# Aviation Investigation Final Report

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| **Location:** | Bethel, Alaska | **Accident Number:** | ANC19LA031 |
| **Date & Time:** | July 8, 2019, 15:05 Local | **Registration:** | N9448B |
| **Aircraft:** | Cessna 208 | **Aircraft Damage:** | Destroyed |
| **Defining Event:** | Loss of control in flight | **Injuries:** | 6 Minor |
| **Flight Conducted Under:** | Part 135: Air taxi & commuter - Scheduled | | |

## Analysis

The commercial pilot was conducting a visual flight rules scheduled passenger flight with five passengers. During the return leg to the company's base airport, the pilot requested, and was given clearance to, a short gravel runway of 1,858 ft that terminated at parallel cross-runways and had inbound airplanes. The wind was reported as variable at 3 knots, and the outside air temperature was 88°F which was 25° warmer than usual. The pilot stated that he conducted a steeper than normal approach and performed a normal 30° flap landing flare; however, the airplane floated halfway down the runway. He initiated a go-around by advancing the throttle to takeoff power and retracting the flaps to 20° as the main landing gear briefly touched down.

Automatic dependent surveillance-broadcast (ADS-B) data indicated that the airplane arrived 0.1 mile from the runway threshold at 149 ft above ground level (agl) and 110 knots of ground speed, which was 32 knots faster than the short field landing approach speed listed in the pilot operating handbook.

A witness in the air traffic control tower (the ground controller) stated that the airplane "bled off a lot of airspeed," during the landing attempt and climbed out in a very flat profile. The tower local controller stated that after liftoff, the airplane's right wing dropped and the airplane appeared to be turning right into conflicting landing traffic, so he twice instructed the airplane to "left turn out immediately." The pilot stated that he attempted to comply with the tower controller's instruction, but when he applied left aileron, the airplane appeared to stall, rolled rapidly right, and descended in a right-wing-low attitude. It subsequently impacted the surface between runways. A postimpact fire ensued, and the pilot helped the passengers egress. The airplane was destroyed by postimpact fire.

Given the evidence, it is likely that the pilot decided to land on the short runway to expedite the arrival and did not perform an appropriate short field landing approach, which resulted in excessive airspeed and altitude over the runway threshold, a long landing flare, rapid

deceleration, and a self-initiated go-around from a slow airspeed. Had the pilot initiated the go-around as he approached the runway with indications of an unstable visual approach, the airspeed would have been well above stall speed, which would have allowed for the desired positive climb out on runway heading. The pilot likely attempted to comply with the tower local controller's urgent commands to turn while the airplane was near the limit of performance (the temperature was about 25 degrees warmer than average, which would have resulted in a higher density altitude than the pilot was accustomed to and degraded aircraft and engine performance). The pilot's maneuvering resulted in the exceedance of the critical angle-of-attack of the high wing (right wing) during the left turn, and an aerodynamic stall.

## Probable Cause and Findings

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

The pilot's failure to maintain adequate airspeed while maneuvering during an attempted go-around, which resulted in an exceedance of the airplane's critical angle of attack and an aerodynamic stall at low altitude. Contributing to the accident, was the pilot's decision to perform an approach to a short runway at an excessive airspeed and his late decision to perform a go-around, which resulted in a slow climb at a reduced safe margin above stall airspeed.

### Findings

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| **Personnel issues** | Decision making/judgment - Pilot |
| **Personnel issues** | Aircraft control - Pilot |
| **Aircraft** | Angle of attack - Capability exceeded |

## Factual Information

On July 8, 2019, about 1505 Alaska daylight time, Grant Aviation flight GV262 Cessna 208B airplane, N9448B, was destroyed by a post-crash fire during an accident at the Bethel Airport (BET), Bethel, Alaska. The commercial pilot and five passengers sustained minor injuries. The airplane was operated under the provisions of Title 14 *Code of Federal Regulations* Part 135 scheduled commuter flight.

The pilot stated that the accident flight was the last of a 5-leg scheduled passenger flight from Newtok Airport to the company's base airport, BET. After contacting the BET air traffic control tower (ATCT) about 10 miles west of the airport, the pilot offered to use runway 12, because it was a more expeditious arrival from the west, and he wanted to "make it easier" for the tower controller who was very busy with arrivals of other airplanes using runways 1L and 1R. The pilot reported that, about 4 miles southwest of the airport, the tower controller cleared him to land on runway 12. He selected a higher-than-normal traffic pattern altitude, due to the limited visibility and terrain located on the west side of the airport. He conducted a visual approach to runway 12, with an increased rate of descent and full flaps.

During the landing flare, the airplane floated about halfway down the runway, and the pilot executed a go-around due to insufficient runway stopping distance remaining. He advanced the throttle to maximum, retracted the flaps to 20°, increased the airplane's pitch attitude as the main landing gear momentarily touched down. The pilot transmitted on the tower frequency that he was going around and the ATCT local controller (LC) instructed him twice to turn left immediately. The pilot stated that he was aware that an airplane was on short final approach to runway 1L, but he did not know where the other airplanes were and was concerned about conflicting with cross traffic flow. In an attempt to comply with tower instructions and deconflict with traffic, he applied left aileron and the airplane stalled, rolled right and descended, impacting the ground in a right-wing-low attitude. He attempted to regain control and he recalled selecting the flaps up. The airplane came to rest on its right side in the grass covered drainage ditch between runways 1L and 1R. The pilot stated that he saw fire through the right window, and immediately went to the back of the airplane to help with the evacuation of the two children and three adult passengers through the left cargo door before the airplane was consumed by fire. See figure 1 for BET airport diagram and accident site information.

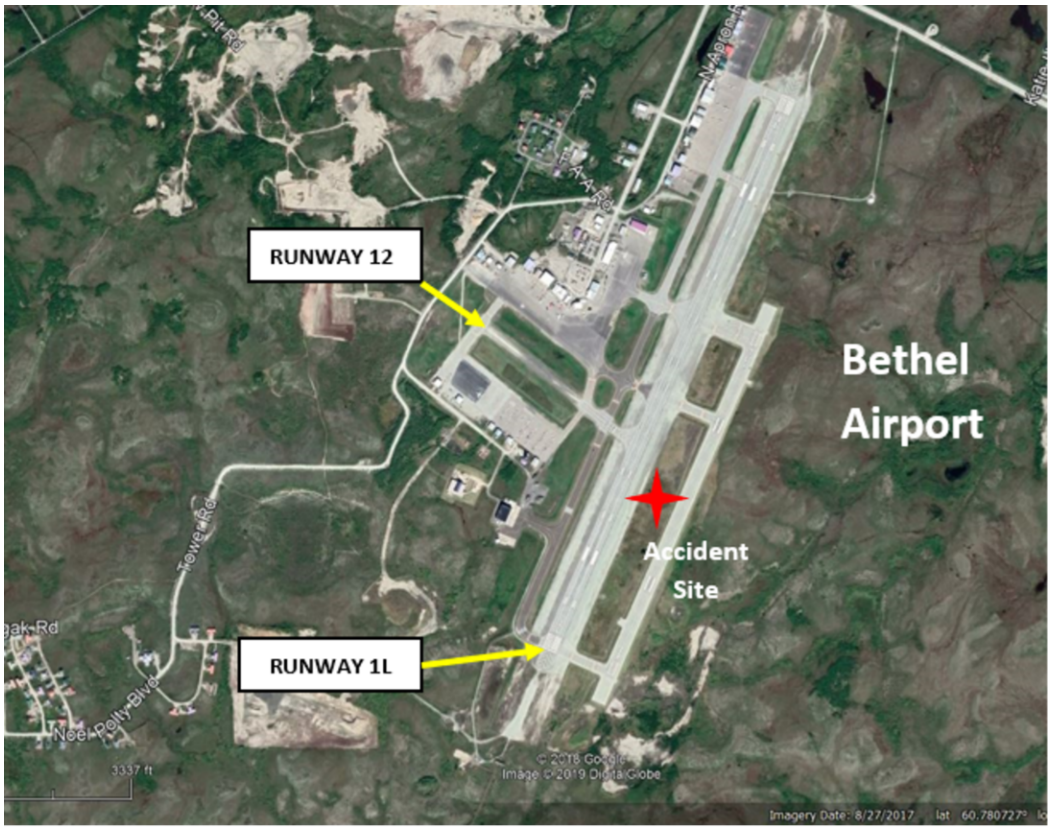


Figure 1. Airport Google Earth image with runways and accident site labeled.

The LC stated that after the airplane lifted off, the right wing dropped down and it appeared that the airplane was turning right, which would have placed it in direct conflict with an airplane landing on runway 1L, so he "stepped" on the pilot's go-around radio call and instructed him to turn left. When the airplane did not turn left, but rather lowered the right wing again, he again directed the pilot to turn left, but the airplane was already in a stalled attitude at that time.

The ATCT ground controller, who was also a pilot, witnessed the entire sequence and stated that the airplane appeared very high and fast over the threshold. It touched down about halfway down the runway, "bled off a lot of airspeed," and then climbed at a very flat profile. The airplane then appeared to touch down briefly on runway 1L, raise the nose high and bank right, before it stalled and impacted the right side of the runway.

A review of air traffic control audio files and automatic dependent surveillance-broadcast (ADS-B) data that was processed through the L3 Harris Technologies Inc. OpsVue program indicated that the airplane arrived about 0.1 mile from the runway threshold at 149 ft above runway threshold height and 110 knots of groundspeed, and then was 49 ft over the threshold at 98 knots of groundspeed. At 1506:47, while the airplane was climbing out during the go-around at the departure end of the runway, the LC urgently instructed "left turn out immediately." Seven seconds later, as another airplane arrived at the runway 1L threshold for landing and the accident airplane crossed runway 1L, the LC instructed "four eight Bravo, make a left" and the frequency unkeyed. Refer to figure 2.

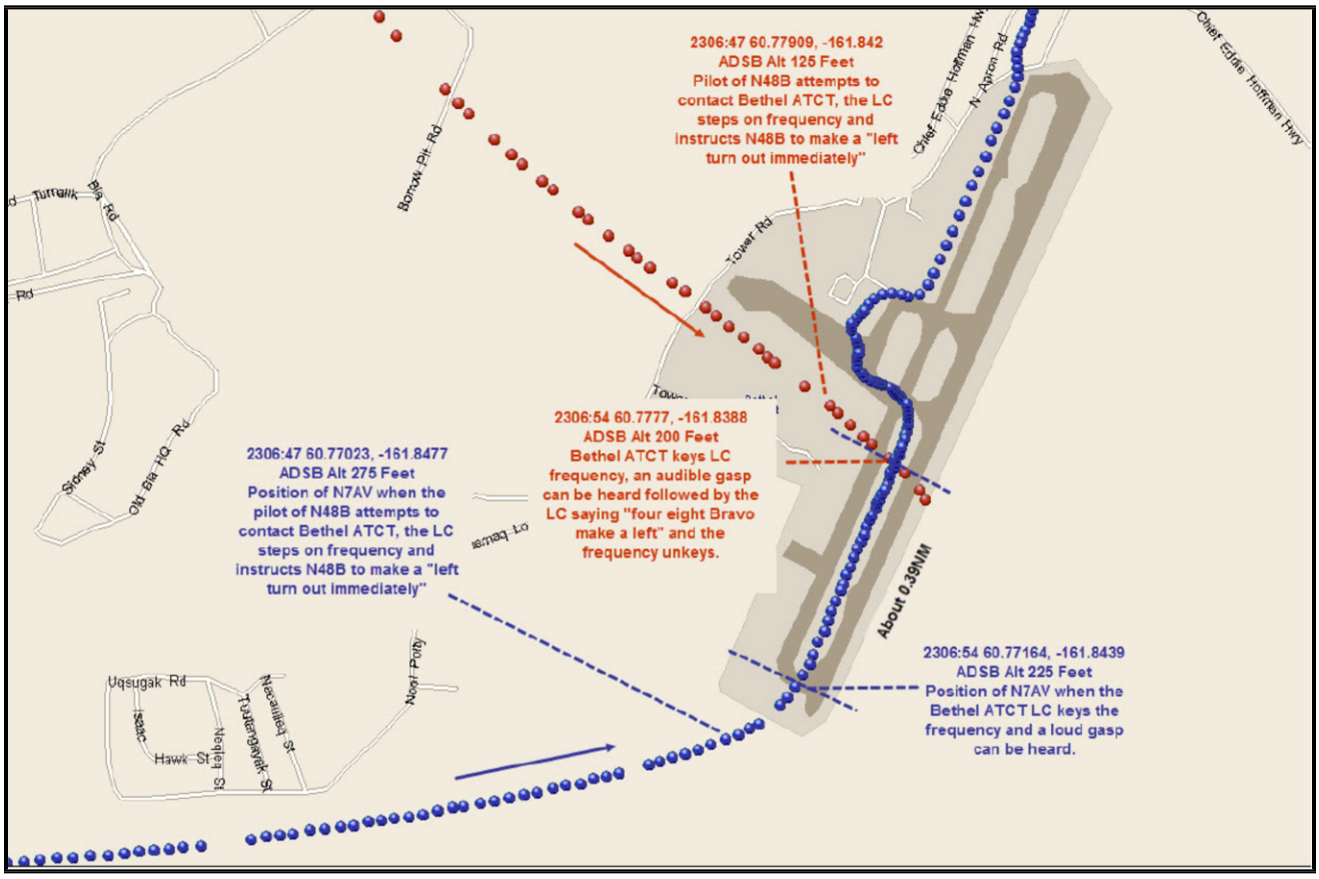


Figure 2. ADS-B data for accident airplane (red) and landing traffic (blue) with ATCT audio excerpts from LC frequency.

A review of the postaccident photographs revealed that the left wing separated from the airframe and came to rest on the right wing. The right wing exhibited a 30° deformation upward about 8 ft from the wingtip and the right aileron was separated. The flaps were attached and appeared to be in the retracted position. The propeller was attached to the engine and exhibited span wise torsional twist, indicative of high power at impact. The empennage was upright and partially detached at the aft fuselage and exhibited minor buckling damage. The fuselage and wing root area were destroyed by fire.

BET runway 12 is an 1,858 ft gravel runway that transitions to asphalt at the southeast end and terminates at parallel runways 1L and 1R. The landing distance required to stop based on performance charts in the pilot operating handbook is 950 ft for a short field landing approach at 78 knots and full flaps. Refer to figure 2 for a BET airport diagram.

At the time of the accident, the temperature was reported at 88°F and the wind was light and variable at 3 knots. According to archived weather data, the average high temperature for July in Bethel was 63°F.

The airplane was estimated to have weighed about 7,500 lbs at the time of the accident and the estimated weight and balance was within limits. There is no power on stall speed published for the airplane.

A stall is an aerodynamic condition which occurs when smooth airflow over the airplane's wings is disrupted, resulting in loss of lift. Specifically, a stall occurs when the angle of attack (AOA)—the angle between the chord line of the wing and the relative wind—exceeds the wing's critical AOA. It is possible to exceed the critical AOA at any airspeed, at any attitude, and at any power setting.

## History of Flight

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| **Approach-VFR go-around** | Loss of control in flight (Defining event) |
| **Approach-VFR go-around** | Collision during takeoff/land |
| **Post-impact** | Fire/smoke (post-impact) |

## Pilot Information

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|---|---|---|---|
| **Certificate:** | Commercial | **Age:** | 28,Male |
| **Airplane Rating(s):** | Single-engine land; Multi-engine land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | 3-point |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 1 With waivers/limitations | **Last FAA Medical Exam:** | April 25, 2019 |
| **Occupational Pilot:** | Yes | **Last Flight Review or Equivalent:** | February 7, 2019 |
| **Flight Time:** | 2258 hours (Total, all aircraft), 787 hours (Total, this make and model), 2059 hours (Pilot In Command, all aircraft), 179 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft) | | |

## Passenger Information

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|---|---|---|
| **Certificate:** | **Age:** | |
| **Airplane Rating(s):** | **Seat Occupied:** | Unknown |
| **Other Aircraft Rating(s):** | **Restraint Used:** | |
| **Instrument Rating(s):** | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | **Toxicology Performed:** | |
| **Medical Certification:** | **Last FAA Medical Exam:** | |
| **Occupational Pilot:** | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | | |

## Passenger Information

| | | |
|---|---|---|
| **Certificate:** | **Age:** | |
| **Airplane Rating(s):** | **Seat Occupied:** | Unknown |
| **Other Aircraft Rating(s):** | **Restraint Used:** | |
| **Instrument Rating(s):** | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | **Toxicology Performed:** | |
| **Medical Certification:** | **Last FAA Medical Exam:** | |
| **Occupational Pilot:** | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | | |

## Passenger Information

| | | |
|---|---|---|
| **Certificate:** | **Age:** | |
| **Airplane Rating(s):** | **Seat Occupied:** | Unknown |
| **Other Aircraft Rating(s):** | **Restraint Used:** | Lap only |
| **Instrument Rating(s):** | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | **Toxicology Performed:** | |
| **Medical Certification:** | **Last FAA Medical Exam:** | |
| **Occupational Pilot:** | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | | |

## Passenger Information

| | | |
|---|---|---|
| **Certificate:** | **Age:** | |
| **Airplane Rating(s):** | **Seat Occupied:** | Unknown |
| **Other Aircraft Rating(s):** | **Restraint Used:** | Lap only |
| **Instrument Rating(s):** | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | **Toxicology Performed:** | |
| **Medical Certification:** | **Last FAA Medical Exam:** | |
| **Occupational Pilot:** | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | | |

## Passenger Information

| | | |
|---|---|---|
| **Certificate:** | **Age:** | |
| **Airplane Rating(s):** | **Seat Occupied:** | Unknown |
| **Other Aircraft Rating(s):** | **Restraint Used:** | Lap only |
| **Instrument Rating(s):** | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | **Toxicology Performed:** | |
| **Medical Certification:** | **Last FAA Medical Exam:** | |
| **Occupational Pilot:** | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Cessna | **Registration:** | N9448B |
| **Model/Series:** | 208 B | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | 1988 | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 208B0121 |
| **Landing Gear Type:** | Tricycle | **Seats:** | 9 |
| **Date/Type of Last Inspection:** | June 17, 2019 AAIP | **Certified Max Gross Wt.:** | 8752 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Turbo prop |
| **Airframe Total Time:** | 21206.5 Hrs at time of accident | **Engine Manufacturer:** | Pratt and Whitney |
| **ELT:** | C126 installed, activated, did not aid in locating accident | **Engine Model/Series:** | PT-6A |
| **Registered Owner:** | | **Rated Power:** | 675 Horsepower |
| **Operator:** | | **Operating Certificate(s) Held:** | Commuter air carrier (135), On-demand air taxi (135) |
| **Operator Does Business As:** | | **Operator Designator Code:** | ENHA |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | PABE,128 ft msl | **Distance from Accident Site:** | |
| **Observation Time:** | 22:53 Local | **Direction from Accident Site:** | |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 3 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 29.84 inches Hg | **Temperature/Dew Point:** | 31°C / 19°C |
| **Precipitation and Obscuration:** | Moderate - None - Haze | | |
| **Departure Point:** | Newtok, AK (EWU ) | **Type of Flight Plan Filed:** | Company VFR |
| **Destination:** | Bethel, AK (BET ) | **Type of Clearance:** | VFR |
| **Departure Time:** | | **Type of Airspace:** | Class D |

## Airport Information

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| **Airport:** | Bethel BET | **Runway Surface Type:** | Asphalt |
| **Airport Elevation:** | 128 ft msl | **Runway Surface Condition:** | Dry |
| **Runway Used:** | 12 | **IFR Approach:** | None |
| **Runway Length/Width:** | 1858 ft / 75 ft | **VFR Approach/Landing:** | Go around;Straight-in |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Minor | **Aircraft Damage:** | Destroyed |
| **Passenger Injuries:** | 5 Minor | **Aircraft Fire:** | On-ground |
| **Ground Injuries:** | | **Aircraft Explosion:** | None |
| **Total Injuries:** | 6 Minor | **Latitude, Longitude:** | 60.776668,-161.8386(est) |

## Administrative Information

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|---|---|---|---|
| **Investigator In Charge (IIC):** | Price, Noreen | | |
| **Additional Participating Persons:** | Clint Hamann; Denali CMO; Anchorage, AK<br>Dan Knesek; Grant Aviation, Inc; Anchorage, AK | | |
| **Original Publish Date:** | February 16, 2022 | **Investigation Class:** | 3 |
| **Note:** | The NTSB did not travel to the scene of this accident. | | |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=99790 | | |