



# Aviation Investigation Final Report

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<b>Location:</b>	Bentleyville, Pennsylvania	<b>Accident Number:</b>	ERA21LA271
<b>Date &amp; Time:</b>	June 28, 2021, 18:30 Local	<b>Registration:</b>	N22307
<b>Aircraft:</b>	Cessna 150	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Collision during takeoff/land	<b>Injuries:</b>	2 Serious
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

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## Analysis

The student pilot and instructor were preparing for the student’s private pilot checkride. After performing takeoffs, landings, and several maneuvers, they decided to perform a landing at a 1,720 ft private grass strip. The landing was uneventful, and the student pilot taxied back and prepared to take off with 10° of flaps. During the takeoff, after the airplane became airborne, and the last recollection the student pilot had was that the airplane was not climbing due to “low airspeed in [the] high heat [and] high humidity.” Subsequently, the airplane impacted the runway about 100 ft from trees at the departure end, which resulted in substantial damage to the fuselage and wings. The student pilot reported that they did not complete performance calculations prior to the takeoff. Takeoff performance calculations based on the takeoff distance chart in the airplane owner’s manual revealed that a ground roll of about 1,022 ft and a takeoff distance of about 1,792 ft was required to clear a 50-ft obstacle at the airplane’s maximum allowable gross weight. The chart (and the checklist procedure) indicated that the maximum performance takeoff was to be performed with the flaps in the retracted position. In addition, the student pilot and the flight instructor stated that there were no mechanical failures or malfunctions of the airplane during the takeoff.

## Probable Cause and Findings

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

The flight instructor and student pilot’s inadequate preflight performance planning which resulted in a takeoff attempt with insufficient available runway, a loss of control, and impact with terrain.

## Findings

<b>Personnel issues</b>	Performance calculations - Student/instructed pilot
<b>Personnel issues</b>	Performance calculations - Instructor/check pilot
<b>Aircraft</b>	Takeoff distance - Capability exceeded

## Factual Information

### History of Flight

<b>Initial climb</b>	Loss of control in flight
<b>Initial climb</b>	Collision during takeoff/land (Defining event)

### Student pilot Information

<b>Certificate:</b>	Student	<b>Age:</b>	29, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Lap only
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 3 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	June 1, 2020
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	107 hours (Total, all aircraft), 107 hours (Total, this make and model), 40 hours (Pilot In Command, all aircraft), 21 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

### Flight instructor Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	Female
<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>	Unknown
<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>	
<b>Medical Certification:</b>	Class 1 Unknown	<b>Last FAA Medical Exam:</b>	December 1, 2019
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>			

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N22307
<b>Model/Series:</b>	150 H	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1968	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal; Utility	<b>Serial Number:</b>	15068207
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	June 1, 2021 Annual	<b>Certified Max Gross Wt.:</b>	1600 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2737 Hrs at time of accident	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	O-200A
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	100 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>	AFJ,1185 ft msl	<b>Distance from Accident Site:</b>	13 Nautical Miles
<b>Observation Time:</b>	18:56 Local	<b>Direction from Accident Site:</b>	275°
<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>	5 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	210°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.22 inches Hg	<b>Temperature/Dew Point:</b>	31°C / 20°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Bentleyville, PA	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Waynesburg, PA (WAY)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	Private N/A	<b>Runway Surface Type:</b>	Grass/turf
<b>Airport Elevation:</b>	1114 ft msl	<b>Runway Surface Condition:</b>	Dry;Vegetation
<b>Runway Used:</b>	28	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	1720 ft / 75 ft	<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 Serious	<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 Serious	<b>Latitude, Longitude:</b>	40.153653,-80.051134(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Kemner, Heidi
<b>Additional Participating Persons:</b>	Nick Matlock; FAA/FSDO; Allegheny, PA
<b>Original Publish Date:</b>	February 18, 2022
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 4</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=103365">https://data.nts.gov/Docket?ProjectID=103365</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](#).