Aviation Investigation Final Report

Location:	Temple, Texas	**Accident Number:**	CEN18LA385
Date & Time:	September 10, 2018, 08:45 Local	**Registration:**	N946JY
Aircraft:	Zenair ZENITH CH 750	**Aircraft Damage:**	Substantial
Defining Event:	Fuel related	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Before takeoff, the private pilot completed a preflight inspection, engine start, and two engine run-ups with no anomalies noted. Shortly after takeoff, when the airplane was about 400 ft above ground level, the engine began to vibrate, and the pilot noticed a partial loss of power. He suspected carburetor icing and applied carburetor heat but observed no change to the engine power. Due to the low altitude, the pilot chose to execute a forced landing to a field. The airplane touched down in the soft field, and the nose gear collapsed.

Postaccident examination of the airplane, which included the fuel system, revealed no evidence of preimpact mechanical malfunctions or failures that would have precluded normal operation. The pilot reported that he should have applied carburetor heat before takeoff to clear any potential ice buildup during the taxi and subsequent engine run-ups. The airplane was operating in an area with weather conditions conducive to the formation of serious carburetor ice at glide power settings. Thus, the partial loss of engine power was likely due to an accumulation of carburetor ice while operating at reduced engine power settings before takeoff.

Probable Cause and Findings

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

The accumulation of carburetor ice before takeoff, which resulted in a partial loss of engine power on initial climb and a forced landing on unsuitable terrain.

Findings

Environmental issues	Conducive to carburetor icing - Effect on equipment

Factual Information

History of Flight

Initial climb	Fuel related (Defining event)
Initial climb	Loss of engine power (partial)
Emergency descent	Off-field or emergency landing
Emergency descent	Collision with terr/obj (non-CFIT)

On September 10, 2018, about 0845 central daylight time, a Lynch Zenith 750 experimental amateur-built airplane, N946JY, impacted soft terrain during a forced landing following a partial loss of engine power during initial climb near Temple, Texas. The private pilot sustained minor injuries, and the airplane sustained substantial damage to the fuselage. The airplane was registered to and operated by a private individual under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a personal flight. Day visual meteorological conditions prevailed at the time of the accident, and no flight plan had been filed. The local flight departed the Draughon-Miller Central Texas Regional Airport, Temple, Texas.

According to the pilot, he had recently completed the building of the airplane and was operating under the phase 1 flight test experimental operating limitations. Prior to takeoff, he completed a preflight, engine start, and two engine run-ups. No abnormal engine indications or anomalies were noted during those tasks. Shortly after takeoff about 400 ft above ground level, the engine began to vibrate, and a partial loss of power was noticed by the pilot. The pilot suspected carburetor icing and applied carburetor heat. No change to the engine power was observed. Due to the low altitude, the pilot elected not to make a turn back to the runway and to execute a forced landing to a field that was in front of him. The airplane touched down in a soft field, and the nose gear collapsed. The airplane skidded about 20 yards and came to rest upright.

The pilot departed with about 24 gallons of fuel in the fuel tanks. After the accident, no fuel was found to be leaking from the airplane. The pilot reported that he should have applied carburetor heat prior to takeoff to clear any potential icing buildup during taxi from ramp and subsequent engine run-ups.

The pilot stated the Federal Aviation Administration (FAA) inspector examined the airplane and did not find any anomalies that would have precluded normal operation.

The carburetor icing probability chart included in Federal Aviation Administration Special Airworthiness Information Bulletin No. CE-09-35, Carburetor Icing Prevention, indicated that the airplane was operating in an area that was associated with a serious risk of carburetor ice accumulation at glide power settings (Figure 1).

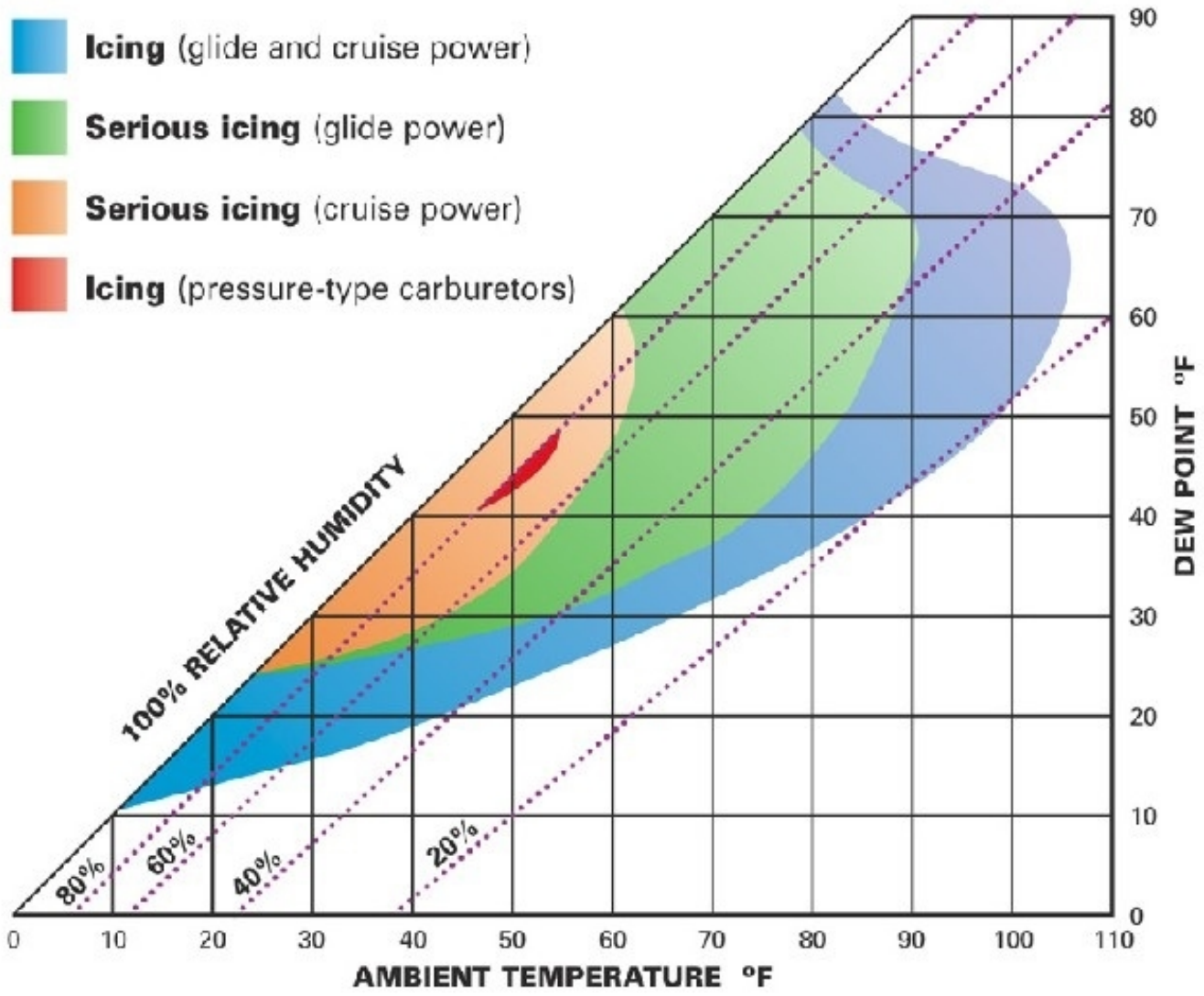

Figure 1 - FAA Carburetor Icing Probability Chart

Pilot Information

Certificate:	Private	**Age:**	71,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Sport pilot With waivers/limitations	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 5, 2017
Flight Time:	294 hours (Total, all aircraft), 8 hours (Total, this make and model), 282 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Zenair	**Registration:**	N946JY
Model/Series:	ZENITH CH 750 No Series	**Aircraft Category:**	Airplane
Year of Manufacture:	2018	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	75-10010
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	April 30, 2018 Condition	**Certified Max Gross Wt.:**	1320 lbs
Time Since Last Inspection:	3 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3.4 Hrs as of last inspection	**Engine Manufacturer:**	General Motors
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	Corvair
Registered Owner:		**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:	TPL,682 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	08:51 Local	**Direction from Accident Site:**	200°
Lowest Cloud Condition:	Scattered / 3500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	20°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.98 inches Hg	**Temperature/Dew Point:**	21°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Temple, TX (TPL)	**Type of Flight Plan Filed:**	None
Destination:	Temple, TX (TPL)	**Type of Clearance:**	None
Departure Time:	08:40 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	31.173055,-97.41333(est)

Administrative Information

Investigator In Charge (IIC):	Sauer, Aaron
Additional Participating Persons:	Victor Lopez; Federal Aviation Administration; San Antonio, TX
Original Publish Date:	November 19, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98332