



# Aviation Investigation Final Report

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<b>Location:</b>	London, Ohio	<b>Accident Number:</b>	ERA23FA200
<b>Date &amp; Time:</b>	April 18, 2023, 18:20 Local	<b>Registration:</b>	N734GB
<b>Aircraft:</b>	Cessna 172	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

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## Analysis

The accident occurred during what was likely the student pilot's first instructional flight. According to ADS-B data, the airplane was on final approach to the runway for landing in gusty wind conditions, when the accident occurred. The airplane's calculated airspeed during the final approach was decelerating, and about 150 ft from the runway threshold, it was about 18 knots above its published stall speed given its configuration. The airplane subsequently impacted the ground about 1 ft from the edge of the runway in a near-vertical nose-down, left-wing-low attitude and came to rest inverted.

Postaccident examination of the airplane revealed that the damage signatures observed on the wreckage were consistent with a relatively low energy impact, with the majority of the damage being to the forward portion of the airframe. The engine and propeller were compressed aft and up into the fuselage. The flaps were found extended to the 40° position. No evidence of any preimpact mechanical malfunctions or failures were identified that would have precluded normal operation of the airplane. The observed impact signatures were indicative of the airplane encountering an aerodynamic stall at low altitude.

Postaccident toxicological testing showed that the student pilot had used the antidepressant medication venlafaxine. This medication and some conditions it may be used to treat have some potential to impair performance. However, considering the accident circumstances, including the student pilot's limited baseline piloting skill and experience, his limited flight safety responsibilities on the first instructional flight, and the presence of the qualified flight instructor, it is unlikely that the student pilot's venlafaxine use, or any associated underlying condition, contributed to the accident.

Given the decelerating airspeed trend observed in the recorded data and the impact attitude of the airplane, it is likely that the flight instructor did not ensure that sufficient airspeed was maintained and the airplane's critical angle of attack was exceeded, which resulted in an aerodynamic stall while on final approach to land.

## 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 and his exceedance of the airplane's critical angle of attack, which resulted in an aerodynamic stall at an altitude too low for recovery.

### Findings

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

## Factual Information

### History of Flight

<b>Approach-VFR pattern final</b>	Loss of control in flight (Defining event)
<b>Approach-VFR pattern final</b>	Aerodynamic stall/spin
<b>Uncontrolled descent</b>	Collision with terr/obj (non-CFIT)

On April 18, 2023, at 1820 eastern daylight time, a Cessna 172N, N734GB, was destroyed when it was involved in an accident near London, Ohio. 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.

According to the airport manager, the flight instructor recently rented three hangars and was in the process of building a flight school with new students. The flight instructor recently moved to Ohio, and brought one airplane with him, which was the accident airplane, and he was going to bring two more from where he moved. The airport manager believed that the accident flight was the student pilot's first flight.

According to ADS-B data, the airplane was decelerating during the final approach to runway 27 at Madison County Airport (UYF), London, Ohio. Specifically, when the airplane was about 500 ft from the runway, its calculated groundspeed was 54 knots, or about 70 knots airspeed when accounting for the prevailing headwind. About 150 ft from the runway, the data indicated the airplane's calculated groundspeed was 46 knots, or about 62 knots airspeed. According to a pilot operating handbook for the make and model airplane, the stall speed with full flaps extended was 44 knots.

The flight instructor's logbooks were not recovered. According to FAA data, the flight instructor received his flight instructor certification on October 13, 1998.

The wreckage was located inverted about 1 ft from the end of runway 27, on a magnetic heading of 270°. The damage correlated with the airplane impacting the terrain in a left-wing-low, nose-down, near-vertical attitude. The impact damage was also primarily concentrated on the forward portion of the airframe. The engine and propeller were compressed aft and up into the fuselage. The instrument panel was fractured in several places and contained no useful information. The lap seat belts were intact; however, the webbing on both shoulder harnesses had come unstitched. The propeller spinner was crushed flat against the propeller. The carburetor was fractured off the engine and found in front of the wreckage about 5 ft away. The nose landing gear remained partially attached. The left wing sustained tapering compression damage near the tip. The left wing tip was separated from the wing. All flight control surfaces remained attached to the airplane. Control cable continuity was established

for all flight controls. The elevator trim tab actuator was extended 1.4 inches, which equated to an about 5° tab up (nose down) position. The left flap sustained impact damage and was found in a mid-travel position. The right flap was found extended about 40°. The flap actuator jackscrew measured to be about 5.5 inches, which equated to the flaps being extended 40°.

The two-blade metal propeller remained attached to the crankshaft flange via three of the six propeller bolts. The nose cone was compressed around the propeller hub. One blade was bent aft about midway. Rotational scoring was noted on the blade bent aft. The second blade remained mostly straight. The engine rotated when force was applied to the crankshaft flange. Thumb compression was established on all four cylinders and valve lift action was observed on each cylinder. Both magnetos were secured to the accessory housing and produced spark at all leads when rotated. The spark plugs were undamaged and displayed normal coloration consistent with normal engine operation. Continuity of the crankshaft to the camshaft was established throughout the engine.

The FAA Forensic Sciences Laboratory performed toxicological testing on the both the flight instructor and student pilot. No drugs were detected on the flight instructor. The student pilot detected for venlafaxine. Venlafaxine has a variety of uses for depression, anxiety, and other conditions. Venlafaxine commonly carries a warning that it can cause drowsiness, and that users should not drive, operate heavy machinery, or do other dangerous activities. The FAA considers venlafaxine unacceptable for pilot medical certification.

### Flight instructor Information

<b>Certificate:</b>	Airline transport; Commercial; Flight instructor	<b>Age:</b>	61, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	January 4, 2022
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	9890 hours (Total, all aircraft)		

## Student pilot Information

<b>Certificate:</b>	None	<b>Age:</b>	44, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	None	<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	0 hours (Total, all aircraft), 0 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N734GB
<b>Model/Series:</b>	172 N	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1977	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	17268833
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	April 13, 2023 Annual	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	7531.5 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	C91 installed, not activated	<b>Engine Model/Series:</b>	O-320-E2D
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	150
<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>	UYF,1081 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	18:35 Local	<b>Direction from Accident Site:</b>	-1°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	16 knots / 19 knots	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	280°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	29.92 inches Hg	<b>Temperature/Dew Point:</b>	14°C / -6°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	London, OH	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	London, OH	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	MADISON COUNTY UYF	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	1081 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	27	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	4000 ft / 75 ft	<b>VFR Approach/Landing:</b>	Unknown

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 Fatal	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Fatal	<b>Latitude, Longitude:</b>	39.93238,-83.469164

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Boggs, Daniel
<b>Additional Participating Persons:</b>	David Schlupe; FAA; columbus, OH Peter Basile; Textron Aviation; Wichita, KS Ryan Enders; Lycoming ; Harrisburg, PA
<b>Original Publish Date:</b>	February 20, 2025
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=107083">https://data.nts.gov/Docket?ProjectID=107083</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](#).