPS). Upon activation of the CAPS, the passenger immediately notified air traffic control via the airplane radio and requested assistance. After more than 5 hours, a rescue crew arrived on foot. The pilot and passenger safely exited the airplane through their respective cabin doors without further incident or injuries.

Recorded weather observations at the departure airport indicated that snow ended at 1449.

Review of recorded flight parameters from the airplane's recoverable data module (RDM) revealed a decrease in recorded airspeed after takeoff, and airspeed indications returned about a minute later. The

data showed that the flight director was activated during the takeoff and climb before the autopilot was activated. The RDM data indicated that the autopilot was turned off then turned back on and remained activated until the pilot deployed the CAPS.

The pitot-static system comprised a single heated pitot tube mounted on the left wing and dual static ports mounted in the fuselage. The pitot heat is pilot-controlled through a panel-mounted switch. An internally mounted alternate static pressure source provides backup static pressure should the primary static source become blocked. Water traps with drains, located under the cabin floor, are installed at each pitot and static line low point to collect any moisture that enters the system. The traps should be drained at each annual inspection and when water in the system is known or suspected.

The pilot operating handbook (POH) for the accident airplane stated:

*If erroneous readings of the static source instruments (airspeed, altimeter, and vertical speed) are suspected, the alternate static source valve, on side of console near pilot’s right ankle, should be opened to supply static pressure from the cabin to these instruments...*

*If only the airspeed indicator is providing erroneous information, and in icing conditions, the most probable cause is pitot ice. If setting Pitot Heat ON does not correct the problem, descend to warmer air. If an approach must be made with a blocked pitot tube, use known pitch and power settings and the GPS groundspeed indicator, taking surface winds into account.*

Whether the pilot and/or pilot-rated passenger opened the alternate static source following the loss of airspeed information could not be determined.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	50, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	January 11, 2019
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	December 18, 2018
<b>Flight Time:</b>	(Estimated) 798.9 hours (Total, all aircraft), 612 hours (Total, this make and model), 640.3 hours (Pilot In Command, all aircraft), 51.7 hours (Last 90 days, all aircraft), 26.8 hours (Last 30 days, all aircraft), 0.5 hours (Last 24 hours, all aircraft)		

## Pilot-rated passenger Information

<b>Certificate:</b>	Private	<b>Age:</b>	49,Female
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	October 22, 2018
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>			

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cirrus	<b>Registration:</b>	N288WT
<b>Model/Series:</b>	SR22 T	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2017	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	1594
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>		<b>Certified Max Gross Wt.:</b>	3600 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>		<b>Engine Model/Series:</b>	IO-550-K
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	315 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KASE,7720 ft msl	<b>Distance from Accident Site:</b>	4 Nautical Miles
<b>Observation Time:</b>	14:53 Local	<b>Direction from Accident Site:</b>	232°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	3 miles
<b>Lowest Ceiling:</b>	Overcast / 900 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots / 15 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	350°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.02 inches Hg	<b>Temperature/Dew Point:</b>	-2°C / -5°C
<b>Precipitation and Obscuration:</b>	Moderate - None - Haze		
<b>Departure Point:</b>	Aspen, CO (ASE )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Eagle, CO (EGE )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	15:20 Local	<b>Type of Airspace:</b>	Class D

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	39.267223,-106.81027(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Malinowski, Edward
<b>Additional Participating Persons:</b>	Sidney Jensen; Federal Aviation Administration; Denver, CO Brad Miller; Cirrus; Duluth, MN Rick Beach; COPA; Las Vegas, NV
<b>Original Publish Date:</b>	March 9, 2022
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=100879">https://data.nts.gov/Docket?ProjectID=100879</a>

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](#).