Aviation Investigation Final Report

Location:	Pearland, Texas	**Accident Number:**	CEN16LA394
Date & Time:	September 24, 2016, 13:05 Local	**Registration:**	N4920Z
Aircraft:	Piper PA 22-108	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot reported that he had completed a preflight inspection and filled the fuel tanks before taxiing to the runway for takeoff. He checked his instruments and performed an engine run-up; the tachometer indicating 1,800-1,900 rpm. He checked his magnetos and carburetor heat. Everything seemed okay. He lined up on the runway and then advanced the throttle; everything seemed okay. At 65 mph, he "pulled back" and took off. About 100-200 ft agl, the pilot noticed the rpm was about 1,800 and not increasing. Additionally, the airplane was not gaining any altitude. The pilot turned back toward the airport and tried to maneuver to make an emergency landing in a rough, vegetated field. During the approach to the field, the pilot avoided a house and a barn before the left wing contacted a tree and the airplane subsequently impacted the ground nose-first. A postcrash examination of the airframe and engine at the accident site did not reveal any preimpact anomalies. The atmospheric conditions at the time of the accident were conducive to the development of light carburetor icing at cruise or descent power, or borderline serious icing at descent power. According to the airplane Owner's Manual, to takeoff, advance the throttle to full power and allow the airplane to accelerate. Apply back pressure on the control wheel to lift the nose wheel at 65 mph. Once airborne, lower the nose to climb at the best rate of climb, 75 mph. With a fixed pitch propeller, 75 percent power can be maintained up to 7,000 ft. by increasing rpm as altitude is increased The maximum continuous rpm for the airplane is 2,600. Per the engine Operator's Manual, for takeoff at performance cruise power, 75 percent rated, the rpm should be 2,350.

Probable Cause and Findings

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

A partial loss of engine power during takeoff for reasons that could not be determined based on the available information following a thorough postaccident examination.

Findings

Not determined	(general) - Unknown/Not determined
Environmental issues	Tree(s) - Contributed to outcome
Environmental issues	Rough terrain - Contributed to outcome

Factual Information

History of Flight

Maneuvering	Loss of engine power (partial)
Initial climb	Loss of engine power (partial) (Defining event)
Landing	Collision with terr/obj (non-CFIT)

This report was modified on 10/5/2018. Please see the public docket for this accident to view the original report.

On September 24, 2016, about 1305 central daylight time, a Piper PA-22, airplane, N4920Z, registered to the pilot, sustained substantial damage during impact with terrain while maneuvering to make an emergency landing near the Pearland Regional Airport (LVJ), Pearland, Texas. The private pilot sustained serious injuries and his passenger sustained minor injuries. The local flight was being conducted under the provisions of Federal Code of Regulations Part 91. Visual meteorological conditions prevailed and a flight plan was not filed. The flight originated from LVJ about 1300.

The pilot reported that he had completed a preflight and topped off with fuel prior to taxiing to runway 14 for takeoff at LVJ. He checked his instruments and performed an engine run-up; the tachometer indicating 1,800-1,900 rpm. He checked his magnetos and carburetor heat. Everything seemed okay. He lined up on the runway and then advanced the throttle; everything seemed okay. At 65 knots, he "pulled back" and took off. About 100-200 ft agl, the pilot noticed the rpm was about 1,800 and not increasing. Additionally, the airplane was not gaining any altitude. The pilot turned back toward the airport and tried to maneuver to make an emergency landing in a rough, vegetated field. During the approach to the field, the pilot avoided a house and a barn before the left wing contacted a tree and the airplane subsequently impacted the ground nose-first. The pilot and passenger exited the airplane and were transported to the hospital.

The FAA inspector that examined the airplane wreckage at the accident site did not find any pre-impact anomalies with the engine or the airframe. Fuel was present in the fuel tanks.

LVJ METAR: SPECI KLVJ 241802Z AUTO 21006KT 3SM RA BKN027 BKN034 OVC043 28/25 A3001

According to the Icing Probability Chart, with a temperature of 28 degrees C and dew point of 25 degrees C, the aircraft engine could have been susceptible to light carburetor icing at cruise or descent power, or borderline serious icing at descent power.

After the accident, the pilot reported that he did not use the carburetor heat during takeoff. The pilot also stated that the airplane had been running smoothly in recent flights.

According to the Owner's Manual, to takeoff, advance the throttle to full power and allow the airplane to accelerate. Apply back pressure on the control wheel to lift the nose wheel at 65 mph. Once airborne, lower the nose to climb at the best rate of climb, 75 mph. With a fixed pitch propeller, 75 percent power can be maintained up to 7,000 ft. by increasing rpm as altitude is increased The maximum continuous rpm for the airplane is 2,600.

Per the Lycoming Operator's Manual, for takeoff at performance cruise power, 75 percent rated, the rpm should be 2,350.

Pilot Information

Certificate:	Private	**Age:**	61,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:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	May 11, 2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 28, 2015
Flight Time:	177 hours (Total, all aircraft), 170 hours (Total, this make and model), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N4920Z
Model/Series:	PA 22-108 108	**Aircraft Category:**	Airplane
Year of Manufacture:	1961	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-8509
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	April 1, 2016 Annual	**Certified Max Gross Wt.:**	1649 lbs
Time Since Last Inspection:	3200 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3269 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	O-235 SERIES
Registered Owner:	On file	**Rated Power:**	180 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:	LVJ,44 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	13:02 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Clear	**Visibility**	3 miles
Lowest Ceiling:	Broken / 2700 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	28°C / 25°C
Precipitation and Obscuration:			
Departure Point:	Pearland, TX (LVJ)	**Type of Flight Plan Filed:**	None
Destination:	Pearland, TX (LVJ)	**Type of Clearance:**	None
Departure Time:	13:00 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	29.508888,-95.233055(est)

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	Carl Thomas; FAA FSDO; Houston, TX
Original Publish Date:	November 15, 2018
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=94156