



# Aviation Investigation Final Report

<b>Location:</b>	Lakewood, New Jersey	<b>Accident Number:</b>	ERA18LA210
<b>Date &amp; Time:</b>	August 4, 2018, 12:00 Local	<b>Registration:</b>	N87000
<b>Aircraft:</b>	Champion 7GCAA	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel related	<b>Injuries:</b>	1 Minor
<b>Flight Conducted Under:</b>	Part 91: General aviation - Banner tow		

## Analysis

The pilot reported that the preflight check, ground operations, and subsequent 2-hour banner-towing flight were uneventful. On final approach, before dropping the banner, about 500 ft above ground level (agl), he reduced the throttle to idle as the airplane descended towards the runway. When the airplane was about tree height, he pitched up and added full throttle, preparing to drop the banner. He stated, "the engine continued to operate but produced very limited power while making abnormal combustion sounds." He verified the mixture was full rich and the throttle was full forward, then released the banner. The airplane was flying low and slow, so he pitched down and elected to land straight ahead. The airplane impacted small pine trees and terrain and the forward portion of the fuselage was substantially damaged. Postaccident examination of the engine revealed no evidence of preimpact mechanical anomalies that would have precluded normal engine operation.

The weather conditions at the time of the accident were conducive to the formation of serious carburetor icing at glide engine power settings. The pilot reported that, during the approach, he did not apply carburetor heat and the engine did not produce as much power as expected as he attempted to increase power after dropping the banner. Therefore, it is likely that carburetor ice accumulated during approach, which resulted in a partial loss of engine power.

## Probable Cause and Findings

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

The pilot's failure to use carburetor heat in weather conditions conducive to carburetor icing, which resulted in a partial loss of engine power due to the formation of carburetor ice, a forced landing and

impact with terrain.

## Findings

<b>Personnel issues</b>	Use of equip/system - Pilot
<b>Aircraft</b>	Intake anti-ice, deice - Not used/operated
<b>Environmental issues</b>	Conducive to carburetor icing - Effect on equipment

# Factual Information

## History of Flight

Maneuvering	Fuel related (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

On August 4, 2018, about 1200 eastern daylight time, a Bellanca 7GCAA, N87000, was substantially damaged when it was involved in an accident near Lakewood, New Jersey. The pilot sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 banner-towing flight.

The pilot reported that the preflight and ground operations, including a carburetor heat test, were uneventful. About 1000 he departed runway 24 at Lakewood Airport (N12), Lakewood, New Jersey, with full fuel tanks. After a 2-hour flight, he decided to return to the airport due to weather in the area. On final approach, at an altitude of about 500 ft agl, he reduced the throttle to idle as the airplane descended on the right side of runway 24, towards the banner drop-off area at the end of the runway. The pilot stated that he did not use carburetor heat during the approach.

When the airplane was about tree height, the pilot pitched it up and added full throttle, preparing to drop the banner. He stated, "the engine continued to operate but produced very limited power while making abnormal combustion sounds." He verified the mixture was full rich and the throttle was full forward, then released the banner. The airplane was flying low and slow, so he pitched down and elected to land straight ahead. The airplane impacted small pine trees and terrain and came to rest about 500 ft past the departure end of runway 24.

A Federal Aviation Administration (FAA) inspector performed an onsite examination of the airplane, which came to rest in a nose low, near-vertical position. The forward portion of the fuselage sustained substantial damage. The left wing was separated but still partially attached to the fuselage. Postaccident examination of the engine revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation. The engine's crankshaft was manually rotated by turning the propeller, and continuity of the crankshaft and thumb compression was confirmed on each cylinder. There was fuel present in the fuel lines, and the fuel was free of contaminants.

At 1155, about 5 minutes before the accident, at Lakehurst Maxfield Airport (NEL), Lakehurst, New Jersey, about 8 miles west of the accident site, included temperature 23°C and dew point 23°C. The calculated relative humidity was 100%. Review of the icing probability chart contained in FAA Special Airworthiness Information Bulletin CE-09-35 revealed that the weather conditions at the time of the accident were "conducive to serious icing at glide [idle] power."

## Pilot Information

<b>Certificate:</b>	Commercial; Private	<b>Age:</b>	21, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Rear
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 With waivers/limitations	<b>Last FAA Medical Exam:</b>	May 2, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	August 16, 2017
<b>Flight Time:</b>	(Estimated) 1094 hours (Total, all aircraft), 26 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Champion	<b>Registration:</b>	N87000
<b>Model/Series:</b>	7GCAA No Series	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1974	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	297-74
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	Unknown	<b>Certified Max Gross Wt.:</b>	1650 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>		<b>Engine Model/Series:</b>	O-320
<b>Registered Owner:</b>		<b>Rated Power:</b>	150 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KNEL,101 ft msl	<b>Distance from Accident Site:</b>	8 Nautical Miles
<b>Observation Time:</b>	11:55 Local	<b>Direction from Accident Site:</b>	257°
<b>Lowest Cloud Condition:</b>	Few / 600 ft AGL	<b>Visibility</b>	4 miles
<b>Lowest Ceiling:</b>	Broken / 1000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	5 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	270°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.1 inches Hg	<b>Temperature/Dew Point:</b>	23°C / 23°C
<b>Precipitation and Obscuration:</b>	Moderate - None - Rain		
<b>Departure Point:</b>	Lakewood, NJ (N12 )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Lakewood, NJ (N12 )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:00 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Lakewood N12	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	41 ft msl	<b>Runway Surface Condition:</b>	Vegetation
<b>Runway Used:</b>	24	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	2987 ft / 60 ft	<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Minor	<b>Latitude, Longitude:</b>	40.063888,-74.18222(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hill, Millicent		
<b>Additional Participating Persons:</b>	Paul Basilotto; FAA/FSDO; Philadelphia, PA		
<b>Original Publish Date:</b>	May 27, 2021	<b>Investigation Class:</b>	3
<b>Note:</b>	The NTSB did not travel to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=97993">https://data.nts.gov/Docket?ProjectID=97993</a>		

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