



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Kwigillingok, AK	<b>Accident Number:</b>	ANC10LA019
<b>Date &amp; Time:</b>	02/17/2010, 1657 AST	<b>Registration:</b>	N207DR
<b>Aircraft:</b>	CESSNA 208B	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Structural icing	<b>Injuries:</b>	8 None
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Scheduled		

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## Analysis

Passengers reported that prior to departing on the accident flight they observed ice on the wings and described the weather as foggy, with freezing rain. Shortly after takeoff, at an estimated 200 feet above the ground, the pilot reported a series of power fluctuations, coinciding with a loss of altitude. The pilot stated that he engaged the emergency power lever, and that power was restored, but not before the airplane collided with a frozen lake, damaging the right wing. The airplane subsequently became airborne, and the pilot elected to fly to another village to land.

A postaccident inspection disclosed no mechanical anomalies with the engine or its accessories, and the airplane was flown to its base after the wing was repaired without any engine problems noted. A weather study by a Safety Board meteorologist determined that the area was subject to light snow showers, freezing fog and mist, and surface temperatures below freezing, all conducive to wing/airframe icing. During an interview with Federal Aviation Administration inspectors, the pilot acknowledged seeing "a trace of ice" on the wings. The limitations section of the airplane's flight manual supplement "Known Icing Equipment," states, in part: "Takeoff is prohibited with any frost, ice, snow, or slush adhering to the wings, horizontal stabilizer, vertical stabilizer, control surfaces, propeller blades, or engine inlets." The limitations section also includes the following: "WARNING, EVEN SMALL AMOUNTS OF FROST, ICE, SNOW OR SLUSH ON THE WING MAY ADVERSELY CHANGE LIFT AND DRAG. FAILURE TO REMOVE THESE CONTAMINANTS WILL DEGRADE AIRPLANE PERFORMANCE AND MAY PREVENT A SAFE TAKEOFF AND CLIMBOUT."

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's decision to take off with ice-contaminated wings in freezing rain and mist, which resulted in an aerodynamic stall.

## Findings

<b>Aircraft</b>	Airspeed - Not attained/maintained (Cause) Wing structure - Damaged/degraded
<b>Personnel issues</b>	Decision making/judgment - Pilot (Cause)
<b>Environmental issues</b>	Conducive to structural icing - Decision related to condition (Cause)

## Factual Information

On February 17, 2010, at 1657 Alaska standard time, a Cessna 208B, N207DR, sustained substantial damage during impact with terrain following takeoff from Kwigillingok Airport (GGV), Kwigillingok, Alaska. The airline transport pilot and his seven passengers were not injured. Grant Aviation, Anchorage, Alaska, was operating the aircraft under the provisions of 14 Code of Federal Regulations Part 135. Visual meteorological conditions prevailed for the flight, which was originating at the time of the accident. The intended destination was Kipnuk, Alaska, and a company flight plan had been filed.

The pilot said that the takeoff was normal, but at 200 feet above the ground and in a turn, he observed a reduction in power. He moved the emergency fuel control lever forward, and power was restored. Before the sink rate could be reversed, the airplane impacted the surface of a frozen lake, and 5 feet of the outboard right wing was bent up. The aileron was not damaged. For safety reasons, the pilot chose to fly straight ahead for 8 miles to Kongiganak, Alaska, where the flight landed without further difficulty.

The operator's maintenance personnel inspected the engine and airframe, and determined that the right wing required a major repair to restore it to an airworthy condition. After a field repair of the right wing by the operator, the Federal Aviation Administration (FAA) granted a ferry permit for a one time flight from Kongiganak to Anchorage. The operator found no discrepancies with the engine, and it operated normally during the ferry flight.

The pilot reported to a FAA inspector that the cloud condition was 500 feet overcast with 2.5 miles visibility in light snow. There was a light wind from the north at approximately 3 to 5 knots. When the inspector asked the pilot if the airplane had ice on it when it departed Kwigillingok, he stated that there was a "trace" of ice on the wings. When interviewed by the FAA inspector, passengers made the following statements:

1. "There was freezing rain."
2. "The plane was iced up and when it took off it stalled."
3. "The weather was icing rain....There was some ice on the wings before they took off from Kwigillingok."

There was no weather reporting facility at Kwigillingok. The closest weather reporting station was at Kipnuk, Alaska, about 26 nautical miles west of the accident site. At 1656, the reported conditions were: wind 050 degrees at 7 knots; visibility 10 statute miles; cloud condition, broken at 400 feet, overcast at 3,300 feet; temperature 23 degrees Fahrenheit; dew point 23 degrees Fahrenheit; altimeter setting 29.67 inches of Mercury. The pilot told the National Transportation Safety Board's (NTSB) investigator-in-charge that the cloud condition was an indefinite ceiling at 500 to 600 feet with light snow, and the temperature was 30 degrees Fahrenheit. An NTSB meteorologist did a weather study and found that the area was subject to light snow showers, freezing fog and mist, and ground temperatures were below freezing.

The limitations section of the Cessna 208B flight manual supplement "Known Icing Equipment," states, in part: "Takeoff is prohibited with any frost, ice, snow, or slush adhering to the wings, horizontal stabilizer, vertical stabilizer, control surfaces, propeller blades, or engine inlets." The limitations section also includes the following: "WARNING, EVEN SMALL AMOUNTS OF FROST, ICE, SNOW OR SLUSH ON THE WING MAY ADVERSELY CHANGE

LIFT AND DRAG. FAILURE TO REMOVE THESE CONTAMINANTS WILL DEGRADE AIRPLANE PERFORMANCE AND MAY PREVENT A SAFE TAKEOFF AND CLIMBOUT."

## History of Flight

Initial climb	Structural icing (Defining event) Aerodynamic stall/spin
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## Pilot Information

Certificate:	Airline Transport; Commercial	Age:	52, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	10/29/2009
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	01/15/2010
Flight Time:	30000 hours (Total, all aircraft), 2000 hours (Total, this make and model), 29500 hours (Pilot In Command, all aircraft), 164 hours (Last 90 days, all aircraft), 126 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N207DR
Model/Series:	208B	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	208B0859
Landing Gear Type:	Tricycle	Seats:	11
Date/Type of Last Inspection:	02/11/2010, AAIP	Certified Max Gross Wt.:	8550 lbs
Time Since Last Inspection:	49 Hours	Engines:	1 Turbo Prop
Airframe Total Time:	6994 Hours	Engine Manufacturer:	P&W CANADA
ELT:	Installed, not activated	Engine Model/Series:	PT6A-114
Registered Owner:	DESERT ROSE AVIAITON LLC	Rated Power:	600 hp
Operator:	Grant Aviation	Air Carrier Operating Certificate:	None
Operator Does Business As:		Operator Designator Code:	ENHA

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:		Observation Time:	AST
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:		Temperature/Dew Point:	-5° C / -5° C
Lowest Ceiling:	Overcast / 500 ft agl	Visibility	2 Miles
Wind Speed/Gusts, Direction:	4 knots, 360°	Visibility (RVR):	
Altimeter Setting:	29.67 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Light - Showers - Snow; No Obscuration		
Departure Point:	Kwigillingok, AK (GGV)	Type of Flight Plan Filed:	Company VFR
Destination:	Kipnuk, AK (AKI)	Type of Clearance:	VFR
Departure Time:	1655 AST	Type of Airspace:	

## Airport Information

Airport:	Kwigillingok Airport (GGV)	Runway Surface Type:	Dirt; Ice
Airport Elevation:	18 ft	Runway Surface Condition:	Ice; Rough; Snow
Runway Used:	33	IFR Approach:	None
Runway Length/Width:	2510 ft / 60 ft	VFR Approach/Landing:	None

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	7 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	8 None	Latitude, Longitude:	59.876389, -163.168611 (est)

## Administrative Information

Investigator In Charge (IIC):	James F Struhsaker	Adopted Date:	04/12/2011
Additional Participating Persons:	John Alley; FAA ANC FSDO; Anchorage, AK		
Publish Date:	04/12/2011		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=75399">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=75399</a>		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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.