



# Aviation Investigation Final Report

<b>Location:</b>	ORRVILLE, Ohio	<b>Accident Number:</b>	CEN18LA171
<b>Date &amp; Time:</b>	May 11, 2018, 09:40 Local	<b>Registration:</b>	N738XT
<b>Aircraft:</b>	Cessna 172N	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Aerodynamic stall/spin	<b>Injuries:</b>	1 Serious, 1 Minor
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

During initial climb after a soft field takeoff, the private pilot noted that the airspeed was low, which he thought was due to a pitot system error. He pulled back on the yoke and the airplane's stall warning horn immediately sounded. The airplane was descending, and the pilot maneuvered to avoid obstructions. He pulled the yoke all the way back to fully stall the airplane before the airplane impacted the ground and nosed over. The pilot reported that there were no mechanical failures or malfunctions with the airplane that would have precluded normal operation. Based on the available information, it is likely that the pilot failed to attain adequate airspeed control during the takeoff and initial climb, which resulted in an exceedance of the airplane's critical angle of attack and a subsequent aerodynamic stall.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to attain adequate airspeed during the soft field takeoff, which resulted in an exceedance of the airplane's critical angle of attack and an aerodynamic stall.

## Findings

<b>Aircraft</b>	Airspeed - Not attained/maintained
<b>Aircraft</b>	Angle of attack - Capability exceeded
<b>Personnel issues</b>	Aircraft control - Pilot



# Factual Information

## History of Flight

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

On May 11, 2018, about 0940 eastern daylight time, Cessna 172N airplane, N738XT, was substantially damaged when it impacted the ground and nosed over during takeoff from runway 10 at the Markley Farm Airport (OH24), Orrville, Ohio. The private pilot received serious injuries and the passenger received minor injuries. The airplane sustained damage to the fuselage, wings and vertical tail. The aircraft was registered to and operated by the pilot under the provisions of 14 *Code of Federal Regulations* Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The flight was originating at the time of the accident and the Greenbrier Valley Airport (LWB), near Lewisburg, West Virginia, was the intended destination.

The pilot reported that he was taking off on runway 10 from his private grass airstrip. He reported that he noted the wind was calm and that the temperature was "warmer", and he referenced the pilot's operating handbook for a soft field takeoff using 10 degrees of flaps. He stated that after takeoff the airplane was in ground-effect and was gaining speed. He noted that he checked, and the airspeed was between 50 and 60 knots. When he looked back toward the runway, he was left of the runway and corrected back to the right. He re-checked the airspeed and it was now reading between zero and the bottom of the white arc (41 knots). He stated that he thought that the airspeed reading was due to a pitot system error and pulled back on the yoke to see if he could climb out; however, the stall warning horn sounded immediately. He diverted to the left to avoid obstructions and was losing altitude rapidly. He pulled the yoke back all the way to fully stall the airplane and it struck the ground and nosed over. He noted in his report that, to the best of his knowledge, there were no mechanical failures or malfunctions with the airplane, engine, or systems that would have precluded normal operation.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	64,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>	
<b>Instrument Rating(s):</b>	None	<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>	November 10, 2015
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	353 hours (Total, all aircraft), 353 hours (Total, this make and model), 320 hours (Pilot In Command, all aircraft), 50.5 hours (Last 90 days, all aircraft), 24.7 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N738XT
<b>Model/Series:</b>	172N N	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1978	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	17270324
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	February 11, 2018 Annual	<b>Certified Max Gross Wt.:</b>	2299 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1924 Hrs as of last inspection	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	O-320-H2AD
<b>Registered Owner:</b>		<b>Rated Power:</b>	160 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	BJJ,1136 ft msl	<b>Distance from Accident Site:</b>	5 Nautical Miles
<b>Observation Time:</b>	12:56 Local	<b>Direction from Accident Site:</b>	270°
<b>Lowest Cloud Condition:</b>	Few / 6500 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Overcast / 9500 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	30°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.12 inches Hg	<b>Temperature/Dew Point:</b>	9°C / 1°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	ORRVILLE, OH (OH24)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Lewisburg, WV (LWB )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:40 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	MARKLEY FARM OH24	<b>Runway Surface Type:</b>	Grass/turf
<b>Airport Elevation:</b>	1110 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	10	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	1633 ft / 200 ft	<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Serious	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Minor	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Serious, 1 Minor	<b>Latitude, Longitude:</b>	40.875556,-81.766387

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Brannen, John
<b>Additional Participating Persons:</b>	Mark Frank; Cleveland FSDO; Cleveland, OH
<b>Original Publish Date:</b>	March 18, 2019
<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=97249">https://data.nts.gov/Docket?ProjectID=97249</a>

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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](#).