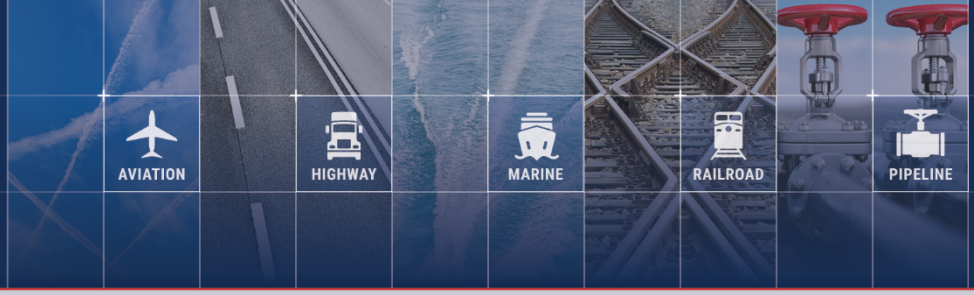

Aviation Investigation Final Report

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

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

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

Factual Information

History of Flight

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

Student pilot Information

Certificate:	Student	**Age:**	29,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	June 1, 2020
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	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

Certificate:	Commercial; Flight instructor	**Age:**	Female
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 1 Unknown	**Last FAA Medical Exam:**	December 1, 2019
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N22307
Model/Series:	150 H	**Aircraft Category:**	Airplane
Year of Manufacture:	1968	**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	15068207
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	June 1, 2021 Annual	**Certified Max Gross Wt.:**	1600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2737 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed	**Engine Model/Series:**	O-200A
Registered Owner:	On file	**Rated Power:**	100 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	AFJ,1185 ft msl	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:	18:56 Local	**Direction from Accident Site:**	275°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.22 inches Hg	**Temperature/Dew Point:**	31°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bentleyville, PA	**Type of Flight Plan Filed:**	None
Destination:	Waynesburg, PA (WAY)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

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

Wreckage and Impact Information

Crew Injuries:	2 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Serious	**Latitude, Longitude:**	40.153653,-80.051134(est)

Administrative Information

Investigator In Charge (IIC):	Kemner, Heidi
Additional Participating Persons:	Nick Matlock; FAA/FSDO; Allegheny, PA
Original Publish Date:	February 18, 2022
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=103365