Aviation Investigation Final Report

Location:	Nenana, Alaska	**Accident Number:**	ANC05FA144
Date & Time:	September 12, 2005, 18:00 Local	**Registration:**	N36237
Aircraft:	Bellanca 7GCBC	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot was conducting a personal local flight under Title 14, CFR Part 91. A witness said he saw the accident airplane flying level above the trees, when it abruptly started a steep, near vertical, climb. At the top of the climb, the witness said the airplane descended in a steep spiral and impacted the ground. The airplane impacted in a near vertical, nose low attitude. The right wing was found standing on its leading edge, with its top wrapped counter-clockwise around a small group of willows. Both blades of the two-bladed propeller had extreme bending and torsional twisting, chord-wise scratching, and areas sanded clean of paint. The engine exhaust manifold had plastic folding. The accident pilot/owner was a certified aircraft mechanic, who reportedly maintained the accident airplane. No airframe or engine logbooks were discovered for examination. No preimpact mechanical problems were discovered during the investigation. Federal Aviation Regulation Part 91.303, defines any abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight, as aerobatic flight.

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 minimum airspeed to avoid a stall while maneuvering, which resulted in a loss of control, a stall/spin, and impact with terrain. Factors associated with the accident were an aerobatic maneuver, and a stall/spin.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. (F) AEROBATICS - PERFORMED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
2. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND
3. STALL/SPIN - INADVERTENT - PILOT IN COMMAND
4. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On September 12, 2005, about 1800 Alaska daylight time, a Bellanca 7GCBC airplane, N36237, sustained substantial damage when it collided with terrain following an in-flight loss of control while maneuvering, about 14 miles east-northeast of Nenana, Alaska. The airplane was being operated by the pilot as a visual flight rules (VFR) personal local flight under Title 14, CFR Part 91, when the accident occurred. The private pilot and sole passenger both received fatal injuries. Visual meteorological conditions prevailed, and no flight plan was filed.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on September 16, the Alaska state trooper who interviewed the pilot's relatives, said he was told by family members that the family, including the pilot and passenger, witnessed a demonstration of bush flying during a family outing the day of the accident. The demonstration included short field takeoffs and landings along a river similar to where the accident occurred. The state trooper also interviewed a fisherman who saw the accident airplane flying low along the river, pull into a vertical climb, and then spiral nose-down to the ground.

On September 19, during a telephone conversation with the NTSB IIC, a relative who attended the family outing with the pilot, said the pilot and passenger left the family to return to the pilot's place of employment to "close up shop." He said the pilot worked at a local airport as an aircraft mechanic, and kept his airplane there also. He said the family expected the pilot and passenger home, and there was no mention of their going flying.

On September 25, a witness told the NTSB IIC during a telephone conversation that he was fishing in the area where the accident occurred. He said the accident airplane was flying level about 600-800 feet above the trees, when it started an abrupt, near vertical climb, and then spiraled straight down, impacting in trees beyond the river's edge.

INJURIES TO PERSONS

The two people aboard the airplane received fatal injuries.

DAMAGE TO AIRCRAFT

The airplane sustained structural damage to most of its major airframe components forward of the empennage.

PERSONNEL INFORMATION

According to FAA documents, the pilot held a private pilot certificate with an airplane single-engine land rating. He also held an aircraft mechanic certificate. No pilot logbooks were discovered for examination. According to his most recent FAA application for a medical certificate dated May 27, 2004, the pilot had accumulated about 127 hours of total flying experience. He was issued a third class FAA Medical Certificate on May 27, 2004.

AIRCRAFT INFORMATION

The airplane was a 1973 model year Bellanca 7GCBC single-engine, high wing, tailwheel equipped airplane. The pilot owned and reportedly maintained the accident airplane. No airframe or engine logbooks were discovered for examination. The date of the last annual inspection is unknown, and airframe and engine total time in service are unknown.

WRECKAGE AND IMPACT INFORMATION

The on-site investigation commenced on February 13, about 1100. The NTSB IIC was accompanied by an FAA aviation safety inspector. The accident site was in a broad river valley. The river had numerous heavily wooded islands, and large sand and gravel bars. The area where the impact occurred was heavily wooded, with tall evergreen and deciduous trees, as well as thick stands of willows The ground was soft sand. The airplane impacted the ground in a nose low, near vertical attitude at the base of an 8-inch diameter evergreen tree. The tree's roots had evidence of being cut, consistent with propeller strikes, and the tree fell, landing on a portion of the airplane's landing gear. A smell of aviation fuel permeated the area, and areas of fuel saturated ground were found. There was no postcrash fire. The right wing was standing on its leading edge, with the top of the wing wrapped counter-clockwise around a group of willows. The left wing was on the same side of the fuselage as the right wing. Both wings had aft crushing throughout their entire span. The wing flaps appeared to be in the retracted position. The nose and forward fuselage were crushed aft. The empennage was essentially intact. Continuity was established between the flight controls and their associated control surfaces. The engine exhaust manifold had areas of plastic folding. Both blades of the two-bladed, fixed pitch propeller, exhibited extreme bending, torsional twisting, chord-wise scratching, and areas that were completely sanded clean of paint.

No evidence of any preimpact mechanical problems were discovered during the investigation.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was performed under the authority of the Alaska State Medical Examiner, 4500 S. Boniface Parkway, Anchorage, Alaska, on October 11, 2005. The examination revealed the cause of death was multiple traumatic injuries. Tissue samples were sent to the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, for toxicological examination. A review of available FAA medical records, autopsy, and toxicological results, did not disclose any evidence of any preimpact incapacitating medical

conditions.

ADDITIONAL INFORMATION

The airplane was not recovered from the accident site. No pieces or parts of the airplane were taken or retained by the NTSB.

Federal Aviation Regulation (FAR), Part 91.303, defines any abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight as aerobatic flight. FAR Part 91.307(c) states that unless each occupant of an aircraft is wearing an approved parachute, no pilot of a civil aircraft carrying any person (other than a crewmember) may execute an intentional maneuver that exceeds; (2) A nose-up or nose-down attitude of 30 degrees relative to the horizon.

Pilot Information

Certificate:	Private	**Age:**	27,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	May 1, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	127 hours (Total, all aircraft), 81 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bellanca	**Registration:**	N36237
Model/Series:	7GCBC	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	550-73
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Annual	**Certified Max Gross Wt.:**	1650 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-320-A2B
Registered Owner:	Sean Hill	**Rated Power:**	150 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PAFA,434 ft msl	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:	17:53 Local	**Direction from Accident Site:**	60°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	Broken / 2700 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.76 inches Hg	**Temperature/Dew Point:**	12°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	North Pole, AK (95Z)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	64.634445,-148.617218

Administrative Information

Investigator In Charge (IIC):	Lewis, Lawrence
Additional Participating Persons:	Brent E Weckwerth; Fairbanks FSDO-01; Fairbanks, AK
Original Publish Date:	July 31, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=62439