



Aviation Investigation Final Report

Location:	Ruidoso, New Mexico	Accident Number:	WPR19LA223
Date & Time:	August 17, 2019, 12:55 Local	Registration:	N5410D
Aircraft:	Beech 35	Aircraft Damage:	Substantial
Defining Event:	Collision with terr/obj (non-CFIT)	Injuries:	2 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot and one passenger were departing from an airport located at an elevation of 6,813 ft mean sea level (msl). The pilot determined that, based on the temperature and gross weight of the airplane, the takeoff ground roll distance was about 2,900 ft total distance required to clear a 50-ft obstacle. The runway was 6,300 ft long.

The pilot reported that the airplane became airborne about halfway down the runway and climbed to about 150 to 200 ft above ground level when he noticed a loss of engine power and the airplane began to descend. The pilot maneuvered the airplane for a forced landing and the airplane impacted terrain, resulting in substantial damage.

A postaccident examination of the airplane revealed no mechanical malfunctions that would have precluded normal operation, and onboard video revealed that the engine continued to produce sufficient power throughout the flight.

Before the accident flight, the pilot determined that, based on his calculation, the density altitude was 8,500 ft mean sea level (msl). Based on the weather conditions reported by the airport's automated weather observation at the time of the accident, the density altitude was about 9,700 ft msl, which required a takeoff distance of about 3,300 ft. It is likely that the takeoff and climb performance, due to the density altitude, was degraded to an extent beyond that anticipated by the pilot, and the airplane was unable to maintain altitude.

Probable Cause and Findings

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

The airplane's inability to maintain altitude during the initial climb due to a degradation in the airplane's performance as a result of high-density altitude conditions at the time of takeoff. Contributing to the accident were the pilot's inadequate preflight performance planning calculations.

Findings

Personnel issues	Performance calculations - Pilot
Aircraft	Climb capability - Attain/maintain not possible
Environmental issues	High density altitude - Effect on operation
Personnel issues	Decision making/judgment - Pilot

Factual Information

History of Flight

Takeoff	Collision with terr/obj (non-CFIT) (Defining event)
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On August 17, 2019, about 1255 mountain daylight time, a Beechcraft H35 airplane, N5410D, was destroyed when it was involved in an accident near Ruidoso, New Mexico. The pilot and pilot-rated passenger were seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that, the day before the accident, he flew the airplane from Texas to the accident airport with no issues. He also added that he had flown in and out of the accident airport several times before and was familiar with high density altitude operations.

Before the accident flight, the pilot determined that, based on his calculation, he reported that the density altitude was 8,500 ft mean sea level (msl), and the airplane's weight was 2,803 pounds which was about 100 pounds under gross weight and within the center of gravity envelope. The takeoff ground roll distance required about 2,900 ft to clear a 50-ft obstacle. The runway was 6,300 ft long.

The pilot leaned the engine for maximum performance and determined that if the airplane did not reach takeoff speed by the 3,000-foot runway marker, he would abort the takeoff. The airplane reached rotation speed about midfield and climbed to about 150 to 200 ft above ground level (agl) when the pilot noticed a loss of engine power. The airplane began to descend, and the pilot maneuvered the airplane for a forced landing.

A witness located on the west side of the airport saw the accident airplane flying unusually low (no higher than 100 ft agl) in a northerly direction over runway 30. When it reached the intersection of runway 06/24, it started to descend out of view. The witness could hear the engine, and at no time did he see any smoke or vapors. He then ran to the terminal and prepared the fire truck and drove it to the accident site. Once there, he observed that about 5 gallons of fuel had leaked out of one of the wings, which had struck a tree.

The airframe was severely damaged, and the engine was detached from the airframe. The left magneto was attached, and the right magneto mount was partially damaged. The starter was detached. The carburetor was severely damaged. All cylinders remained attached to the crankcase. The top spark plugs, and cylinder rocker box covers were removed. The top spark plugs were intact and exhibited normal operational signatures. The electrode gaps were consistent with service specifications. The crankshaft was rotated by hand and rotational continuity was established throughout the engine and valve train to the accessory section. Equal movement was observed on all the intake and exhaust valve rocker arms. Thumb compression and suction was obtained on all six cylinders. The magnetos were actuated by

rotating the crankshaft, and spark was observed. The intake system was severely damaged, although it remained intact at the cylinder's heads.

The air filter and filter housing were severely damaged. The exhaust system was severely damaged, although it remained intact at the cylinder heads. The engine cylinders were examined internally using a lighted borescope. The piston tops and cylinder sidewalls appeared normal. No evidence of foreign object ingestion was observed. The examination revealed no mechanical malfunction that would have precluded normal operation.

An onboard GoPro camera captured the accident takeoff in two video files; the first contained audio and video of the airplane taxiing to the runway and the second contained audio and video of the takeoff and subsequent impact with terrain. Both videos showed the instrument panel. The first video showed that the tachometer gauge read 1,300 rpm and an engine total time of 1,781.74 hours. The fuel pressure indicator read 3 psi, the manifold pressure indicator read 13 inHg, and the suction gauge read 4.75 inHg. The altimeter indicated an altitude of about 6,750 ft msl, and the fuel quantity gauge indicated 51.6 gallons of fuel remaining.

The second video showed that the pilot applied power and the airplane began to accelerate down the runway. The tachometer indicated 2,600 rpm, the fuel pressure indicator read 6.5 psi, the manifold pressure indicator read 22.5 inHg, and the suction gauge read 6 inHg. About 40 seconds after the airplane started to accelerate, it lifted off the runway. The pilot retracted the landing gear, and about 25 seconds after takeoff, the intersecting runway, 6/24, was visible as it passed below. About 38 seconds after liftoff, the tachometer indicated 2,400 rpm, the manifold pressure indicator read 23 inHg, and the suction gauge indicated 5.8 inHg. The landing gear indicator showed that the gear was retracted, and the propeller control lever was in the full-forward position. About a half-second later, the camera revealed that the throttle lever was in the full forward position, the mixture control lever appeared to be in line with the throttle lever and in the full forward (rich) position, and the yoke was being pulled aft. The airplane impacted terrain 40 seconds after takeoff.

Based on the weather conditions reported by the airport's automated weather observation system at 1255, the density altitude at the time of the accident was about 9,700 ft msl, which required a takeoff distance of about 3,300 ft.

Pilot Information

Certificate:	Private	Age:	37,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	May 2, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	January 22, 2019
Flight Time:	1052 hours (Total, all aircraft), 10 hours (Total, this make and model), 980 hours (Pilot In Command, all aircraft), 80 hours (Last 90 days, all aircraft), 24 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Pilot-rated passenger Information

Certificate:	Private	Age:	Male
Airplane Rating(s):		Seat Occupied:	Left
Other Aircraft Rating(s):		Restraint Used:	
Instrument Rating(s):		Second Pilot Present:	
Instructor Rating(s):		Toxicology Performed:	
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N5410D
Model/Series:	35 H35	Aircraft Category:	Airplane
Year of Manufacture:	1956	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	D-4882
Landing Gear Type:	Retractable -	Seats:	4
Date/Type of Last Inspection:	March 14, 2019 Annual	Certified Max Gross Wt.:	2910 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3285 Hrs at time of accident	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	IO-470-G
Registered Owner:	Michael Bletsch & Andrew Spiwak	Rated Power:	240 Horsepower
Operator:	Michael Bletsch & Andrew Spiwak	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KSRR, 6810 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	12:55 Local	Direction from Accident Site:	138°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots / 17 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	340°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.2 inches Hg	Temperature/Dew Point:	29°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ruidoso, NM	Type of Flight Plan Filed:	IFR
Destination:	Big Springs, TX (BPG)	Type of Clearance:	None
Departure Time:		Type of Airspace:	

Airport Information

Airport:	SIERRA BLANCA RGNL SRR	Runway Surface Type:	Concrete
Airport Elevation:	6813 ft msl	Runway Surface Condition:	Dry
Runway Used:	030	IFR Approach:	None
Runway Length/Width:	6309 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	2 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	2 Serious	Latitude, Longitude:	33.466667,-105.535(est)

Administrative Information

Investigator In Charge (IIC):	Smith, Maja
Additional Participating Persons:	Michael Petrofes; FAA; Albuquerque, NM
Original Publish Date:	March 3, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=100076

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](#).