National Transportation Safety Board
Aviation Accident Final Report

Location:	McKinley Park, Alaska	**Accident Number:**	ANC10FA067
Date & Time:	August 1, 2010, 15:00 Local	**Registration:**	N709RR
Aircraft:	Fairchild C-123K	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Executive/Corporate		

Analysis

The pilot, co-pilot and the passenger departed on a day VFR cross country flight in a large, 1950's era former military transport category airplane to deliver cargo. The pilot did not file a flight plan, and had no communication with any air traffic control facility during the flight.

While en route, witnesses saw the airplane fly slowly across a valley near the entrance of a national park, which was not the intended route of flight. The airplane suddenly pitched up, stalled, and dived into wooded terrain within the park. Two pilot-rated witnesses said the engines were operating at the time of the accident, and the landing gear was retracted.

An on-scene examination of the burned airplane structure and engines revealed no evidence of any preaccident mechanical deficiencies, or any evidence that the cargo had shifted during the flight.

A former military pilot who had experience in the accident type airplane, stated that the airplane was considered unrecoverable from a stall, and for that reason, pilots did not typically practice stalls in it. He also indicated that if a problem was encountered with one of the two piston engines on the airplane, the auxiliary jet engine on the affected side should be started to provide additional thrust.

Given the lack of mechanical deficiencies discovered during postaccident inspection, the absence of any distress communications, and the fact that neither of the two auxiliary jet engines had been started to assist in the event of a piston engine malfunction, it is likely the

pilot allowed the airplane to lose airspeed and enter a low altitude stall from which he was unable to recover.

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 to avoid a low altitude stall, resulting in a loss of control and collision with terrain.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

HISTORY OF FLIGHT

On August 1, 2010, at 1500 Alaska daylight time, N709RR, a Fairchild FA-C-123K Provider, a multi-engine transport category airplane, sustained substantial damage when it collided with terrain while maneuvering over Denali National Park, Mount McKinley, Alaska. All of the three occupants, the commercial pilot, the private pilot co-pilot, and the passenger, were killed. The airplane was registered to and operated by All West Freight, Incorporated, Delta Junction, Alaska. Visual meteorological conditions prevailed for the flight that originated at Wolf Lake Airport (4AK6), Palmer, Alaska, and was destined for Unalakleet Airport (PAUN), Unalakleet, Alaska. No flight plan was filed for the business flight conducted under 14 Code of Federal Regulations Part 91.

The purpose of the flight was to transport an approximately 12,000 pound diesel generator to Unalakleet, and return to Palmer. A review of air traffic control (ATC) services along the route of flight revealed that the pilot was not in contact with ATC, and no radar service was provided.

According to a family member, the airplane departed Palmer approximately 1400, with a proposed route north along the Parks Highway, and then west toward Unalakleet, once past Denali National Park.

At 1452, a witness, who was hunting about 10 miles south of Cantwell, Alaska, and about 35 miles south of the accident site, saw the airplane flying about 300 to 500 feet above the Parks Highway near mile-marker 195. The witness, who was a pilot, said the airplane was flying straight and level and headed north toward the park. He stated that the landing gear and flaps were retracted and the engines were "really working" and "I felt the air vibrate as the airplane flew by." The witness did not observe any smoke trailing from the airplane or anything unusual. He said the ceiling at the time was approximately 3,500 to 4,000 feet overcast and the surrounding mountains were partially obscured. The witness took two photos of the airplane, and one of the mountain obscuration. These photos were provided to the Safety Board and were consistent with the witness's observations.

Another witness, who was also a private pilot, was eating lunch on the deck of a restaurant located on the hillside adjacent to the entrance of Denali National Park. The witness first observed the airplane flying from her left to right over a valley near the main entrance of the park. The witness could not estimate the airplane's altitude but said it was in "slow flight" and in an approximate 30 degree nose down descent. There was no smoke trailing the airplane. She then saw the airplane suddenly pitch straight up near vertical, as if it "hit a wall", stall, then roll left and nose dive toward the ground. The witness did not see the impact due to trees, but saw two large mushroom clouds after she lost sight of the airplane. She said the weather at the time was clear skies with a high ceiling. The witness took two photographs of the airplane. The first photo shows the airplane in what appears to be straight and level flight. The second photo was taken several seconds later and shows the airplane inverted in a near vertical descent just above the tree line.

Numerous people observed the airplane flying low and slow over the park before it entered a steep left bank and then nose-dive into the ground. The sound of the engines was loud and an increase in pitch was heard right before impact. Several of these witnesses also observed that the landing gear was retracted.

PERSONNEL INFORMATION

The pilot, age 61, held a commercial pilot certificate for airplane single-engine land and sea, multi-engine land, rotorcraft-helicopter, and instrument airplane. He also held a type rating for the FA-C-123, and was restricted to flights conducted under visual flight rules (VFR) only. The captain's last Federal Aviation Administration (FAA) second class medical was issued on May 27, 2010, with a limitation that he must have glasses available for near vision. At the time of the last medical, he reported a total of 20,000 flight hours. The captain's logbooks were not available for review.

The co-pilot, age 52, held a private pilot certificate for airplane single and multi-engine land, rotorcraft-helicopter, and instrument airplane. His last FAA third class medical was issued on June 28, 1989, with a limitation that he must possess glasses for near vision. At the time of the medical, he reported a total of 70 flight hours. The co-pilot's logbooks were not made available for review.
According to the FAA, the airplane required a co-pilot; however, the co-pilot was not required to hold a type rating in the airplane.

AIRCRAFT INFORMATION

The C-123K Provider is an American military transport airplane that was designed by Chase Aircraft and subsequently built by Fairchild Aircraft for the United States Air Force (USAF). The airplane is equipped with a high wing, conventional tail, and tricycle landing gear and was designed to fly from short, unprepared runways. The aft fuselage incorporates a large cargo door and ramp to allow for loading, parachute drops, cargo drops, and parachute drag unloading. The airplane is 76.25 feet long, has a wingspan of 110 feet, has a cargo capacity of 24,000 pounds, and a maximum takeoff weight of 60,000 pounds.

The accident airplane was manufactured in 1954 and was powered by two Pratt & Whitney R-2800-99W "Double Wasp" 18-cylinder radial engines, 2,300-hp each; and, two General Electric J85-GE-17 turbojets, 2,850-lbs each. According to FAA records (Type Certificate Data Sheet NO. A12NM), the airplane was approved to operate in the civilian "Restricted Category" on August 21, 1984. The current type certificate holder is Airnautica Incorporated of Reno, Nevada. It was issued a Restricted Category Special Airworthiness Certificate by the FAA on May 20, 2009. The certificate only allowed for the carriage of cargo and required that "OPERATING LIMITATIONS DATED 05-20-2009 ARE A PART OF THIS CERTIFICATE". A copy of those limitations is in the public docket of this report.

Maintenance logbook records for the airplane were not available for review.

The actual gross weight of the airplane at the time of the accident could not be determined. An estimated gross weight, based on the limited information available, was about 59,000 pounds.

METEOROLOGICAL INFORMATION

Weather at McKinley National Park Airport (PAIN) about 1 mile east of the accident site, at 1516, was reported as wind 130 degrees at 6 knots, visibility 10 miles, few clouds at 5,500 feet, scattered clouds at 10,000 feet, temperature at 24 degrees Celsius, with a dew point of 11 degrees Celsius, and a barometric pressure setting of 30.02 inches of Mercury.

WRECKAGE AND IMPACT INFORMATION

An on-scene examination of the airplane was conducted by the Safety Board on August 2-4 and September 21-24, 2010. The airplane impacted sloping, wooded terrain adjacent to the main road into Denali National Park. The accident site was located between the visitor's center and the park's headquarters complex. The airplane collided with numerous standing Spruce trees that were densely situated on the hillside. Numerous cut branches were strewn around the accident site on both the left and right side of the wreckage forward of each radial engine. Examination of these cut tree limbs revealed flat angular fractures with black paint transfer marks.

The airplane came to rest upright on a 060 degree heading at an approximate elevation of 2,158 feet mean sea level (msl). The wreckage was confined to an approximately 250-foot by 300-foot-wide area. An extensive post-impact fire consumed most of the cockpit area, fuselage, inboard sections of the wings (around fuel tanks), both flaps, and damaged a majority of the tail section and outboard sections of the wings. The postimpact fire also started a small forest fire around the main wreckage and to an area adjacent to the accident site.

Examination of the airplane revealed that all major flight control surfaces were located at the site, including the two radial engines and the two jet-assist engines. Flight control continuity was established for all flight control surfaces to the cockpit. The left wing (including the aileron) exhibited impact and fire damage as did the right wing and aileron. The vertical stabilizer, the rudder and the rudder trim sustained impact and fire damage, and came to rest on top of the cockpit area. The right horizontal stabilizer exhibited fire and impact damage and came to rest on top of the right wing. A section of the right elevator remained attached to the stabilizer, but the fabric had burned away exposing the metal framework. The left horizontal stabilizer sustained extensive fire damage, and was found on the left side of the fuselage near where the left wing fuel tank was located. A small section of elevator remained attached to the stabilizer.

The Number 1 engine (LH jet) was separated from the wing and was recovered forward of the left wing. The nacelle and inlet door were extensively dented and deformed around the engine. There was no evidence of rotation at impact on the rotating blades, stationary blades, or the spinner.

The Number 2 engine (LH Radial) was separated from the wing and recovered forward of the left wing adjacent to a large crater in the soil. The engine exhibited significant impact damage and the magnesium forward and aft cases were disintegrated. One propeller blade (blade 1)

remained attached to the hub but was rotated so that the leading edge was oriented aft (about 180 degrees from the feather position). Blade 1 exhibited a smooth forward bend of about 20 degrees near the mid-span point but had minimal rotation signatures. Blades 2 and 3 were recovered in the soil adjacent to the engine and were fractured at the hub. The blade butts remained secured in the hub. Both blades 2 and 3 exhibited significant leading edge gouging and chordwise scratching. All three propeller blades were full length.

The Number 3 engine (RH Radial) was separated from the wing and recovered embedded in the soil forward of the right wing. The engine exhibited significant impact damage and the magnesium aft case was disintegrated. One propeller blade (blade 1) remained attached to the hub but was deformed aft such that the hub halves were separated at the blade butt. Blade 1 was full length and exhibited some leading edge damage and chordwise scratching. Blade 2 was fractured into 4 major pieces; at the hub, about 50 inches from the blade butt and about 6 inches from the tip. The blade butt remained secured in the hub, and the inboard and outboard sections were found in the soil adjacent to the engine. The center section of blade 2 was recovered on the road about 100 feet from the wreckage. Blade 2 exhibited leading edge damage and chordwise scratching. Blade 3 was fractured into 3 major pieces; at the hub, and about 43 inches from the blade butt. The blade butt remained secured in the hub. The outboard half of the blade was recovered in the soil with significant leading edge gouging, chordwise scratching, and fire damage. The propeller dome also exhibited curved scratching and gouging.

The Number 4 engine (RH Jet) was separated from the wing and recovered aft of the right wing. The nacelle and inlet door were extensively dented and deformed around the engine. There was no evidence of rotation at impact on the rotating blades, stationary blades, or the spinner.

The generator came to rest upright, and was located in the center of the wreckage, which was consistent with the location of the cargo bay. The nose gear was observed just forward and partially under the generator. The ramp to the cargo bay and the main landing gear came to rest aft of the generator and exhibited fire and impact damage.

The airplane was equipped with permanent and removable steel tie-down rings along the longitudinal rows in the cargo compartment floor. Twenty-three tie-down rings were recovered and identified in the wreckage; 9 permanent rings and 14 removable rings. Three of the tie-down rings had locking hooks attached to them. Twenty ratchet assemblies, 19 two-prong hooks, and 11 locking hooks were also recovered in the wreckage with no nylon strapping remaining. According to family, all cargo was normally secured using 1.5-inch ratchet nylon straps. Examination of the cargo compartment, the cargo, and tie-down equipment revealed no evidence that the generator had shifted during the flight.

In addition to the generator, the airplane was carrying fuel for the return trip in 50-gallon steel drums. The remains of 7 barrels were recovered and identified in the wreckage. Typically each barrel contained about 300 pounds of fuel, using a fuel density of 6 lbs/gal.
Although the airplane sustained extensive impact and fire damage, the inspection of the remaining structure and engines disclosed no evidence of any preaccident mechanical problems.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the State of Alaska Office of the State Medical Examiner on August 3, 2010. The cause of death was attributed to blunt force injury of the head and chest.

An autopsy was performed on the co-pilot by the State of Alaska Office of the State Medical Examiner on August 3, 2010. The cause of death was attributed to blunt force injury.

Toxicological testing conducted on both pilots by the FAA Bioaeronautical Science Research Laboratory, Oklahoma City, Oklahoma, revealed negative results for drugs and alcohol.

ADDITIONAL INFORMATION

A retired Lt. Colonel with the USAF was interviewed about the flying characteristics of the airplane. The Lt. Colonel stated that he flew the C-123K on 697 combat missions in Vietnam and was an instructor pilot for the airplane. He stated that with only nacelle fuel tanks on the airplane, the range was limited so standard procedure was to use the jets only for takeoff and landing. Once the landing gear and flaps were raised, the jets would be shut down. The Lt. Colonel said the airplane was not controllable in a stall, and they never received stall or approach to stall training due to its poor stall characteristics. During his service, they were generally limited to airfields of 2,000 feet or greater but he has landed the airplane on fields of about 1,000 feet in length. If they ever encountered a problem with one of the radial engines, the first step was to start the jet on the same side.

History of Flight

Maneuvering-low-alt flying	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Commercial	**Age:**	61,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	May 27, 2010
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	20000 hours (Total, all aircraft)		

Co-pilot Information

Certificate:	Private	**Age:**	52,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	None None	**Last FAA Medical Exam:**	June 28, 1989
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Fairchild	**Registration:**	N709RR
Model/Series:	C-123K	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	54-709
Landing Gear Type:	Tricycle	**Seats:**	3
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	60000 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	P & W
ELT:		**Engine Model/Series:**	R-2800 SERIES
Registered Owner:		**Rated Power:**	2000 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:	INR,1720 ft msl	**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:		**Visibility**	
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:			
Departure Point:	Palmer, AK (4AK6)	**Type of Flight Plan Filed:**	None
Destination:	Unalakleet, AK (PAUN)	**Type of Clearance:**	None
Departure Time:	14:15 Local	**Type of Airspace:**	

Airport Information

Airport:	None None	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	3 Fatal	**Latitude, Longitude:**	63.726112,-148.906387(est)

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	Corey Howlett; ANC FSDO; Anchorage, AK
Original Publish Date:	September 19, 2011
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=76866