Aviation Investigation Final Report

Location:	Burlington, Washington	**Accident Number:**	SEA03LA034
Date & Time:	February 4, 2003, 05:10 Local	**Registration:**	N48K
Aircraft:	Beech E18S	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that during the preflight he noted ice and frost adhering to the airplane. After applying glycol he polished and brushed off the frost. The pilot warmed up the engines before taking off to stay in the pattern "to clear the airplane of the ice, and to make sure everything was working properly." Before releasing the brakes, the pilot brought the power up to make sure everything was in the green. The pilot stated that for takeoff, he "tried to baby the engines using a less than max power for the departure." The tail of the airplane came up about 3/4 of the way down the runway. Seeing the end of the runway, more power was added and the aircraft lifted off. The landing gear was raised when a positive rate was attained. Shortly after gear retraction the pilot stated that, "I felt the airplane mushing, like a stall. I then added more power, but the aircraft kept mushing, and then it impacted terrain with power on both engines." The aircraft came to rest in an open field located approximately 1/4 mile from the end of the runway. After the accident, ice was still noted adhering to most of the airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to adequately remove ice/frost from the aircraft and to maintain airspeed during the initial climb after takeoff. An inadequate preflight was a factor.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. TERRAIN CONDITION - OPEN FIELD
2. (F) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND
3. (C) ICE/FROST REMOVAL FROM AIRCRAFT - INADEQUATE - PILOT IN COMMAND
4. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

On February 4, 2003, about 0510 Pacific standard time, a Beech E18S twin-engine airplane, N48K, sustained substantial damage after impacting terrain shortly after takeoff from the Skagit Regional Airport (BVS), Burlington, Washington. The airplane is registered to Comanche Air Inc., Winthrop, Washington, and was being operated by Methow Aviation, of Burlington, Washington. The commercial pilot, sole occupant, was not injured during the 14 CFR Part 91 local flight. Visual meteorological conditions prevailed and no flight plan was filed.

During a telephone interview and subsequent written statement, the pilot reported that during his preflight inspection he noticed ice and frost adhering to the airplane. He stated that after applying glycol to the wings and polishing and brushing off the frost, "then they were smooth." The pilot further stated that he let the engines warm up for 15 to 20 minutes before "taking it around the patch once to clear the airplane of the ice, and to make sure everything was working properly." Before releasing the brakes to take off, the pilot brought the power up on both engines "to make sure everything was in the green." After releasing the brakes, the pilot stated "I slowly brought the power up, maintaining 2000 rpm on the propellers." The pilot stated, "I tried to baby the engines using a less than max power for the departure." The tail of the airplane came up about 3/4 of the way down the 5,477 foot runway, and "seeing the end of the runway coming up, I added more power and pulled it off the ground." The pilot also reported that after seeing a "positive rate" he retracted the landing gear, and shortly thereafter "I felt the airplane mushing, like a stall. I then added more power, but the aircraft kept mushing, and then it impacted terrain with power on both engines." The aircraft came to rest in an open field located approximately 1/4 mile from the end of runway 28.

After impact, the aircraft's engines separated at the firewall. Subsequently, the aircraft veered 90 degrees to the right, coming to rest in an upright position perpendicular to the runway. There was no post-impact fire.

An FAA inspector, who traveled to the accident site, reported that both engines had separated from the firewall, the right wing sustained spar damage, both vertical stabilizers and rudders were bent.

At 0505, the weather observation facility located at BVS reported wind calm, visibility 4 statute miles, temperature -1 degree C, dew point -1 degree C, and an altimeter of 30.45 inches of Mercury.

The Director of Maintenance (DOM) for Methow Aviation reported that he arrived at the accident site about 0845 and observed ice adhering to most of the airplane. The DOM stated that the company does have a de-icing procedure which is normally done by the pilot.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	26,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 4, 2002
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	September 13, 2002
Flight Time:	6000 hours (Total, all aircraft), 600 hours (Total, this make and model), 5800 hours (Pilot In Command, all aircraft), 200 hours (Last 90 days, all aircraft), 70 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N48K
Model/Series:	E18S	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	BA-202
Landing Gear Type:	Retractable - Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	October 2, 2002 AAIP	**Certified Max Gross Wt.:**	10100 lbs
Time Since Last Inspection:	70 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	19243 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	R985
Registered Owner:	Comanche Air Inc.	**Rated Power:**	450 Horsepower
Operator:	Methow Aviation	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	GGPA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	BVS,144 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	05:05 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	4 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.45 inches Hg	**Temperature/Dew Point:**	-1°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Burlington, WA (BVS)	**Type of Flight Plan Filed:**	None
Destination:	Burlington, WA (BVS)	**Type of Clearance:**	None
Departure Time:	05:05 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Skagit Regional Airport BVS	**Runway Surface Type:**	Asphalt
Airport Elevation:	144 ft msl	**Runway Surface Condition:**	Ice
Runway Used:	28	**IFR Approach:**	None
Runway Length/Width:	5477 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	48.482776,-122.440002

Administrative Information

Investigator In Charge (IIC):	Little, Thomas
Additional Participating Persons:	Dave A May; FAA-FSDO; Renton, WA
Original Publish Date:	July 23, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=56431