Aviation Investigation Final Report

Location:	Ambler, Alaska	**Accident Number:**	ANC18LA046
Date & Time:	June 15, 2018, 15:38 Local	**Registration:**	N2957K
Aircraft:	Cessna 180K	**Aircraft Damage:**	Substantial
Defining Event:	Loss of lift	**Injuries:**	1 Serious, 1 Minor, 1 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The airline transport pilot was conducting a tour flight with two passengers onboard and landed on a hilly sand dune. He reported that the wind increased by 10 to 20 knots over a 2-hour period. The pilot said that, after considering and reviewing several downhill departure routes, he selected a departure route that was into the wind. Just after a downhill takeoff, the headwind diminished, the airplane stopped climbing, and the stall warning horn sounded. The airplane subsequently collided with rising terrain, which resulted in substantial damage to the forward fuselage.

The pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation. The pilot selected an unsuitable takeoff area with unfavorable wind conditions, which likely resulted in the airplane's inability to maintain a climb.

Probable Cause and Findings

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

The pilot's selection of an unsuitable takeoff area with unfavorable wind conditions, which resulted in the airplane's inability to maintain a climb.

Findings

Personnel issues	Decision making/judgment - Pilot
Aircraft	Climb rate - Attain/maintain not possible
Environmental issues	Sloped/uneven terrain - Decision related to condition
Environmental issues	Variable wind - Effect on operation

Factual Information

History of Flight

Initial climb	Other weather encounter
Initial climb	Loss of lift (Defining event)
Initial climb	Collision with terr/obj (non-CFIT)

On June 15, 2018, about 1538 Alaska daylight time, a tailwheel-equipped Cessna 180K airplane, N2957K, sustained substantial damage when it collided with hilly, sand covered-terrain after takeoff from a remote off airport site, about 26 miles southeast of Ambler, Alaska. The airplane was registered to Airframe Innovations Incorporated and operated by Northstar Aero LLC as a 14 *Code of Federal Regulations* (CFR) Part 135 visual flight rules flight when the accident occurred. Of the three occupants, the airline transport pilot sustained no injuries, one passenger sustained minor injuries, and the remaining passenger sustained serious injuries. Visual meteorological conditions prevailed, and company flight following procedures were in place. The flight departed the Fairbanks International Airport (PAFA), Fairbanks, Alaska, about 1024, and it was returning at the time of the accident.

In the pilot's written statement provided to the National Transportation Safety Board, he reported, in part, that after landing on a hilly sand dune, the wind at the top of the sand dune increased to 10 to 20 knots over a two-hour time period. After considering and reviewing several downhill departure routes, the pilot said he marked off the most favorable departure route that was into the wind.

The pilot reported that, after loading his two passengers into the airplane, and in preparation for takeoff, he ensured both passengers were wearing their BAS shoulder harness system, then he began the downhill takeoff run. He described the takeoff run as a typical sand dunes departure, with some rocking and bouncing, but the airplane accelerated rapidly downhill, and into the wind. He said that, as the airplane became airborne near the bottom of the dune, he made a slight right turn towards lower terrain, and the airspeed initially increased. He said that, as the airspeed increased to near Vx (Best angle of climb airspeed), the headwind diminished, and the airplane began losing altitude and the stall warning horn sounded. To avoid a collision with a sharp wall of hard packed sand ahead, the pilot said that he continued the slight right turn towards the down sloping terrain, but the airplane continued to descend towards a 60° sloped sand dune. The airplane subsequently collided with the sand dune, sustaining substantial damage to the forward fuselage and serious injuries to the passenger seated in the right front seat.

The pilot stated to the National Transportation Safety Board investigator-in-charge that he credited the lack of more serious injuries to a recently installed BAS, Inc., four-point shoulder harness and lap belt restraint system.

The pilot reported no mechanical malfunctions or anomalies that would have precluded normal operation.

Pilot Information

Certificate:	Airline transport	**Age:**	51,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land; Multi-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	January 10, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	October 3, 2017
Flight Time:	17000 hours (Total, all aircraft), 1000 hours (Total, this make and model), 17000 hours (Pilot In Command, all aircraft), 56 hours (Last 90 days, all aircraft), 19 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N2957K
Model/Series:	180K	**Aircraft Category:**	Airplane
Year of Manufacture:	1980	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	18053138
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	May 2, 2018 Annual	**Certified Max Gross Wt.:**	3190 lbs
Time Since Last Inspection:	8 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	28488.6 Hrs at time of accident	**Engine Manufacturer:**	CONT MOTOR
ELT:	C91A installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-470 SERIES
Registered Owner:	AIRFRAME INNOVATIONS INC	**Rated Power:**	230 Horsepower
Operator:	NORTHSTAR AERO LLC	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	J1OC

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PAFM,289 ft msl	**Distance from Accident Site:**	23 Nautical Miles
Observation Time:	22:53 Local	**Direction from Accident Site:**	77°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	330°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	29.85 inches Hg	**Temperature/Dew Point:**	8°C / -3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ambler, AK	**Type of Flight Plan Filed:**	Company VFR
Destination:	Fairbanks, AK (FAI)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious, 1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor, 1 None	**Latitude, Longitude:**	67.020553,-158.795272

Administrative Information

Investigator In Charge (IIC):	Williams, David
Additional Participating Persons:	Marcus Roulet; FAA; Anchorage, AK
Original Publish Date:	November 6, 2019
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=97508