Aviation Investigation Final Report

Location:	Painesville, Ohio	**Accident Number:**	CEN18LA301
Date & Time:	July 27, 2018, 16:45 Local	**Registration:**	N953RJ
Aircraft:	Flightstar SC II	**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 student pilot reported that he and his wife owned the accident airplane and had made multiple practice taxi runs on the runway with no intention for flight. During one of the taxi runs, the airplane unexpectedly became airborne. The student determined that there was not enough runway remaining to perform a safe landing, so he chose to continue the takeoff. Once the airplane reached about 100 ft above ground level, it would no longer climb, and he attempted to land in a field; however, the airplane struck trees before reaching the intended field.

Before the accident, the student had performed maintenance on the airplane, which included replacing the propeller. He had intended to have a certificated mechanic check his work but had not done so before the accident because there was no intention for flight. He acknowledged that he may not have set the propeller pitch correctly, which could have negatively affected the airplane's performance. In addition, the atmospheric conditions were favorable for moderate icing at cruise power settings and serious icing at descent power settings. Carburetor icing likely accumulated during the multiple taxi runs performed before the unintentional flight.

Based on the available information, the airplane inadvertently became airborne because the student allowed it to accelerate to flight speed. The available engine power was likely reduced due to an improper propeller pitch setting and carburetor icing, and both these conditions likely resulted in the airplane's inability to continue to climb.

Probable Cause and Findings

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

The student pilot's failure to maintain an airspeed below flight speed during a practice taxi run, which resulted in the airplane inadvertently becoming airborne. Once airborne, the reduced engine power due to an improper propeller pitch setting and carburetor icing degraded the airplane's performance and prevented the airplane from being able to continue to climb.

Findings

Aircraft	Airspeed - Not attained/maintained
Aircraft	Propeller blade section - Incorrect service/maintenance
Environmental issues	Conducive to carburetor icing - Effect on equipment
Personnel issues	Use of equip/system - Student/instructed pilot
Aircraft	Climb rate - Attain/maintain not possible
Environmental issues	Tree(s) - Contributed to outcome

Factual Information

History of Flight

Initial climb	Other weather encounter
Initial climb	Loss of engine power (partial) (Defining event)
Landing	Off-field or emergency landing
Maneuvering	Collision with terr/obj (non-CFIT)

On July 27, 2018, about 1645 eastern daylight time, a Flightstar SC II, N953RJ, sustained substantial damage when it impacted terrain during approach to land on runway 2 at the Concord Airpark (2G1), near Painesville, OH. The student pilot received serious injuries and his passenger received minor injuries. The airplane was registered to and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91 as personal flight. Visual meteorological conditions prevailed for the flight, which was not on a flight plan. The local flight was originating at the time of the accident.

The pilot reported that he had purchased the airplane a few months prior to the accident and had performed some repairs in the interim, including replacing a broken propeller. He said that he planned to have the repairs inspected by a certificated mechanic and the airplane had not been flown since its purchase. On the day of the accident, the pilot and his spouse were performing taxi practice with no intention for flight. He said that they were taking turns with the controls. He said that on one of his turns he must have gone too fast and the airplane unexpectedly became airborne. When this happened, the airplane was already 3/4 of the way down the runway and he didn't think there was enough room to land on the remaining runway, so he elected to "go around". The pilot was unable to maintain altitude and maneuvered the airplane to land but struck trees during the attempted landing. In his report the pilot indicated that there were no mechanical failures or malfunctions of the airplane.

In a telephone conversation the pilot reported that he had set the propeller blade pitch angles based on information from the airplane maintenance records using a digital protractor. He acknowledged that his method of setting the propeller blade angles could have been slightly off. He had intended to have a certified mechanic check his work but that had not been done since he had not intended to fly the airplane when the accident occurred.

The weather conditions at the Willoughby Lost Nation Municipal Airport, Willoughby, Ohio, about the time of the accident included a temperature of 23° C, a dew point of 12° C, and an altimeter setting of 29.98 inches of mercury. The carburetor icing susceptibility at these readings is moderate icing at cruise power settings, and serious icing at descent power settings. The calculated density altitude was 2,273 ft.

Pilot Information

Certificate:	Student	**Age:**	31,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
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:**	February 2, 2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	21 hours (Total, all aircraft), 0 hours (Total, this make and model), 0 hours (Pilot In Command, all aircraft), 9 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft), 1.5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Flightstar	**Registration:**	N953RJ
Model/Series:	SC II	**Aircraft Category:**	Airplane
Year of Manufacture:	2001	**Amateur Built:**	
Airworthiness Certificate:	Special light-sport (Special)	**Serial Number:**	325
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	998 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	HKS
ELT:	C91A installed, not activated	**Engine Model/Series:**	700E
Registered Owner:		**Rated Power:**	60 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:	LNN,626 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	16:55 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Scattered / 9000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 11000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	310°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.97 inches Hg	**Temperature/Dew Point:**	23°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Painesville, OH (2G1)	**Type of Flight Plan Filed:**	None
Destination:	Painesville, OH (2G1)	**Type of Clearance:**	None
Departure Time:	16:45 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Concord Airpark 2G1	**Runway Surface Type:**	Asphalt
Airport Elevation:	998 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	2	**IFR Approach:**	None
Runway Length/Width:	2181 ft / 38 ft	**VFR Approach/Landing:**	Traffic pattern

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:**	41.666942,-81.197219

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	Zoltan Vidacs; Cleveland FSDO; Cleveland, OH
Original Publish Date:	November 6, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=97930