Aviation Investigation Final Report

Location:	Fairbanks, Alaska	**Accident Number:**	ANC12FA079
Date & Time:	July 26, 2012, 10:15 Local	**Registration:**	N334DH
Aircraft:	Beechcraft F33A	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airline transport pilot was the group leader of 12 airplanes flying on an aerial tour of Alaska. On the day before the accident, the airplane had been fueled by a commercial vendor, and a preflight inspection was completed for the flight the following day. The pilot stated that his preflight inspection and the airplane start, taxi, and before-takeoff checks revealed no anomalies. However, just after takeoff, as the airplane climbed through about 400 feet above ground level, the engine lost all power. The pilot made about a 90-degree right turn to avoid obstacles located off the end of the runway and landed in an adjacent field. The airplane sustained substantial damage to the wings and fuselage.

A postaccident examination, including an engine run in a test cell, revealed no evidence of any preimpact mechanical anomalies with the airplane's engine or systems.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The total loss of engine power reason that could not be determined because postaccident examination and test run did not reveal any anomalies that would have precluded normal operation.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Initial climb	Loss of engine power (total) (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

On July 26, 2012, about 1015 Alaska daylight time, a Beechcraft F33A "Bonanza" airplane, N334DH, sustained substantial damage during a forced landing, following a loss of engine power after takeoff from the Fairbanks International Airport, Fairbanks, Alaska. The airplane was being operated by the pilot as a visual flight rules (VFR) cross country flight under the provisions of Title 14, CFR Part 91, when the accident occurred. The certificated airline transport pilot and one passenger sustained minor injuries. Visual meteorological conditions prevailed, and a company flight plan had been filed. The flight departed Fairbanks International Airport at approximately 1015, destined for Homer, Alaska.

At the time of the accident, the pilot owned and operated a tour group business called "Let's Fly Alaska", in which pilots provide their own airplanes, and traveled as a group on a guided tour from Washington throughout Alaska, before returning to their respective bases. He was leading a group of 12 airplanes on an aerial tour, when the accident occurred.

The pilot stated that the day before the accident the airplane had been fueled by a commercial vendor, and a preflight inspection was completed for the planned flight the following day. He arrived at the airplane the day of the accident, sumped the fuel drains, and prepared the airplane for departure. Start, taxi, and the before takeoff checks were all normal with no anomalies noted. Just after takeoff, as the airplane climbed through about 400 feet above ground level, the engine suddenly lost all power. Unable to land straight ahead, because of a fire fighter training area that consisted of a derelict McDonnell Douglass DC-6 airplane, and an active firing range located approximately 1075 feet off the end of the runway, the pilot elected to make a 90 degree right turn, and land the airplane in an adjacent field.

The airplane was outfitted with four video cameras, mounted at various locations on the exterior of the airplane. The audio portion of the video footage captured the airplane start, taxi, takeoff, and the loss of engine power. Approximately 3 minutes 36 seconds after engine start the airplane began its taxi to the hold short lines of runway 20L at Fairbanks. The aircraft held short of runway 20L for approximately 5 minutes, 30 seconds. During this hold short period the audio did not record any sounds consistent with the accident airplane operating at higher RPM's. Approximately 10 minutes, 24 seconds after engine start the airplane began its takeoff roll, and about 41 seconds later the airplane lost all engine power. A complete brief of the video footage is available in the public docket.

In the Safety Recommendations section of the pilots written statement to the National

Transportation Safety Board he noted, that the airport training areas located off the departure end of runway 20L, should be relocated, so that a pilot in the event of emergency could land straight ahead.

WRECKAGE AND IMPACT INFORMATION

The accident site was southwest of runway 20L, and remained on Fairbanks International Airport property. Examination of the accident site by two Federal Aviation Administration (FAA) safety inspectors the day of the accident revealed that the airplane came to rest on a heading of about 285 degrees magnetic.

The fuselage, forward of the cockpit, was crushed aft. The cockpit was intact, and relatively free of impact damage. Both wings remained attached to the fuselage, and the flight control surfaces remained connected to their respective attach points. The right wing sustained upward bending from approximately midspan outboard. The left wing was relatively free of impact damage. The horizontal and vertical stabilizer, elevators, and rudder remained attached to the empennage, and were free of impact damage.

The landing gear was in the retracted position.

The engine remained attached to its mounts, was intact and relatively free of impact damage.

The fuel pump's drive gear and shear shaft were intact. Fuel was noted in the pump upon hand rotation.

Disassembly of the fuel manifold revealed fuel in the housing, the fuel appeared clear, with no impurities, water, or other contaminates.

The propeller assembly remained attached to the crankshaft. All three propeller blades had aft bending.

The aircraft was equipped with a JPI Fuel Scan 450, fuel computer. The fuel computer when powered on indicated "1.0" gallons of fuel used, and "73.0" gallons of fuel remaining.

PERSONNEL INFORMATION

The pilot, age 60, held an airline transport pilot certificate with an airplane multi-engine land, and rotorcraft-helicopter rating. Additionally, he held commercial pilot privileges for airplane single-engine land, and single-engine sea. He also held a type rating for a Bell 206 helicopter, and a certified flight instructor certificate with airplane single-engine land, multi-engine land, instrument airplane, rotorcraft-helicopter, and instrument helicopter. His most recent third-class medical was issued on February 10, 2012, with the limitation that he must wear corrective lenses.

AIRCRAFT INFORMATION

According to FAA records, the airplane was manufactured in 1975, and was registered to the owner in October 2003. At the time of the accident, it was equipped with a Continental IO-550 engine, capable of producing 300 horsepower, and a Hartzell PHC-C3YF-1RF three-blade propeller. The airplane had accumulated approximately 5036 total flight hours at the time of the accident. Its most recent annual inspection had been completed on January 1, 2012.

The airplane had been modified under a supplemental type certificate(STC) for installation of a Continental IO-550 engine by D'Shannon Products LTD, Buffalo, Minnesota. The engine was installed under STC SA2200SW, on November 12, 2010, about 165 hours before the accident.

METEOROLOGICAL INFORMATION

The closest weather reporting facility is Fairbanks International Airport. About 10 minutes after the accident, at 1025, an aviation routine weather report (METAR) at Fairbanks, Alaska, reported in part, wind calm, visibility, 10 statute miles, few clouds at 20,000 feet, temperature, 64 degrees F; dew point 50, degrees F; altimeter, 29.93 inHG.

AIRPORT INFORMATION

The Fairbanks International Airport is a public airport in Class Delta airspace, located 3 miles southwest of Fairbanks, Alaska, at a surveyed elevation of 439 feet. The airport had three open runways (2L/20R, 2R/20L, and Ski 2/20), and one open waterway (2W/20W) at the time of the accident.

The Don Bennett firing range is an outdoor shooting range used by all interior Alaska law enforcement agencies. This secured "law enforcement only" training facility is located on Fairbanks International Airport Property, approximately 1075 feet from the departure end, on the extended centerline of runway 20L. The firing range is not depicted in the FAA Airport Facilities Directory, Alaska Supplement, and Notices to Airmen (NOTAMs) are only issued when the range is active.

TESTS AND RESEARCH

Engine

The engine was removed from the airframe and transported to Alaskan Aircraft Engines Inc., Anchorage Alaska. On, August 2, 2012 the engine was examined externally and place on an engine test stand. The engine was successfully started and run for about 10 minutes with no anomalies noted. The engine was set to a speed of approximately 1700 RPM, and a magneto check was performed. A drop of 75 rpm was noted for the left magneto, and 100 RPM for the right magneto. A series of power adjustments from idle to full power were conducted with no hesitation in engine operation noted.

Fuel

The airplane was fueled the night before the accident by line personnel at Alaska Aerofuel Inc. A fuel sample was drawn from the fuel truck, by a FAA safety inspector the day of the accident, and revealed no anomalies.

Ignition System

The ignition switch was examined under the supervision of the IIC, all wire bundles and connections appeared to be intact. The ignition switch was removed and bench tested for function, and no anomalies were found.

Fuel System

The fuel system was examined, no anomalies were found with the fuel and vent systems, and the fuel selector functioned normally.

Engine Analyzer

The aircraft was equipped with a JPI 700 engine analyzer. The JPI engine analyzer was removed and sent to the NTSB Research and Engineering laboratory for download. The parameters recorded in this unit were exhaust gas temperature (EGT), cylinder head temperature (CHT), oil temperature, outside air temperature, and battery voltage. The unit recorded data at an interval of once per every 6 seconds. A review of the taxi and takeoff portion of the flight, before the engine lost all power, did not indicate any anomalies with the engine or electrical system.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	60,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane; Instrument helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	February 10, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	7812 hours (Total, all aircraft), 1700 hours (Total, this make and model), 7710 hours (Pilot In Command, all aircraft), 49 hours (Last 90 days, all aircraft), 38 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beechcraft	**Registration:**	N334DH
Model/Series:	F33A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	CE-625
Landing Gear Type:	Retractable - Tricycle	**Seats:**	5
Date/Type of Last Inspection:	January 1, 2012	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed	**Engine Model/Series:**	IO 520 SERIES
Registered Owner:	DALE HEMMAN	**Rated Power:**	285 Horsepower
Operator:	DALE HEMMAN	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PAFA,439 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	10:25 Local	**Direction from Accident Site:**	20°
Lowest Cloud Condition:	Few / 20000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	18°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fairbanks, AK (PAFA)	**Type of Flight Plan Filed:**	Unknown
Destination:	Homer, AK (PAHO)	**Type of Clearance:**	None
Departure Time:	10:15 Local	**Type of Airspace:**	

Airport Information

Airport:	Fairbanks International PAFA	**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:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	64.810455,-147.72026(est)

Administrative Information

Investigator In Charge (IIC):	Banning, David
Additional Participating Persons:	Matthew Fisher; Federal Aviation Administration; Fairbanks, AK
Original Publish Date:	June 12, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=84474