



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Big Lake, AK	<b>Accident Number:</b>	ANC20CA030
<b>Date &amp; Time:</b>	02/28/2020, 1640 AKS	<b>Registration:</b>	N7384D
<b>Aircraft:</b>	Piper PA18	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (partial)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The pilot reported that, while performing touch-and-go landings, he applied carburetor heat during the second landing. During takeoff after the second landing, he turned the carburetor heat off and applied full power. Once airborne, the airplane began to lose power, and he manipulated the throttle and carburetor heat levers, but engine power was not restored. He chose to make a precautionary landing straight-ahead on the runway with partial engine power. During the landing, the airplane departed the end of the runway, impacted snow, and nosed over. The airplane sustained substantial damage to the right-wing lift strut and empennage. A postaccident engine examination and test run revealed no preaccident malfunctions or failures with the airplane that would have precluded normal operation. The exact probability of carburetor icing could not be calculated for the accident airport because the closest weather observation station was 8 miles away. However, the pilot stated that, while landing, there were about 3 inches of fresh snow on the runway and that he believed that propeller wash likely introduced snow into the intake, which created carburetor ice. He added that he should have left the carburetor heat on longer after the second landing.

## 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 conditions conducive to carburetor icing, which resulted in a partial loss of engine power, a precautionary landing, and impact with snow.

## Findings

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

## Factual Information

### History of Flight

Initial climb	Other weather encounter Loss of engine power (partial) (Defining event) Attempted remediation/recovery
Landing	Off-field or emergency landing Runway excursion Collision with terr/obj (non-CFIT) Nose over/nose down

### Pilot Information

Certificate:	Airline Transport; Commercial	Age:	36, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Front
Other Aircraft Rating(s):	Glider	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last FAA Medical Exam:	04/18/2019
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	08/05/2019
Flight Time:	(Estimated) 11104 hours (Total, all aircraft), 570 hours (Total, this make and model), 5783 hours (Pilot In Command, all aircraft), 120 hours (Last 90 days, all aircraft), 39 hours (Last 30 days, all aircraft)		

### Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N7384D
Model/Series:	PA18 150	Aircraft Category:	Airplane
Year of Manufacture:	1957	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	18-5749
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	02/22/2020, Annual	Certified Max Gross Wt.:	1750 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3382.2 Hours as of last inspection	Engine Manufacturer:	Lycoming
ELT:	C126 installed, activated, did not aid in locating accident	Engine Model/Series:	O-320-E2D
Registered Owner:	On file	Rated Power:	150
Operator:	On file	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PAWS, 354 ft msl	Distance from Accident Site:	8 Nautical Miles
Observation Time:	0156 UTC	Direction from Accident Site:	73°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	250°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.96 inches Hg	Temperature/Dew Point:	-5° C / -13° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Palmer, AK (4AK6)	Type of Flight Plan Filed:	None
Destination:	Big Lake, AK (BGQ)	Type of Clearance:	None
Departure Time:	1550 AKS	Type of Airspace:	Class G

## Airport Information

Airport:	BIG LAKE (BGQ)	Runway Surface Type:	Dirt; Gravel; Ice; Snow
Airport Elevation:	157 ft	Runway Surface Condition:	Snow
Runway Used:	7	IFR Approach:	None
Runway Length/Width:	2450 ft / 70 ft	VFR Approach/Landing:	Precautionary Landing

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	61.534722, -149.798889 (est)

## Preventing Similar Accidents

### Preventing Carburetor Icing

Accidents involving carburetor ice stem from pilots not recognizing when weather conditions are favorable to carburetor icing and inaccurately believing that carburetor icing is only a cold- or wet-weather problem. Pilots also may not use the carburetor heat according the aircraft's approved procedures to prevent carburetor ice formation. Carburetor icing accidents can occur when pilots do not recognize and promptly act upon the signs of carburetor icing.

Be sure to check the temperature and dew point to determine whether the conditions are favorable for carburetor icing. Remember, serious carburetor icing can occur in ambient

temperatures as high as 90° F or in relative humidity conditions as low as 35 percent at glide power. Consider installing a carburetor temperature gauge, if available.

Refer to the approved aircraft flight manual or operating handbook to ensure that carburetor heat is used according to the approved procedures and properly perform the following actions: 1) Check the functionality of the carburetor heat before flight. 2) Use carburetor heat to prevent the formation of carburetor ice when operating in conditions and at power settings in which carburetor icing is probable. Remember, ground idling or taxiing time can allow carburetor ice to accumulate before takeoff. 3) Immediately apply carburetor heat at the first sign of carburetor icing, which typically includes a drop in rpm or manifold pressure (depending upon how your airplane is equipped). Engine roughness may follow.

Engines that run on automobile gas may be more susceptible to carburetor icing than engines that run on Avgas.

See [http://www.nts.gov/safety/safety-alerts/documents/SA\\_029.pdf](http://www.nts.gov/safety/safety-alerts/documents/SA_029.pdf) for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Eric A Swenson	<b>Report Date:</b>	06/29/2020
<b>Additional Participating Persons:</b>	Curt Martin; FAA; Anchorage, AK		
<b>Publish Date:</b>	06/29/2020		
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.		
<b>Investigation Docket:</b>	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=101058">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=101058</a>		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).