Aviation Investigation Final Report

Location:	Claremore, Oklahoma	**Accident Number:**	GAA16CA390
Date & Time:	July 22, 2016, 11:45 Local	**Registration:**	N9111P
Aircraft:	Piper PA46	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	4 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he was performing the takeoff on a taxiway, due to a notice to airmen (NOTAM) in effect which closed the sole runway at the airport and allowed takeoff's and landing's from the parallel taxiway. During the takeoff roll, the pilot reported that the airplane hit a "dip" in the pavement and became airborne unintentionally. The pilot further reported that he heard the stall warning horn and pitched forward, but the airplane drifted off to the left into a ditch and the nose and main landing gear collapsed.

The left and right wings were substantially damaged.

The pilot did not report any mechanical malfunctions or failures with the airplane that would have precluded normal operation.

The airport manager provided video surveillance of the takeoff. The video showed that about 2,050 feet into the takeoff roll, the airplane pitched up, the nose and left main landing gear became airborne, but the airplane did not climb. Subsequently, the airplane touched back down and attempted to become airborne a second time about 300 feet further into the takeoff roll. The airplane's nose and main landing gear monetarily became airborne, but the airplane quickly touched back down and moved out of camera view.

The pilot reported that the takeoff weight was about 1 pound under the maximum allowable takeoff weight and he was attempting to perform a short field takeoff technique.

The density altitude about the time of departure was 3,168 feet, the pressure altitude was 579 feet, and the temperature was 93 Fahrenheit (34 Celsius). The Federal Aviation Administration (FAA) provides guidance on how density altitude affects aircraft performance. According to the FAA Koch Chart, the airplane would have likely experienced a 35% increase to the normal takeoff distance and a 25% decrease in a normal climb rate.

The FAA Airplane Flying Handbook in part states: "Due to the reduced drag in ground effect, the airplane may seem to be able to take off below the recommended airspeed. However, as the airplane rises out of ground effect with an insufficient airspeed, initial climb performance may prove to be marginal because of the increased drag. Under conditions of high-density altitude, high temperature, and/or maximum gross weight, the airplane may be able to become airborne at an insufficient airspeed, but unable to climb out of ground effect. Consequently, the airplane may not be able to clear obstructions, or may settle back on the runway."

It is likely that the pilot exceeded the critical angle of attack during the two initial climbs and the airplane did not exit ground effect due to insufficient airspeed at rotation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain directional control during takeoff after multiple climb attempts at insufficient airspeed, which resulted in a runway excursion, a landing gear collapse, and a collision with a ditch.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Directional control - Not attained/maintained
Aircraft	Angle of attack - Capability exceeded
Aircraft	Airspeed - Not attained/maintained
Environmental issues	High temperature - Effect on operation
Environmental issues	High density altitude - Effect on operation
Environmental issues	(general) - Contributed to outcome

Factual Information

History of Flight

Takeoff	Other weather encounter
Takeoff	Aerodynamic stall/spin
Takeoff	Loss of control on ground (Defining event)
Takeoff	Runway excursion
Takeoff	Collision during takeoff/land
Takeoff	Landing gear collapse

Pilot Information

Certificate:	Airline transport; Flight instructor; Private	**Age:**	62,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter; Instrument helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 Waiver time limited special	**Last FAA Medical Exam:**	April 26, 2016
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 31, 2015
Flight Time:	(Estimated) 5283.7 hours (Total, all aircraft), 33.5 hours (Total, this make and model), 5060 hours (Pilot In Command, all aircraft), 43 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft)		

Passenger Information

Certificate:		**Age:**	Female
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	3-point
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Passenger Information

Certificate:		**Age:**	Male
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	3-point
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Passenger Information

Certificate:		**Age:**	
Airplane Rating(s):		**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	3-point
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N9111P
Model/Series:	PA46 310P	**Aircraft Category:**	Airplane
Year of Manufacture:	1987	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4608084
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	May 12, 2016 Annual	**Certified Max Gross Wt.:**	4100 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3011.2 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	C91 installed, not activated	**Engine Model/Series:**	TSIO-520-BE
Registered Owner:	On file	**Rated Power:**	300 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:	KGCM,733 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	16:55 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / 14 knots	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.09 inches Hg	**Temperature/Dew Point:**	34°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Claremore, OK (GCM)	**Type of Flight Plan Filed:**	IFR
Destination:	WICHITA, KS (ICT)	**Type of Clearance:**	IFR
Departure Time:	11:45 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	CLAREMORE RGNL GCM	**Runway Surface Type:**	Asphalt
Airport Elevation:	733 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	NA	**IFR Approach:**	None
Runway Length/Width:	5000 ft / 35 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	3 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 None	**Latitude, Longitude:**	36.288887,-95.478332(est)

Administrative Information

Investigator In Charge (IIC):	Gerhardt, Adam
Additional Participating Persons:	Dan Donnelly; FAA; Oklahoma City, OK
Original Publish Date:	September 12, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=93685