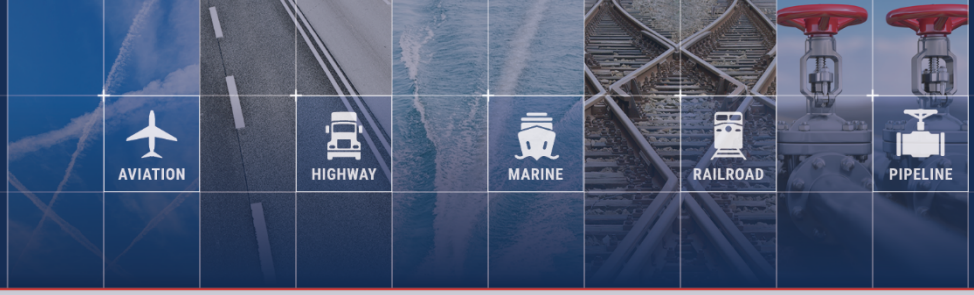

Aviation Investigation Final Report

Location:	Cambridge, Idaho	**Accident Number:**	SEA01FA100
Date & Time:	November 16, 2000, 14:00 Local	**Registration:**	N8529Q
Aircraft:	Cessna U206F	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

During an aerial survey flight around mountainous terrain, the aircraft was reported overdue and missing. The wreckage was located about six months later in a valley surrounded by high terrain. Ground disturbances and impact signatures documented at the accident site indicate that the aircraft collided with the terrain in a nose down attitude. Impact damage and a post-crash fire destroyed the aircraft. Post-crash inspection of the wreckage and engine did not reveal evidence of a mechanical failure or malfunction.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Airspeed not maintained and an inadvertent stall while maneuvering. Mountainous terrain was a factor.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
1. (F) TERRAIN CONDITION - MOUNTAINOUS/HILLY
2. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
3. (C) STALL - INADVERTENT - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On November 16, 2000, about 1400 mountain standard time, a Cessna U206F, N8529Q, registered to a private individual and operated by Baker Aircraft Service as a 14 CFR Part 135 aerial survey flight for the Idaho Power Company, was reported missing. A search of the area around Brownlee Reservoir/Sturgill Creek, located about 13 miles west of Cambridge, Idaho, in which the survey was being conducted was initiated. The search was suspended on December 6, 2000, after the aircraft was not located. On May 21, 2001, a land owner came across the wreckage while horseback riding in Limestone Gulch, an offshoot of Sturgill Creek. Visual meteorological conditions prevailed on the day of the accident in the area of the survey flight, and a company visual flight rules plan was in effect. The aircraft was destroyed by impact damage and a post-crash fire. The commercial pilot and his passenger were fatally injured. The flight originated from Baker City, Oregon, about 1135 Pacific standard time. The time of the accident is unknown and 1400 mountain standard time was input for data entry purposes only.

A representative from the operator reported that the purpose of the flight was for collecting data on the migration of mule deer along the Snake River between Farewell Bend and Oxbow, Oregon, along the Oregon/Idaho border. The operator was contracted by Idaho Power Company from October to mid-May 2001, to fly Monday through Friday tracking and mapping the herds. Selected deer were fitted with transmitting collars within the herds. The representative reported that the aircraft would normally fly about 2,000 feet above ground level over the study area. When a transmitter was picked-up, the aircraft would circle descend to about 500 feet above ground level for a visual sighting of the herd. The herd's location would then be GPS marked and the flight would continue on to the next target area.

This was the second flight of the day. The first flight departed at 0630 and returned for fuel at 1030. Fueling records indicate that 40.5 gallons of 100LL was added at 1050. The representative reported that the aircraft took off from Baker City about 1135. The pilot transmitted to company personnel about 1145, that they were at 5,500 feet mean sea level over Love Reservoir, en route to Brownlee Reservoir/Sturgill Creek, the next study area. The flight was expected to land at Oxbow by 1500. When the aircraft did not arrive at the estimated time, search agencies were notified.

The aircraft was located at the bottom of the valley in Limestone Gulch (N44 degrees 38.87 W117 degrees 00.18) at an elevation of approximately 4,800 feet. The valley walls rose to about 5,800 feet.

PERSONNEL INFORMATION

At the time of the accident, the pilot held a commercial flight certificate for single-engine and multi-engine land aircraft with an instrument rating. The pilot also held a flight instructor certificate for single-engine aircraft. Company personnel reported that the pilot had accumulated a total flight time in all aircraft of 4,584 hours, with 4,484 hours as pilot-in-command. Approximately 300 hours had been accumulated in the Cessna 206.

The pilot held a class 2 medical certificate dated March 30, 2000. No waivers or limitations were reported.

AIRCRAFT INFORMATION

Maintenance records indicated that the last maintenance inspection was a 100-hour inspection accomplished on November 7, 2000, at Baker Aircraft. The airframe total time was reported as 4,654.13 hours.

The aircraft was equipped with a rebuilt Teledyne-Continental Motors, IO-520-F9 fuel injected engine. The last overhaul was accomplished on February 27, 1992. The engine logbook indicated that the last inspection was a 100-hour inspection accomplished on November 7, 2000. The engine total time since overhaul was 1,652.13 hours, with 47.87 hours left for time between overhaul.

The company Flight Locating and Flight Following Log indicated that this aircraft flew twice on November 15, 2000, and on the morning of November 16, 2000, since the last maintenance inspection.

WRECKAGE AND IMPACT INFORMATION

The on-site investigation was conducted on May 30, 2001. The main wreckage was located at the bottom of a valley at an elevation of approximately 4,800 feet. The surrounding valley walls rose to approximately 5,800 feet at about a 30-35 degree angle. The valley rises to the east and descends to the west where it connects to Sturgill Creek, which runs on a north/southerly track. The ground was covered with dry low grass. A small stream ran down the valley. Close to the stream were trees varying in height to about 40 feet. The main wreckage was mostly positioned in this stream with trees overhanging the wreckage. A ground disturbance in the soil located 78 feet uphill to the north of the main wreckage was noted. This disturbance in the soil was a thin line running 210/30 degrees along the ground. At the center of this line, the propeller assembly with the spinner embedded in the soil was located. At the end of the ground disturbance running toward 210 degrees, a fiberglass fragment later matched to the left wing tip was located.

All three propeller blades remained attached to the hub. Pieces of Plexiglas, engine cowling and other miscellaneous fragments of fuselage skin and paint chips were around the propeller. The propeller blades were marked as "A," "B," and "C" for identification purposes. Blade A was

bent in an "S" wave and slightly twisted. Leading edge gouging was noted from the blade tip inboard for about 12 inches. Chord wise scratches were noted the entire length of the blade along the cambered face. The blade tip was severely deformed. Blade B displayed slight aft bending. Leading edge gouges were noted. Chord wise scratches were noted the entire length of the blade along the cambered face. Approximately three inches of the blade tip was torn off. Blade C displayed slight "S" bending and twisting. Leading edge gouges were noted. Chord wise scratches were noted the entire length of the blade along the cambered face. The blade tip was severely gouged. The spinner was crushed rearward.

The main wreckage was located downhill of the ground disturbance and mostly in the stream. A fire consumed and destroyed the cockpit and aft cabin The right wing was inverted and laying in the stream parallel to the streams track. The inboard section of the wing displayed fire damage. Both the aileron and flap remained attached to their respective hinges. Approximately 60 inches of the wing strut remained attached to the wing. The entire leading edge of the wing displayed rearward crushing. The flap motor was exposed by the investigative team at the site. It was determined by the flap screw that the flaps were in the retracted position. After the wreckage was recovered, control continuity from the flap and aileron to the wing root was verified.

The left wing was inverted and laying on the south bank of the stream and nearly perpendicular to the streams track. Fire damage was noted at the wing root. Both the aileron and flap remained attached to their respective hinges. Approximately 32 inches of the wing strut remained attached at the wing. Evidence of fire damage was noted. The entire leading edge of the wing displayed rearward crushing. After the wreckage was recovered, control continuity from the flap and aileron to the wing root was verified.

Approximately 79 inches of the aft empennage remained. The empennage was on the north stream bank with the aft end positioned in the stream bed. Both the left and right side horizontal stabilizers remained attached. The left side, with elevator attached displayed minor heat distress. The right side, which was positioned closer to the fire, displayed severe heat damage. The elevator was burned away, however the hinges remained attached to the stabilizer. The elevator tip weight was separated, but found in the immediate area of the wreckage. Approximately 37 inches of the vertical stabilizer remained attached at the root. The top section was burned away. The rudder was burned away with only the lower hinge remaining. After the wreckage was recovered, control continuity from the aft attach points for the rudder, elevator and trim tab were verified.

The engine was positioned in the stream bed near the right wing root. The engine displayed severe heat distress. After the wreckage was recovered, the engine was inspected on June 28, 2001. During the inspection, all of the spark plugs except for one lower plug which could not be removed due to impact damage, displayed normal operating signatures. Heat distress was noted to the valve covers to cylinders 1, 3, and 5. The push rods were intact. The valve covers for cylinders 2, 4, and 6 displayed minor heat distress. The valve covers were removed and all rocker arms were intact. All fuel injector lines remained attached to their respective positions.

The fuel manifold was opened. The diaphragm was burned and destroyed. The screen was dry and clear of contaminants. All accessories were destroyed by heat distress. The crankshaft would not rotate. A visual inspection into the spark plug holes verified each piston was intact.

ADDITIONAL INFORMATION

The wreckage was recovered from the accident site around the first week of June 2001. The wreckage was transported to Specialty Aircraft Service, Redmond, Oregon.

The wreckage was released to the owner's representative on July 11, 2001.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	34,Male
Airplane Rating(s):	Single-engine land; 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 single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 30, 2000
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	October 31, 2000
Flight Time:	4584 hours (Total, all aircraft), 300 hours (Total, this make and model), 4484 hours (Pilot In Command, all aircraft), 78 hours (Last 90 days, all aircraft), 37 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N8529Q
Model/Series:	U206F	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	U20603385
Landing Gear Type:	Tricycle	**Seats:**	6
Date/Type of Last Inspection:	November 7, 2000 100 hour	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	15 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4654 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-520-F9
Registered Owner:	Troy A. Woydziak	**Rated Power:**	300 Horsepower
Operator:	Baker Aircraft Service	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	GLQA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BKE,3373 ft msl	**Distance from Accident Site:**	36 Nautical Miles
Observation Time:	12:56 Local	**Direction from Accident Site:**	272°
Lowest Cloud Condition:	Clear	**Visibility**	8 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.27 inches Hg	**Temperature/Dew Point:**	-1°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Baker City, OR (BKE)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Oxbow, OR	**Type of Clearance:**	None
Departure Time:	11:35 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	44.633335,-117.003051

Administrative Information

Investigator In Charge (IIC):	Eckrote, Debra
Additional Participating Persons:	Robert L Rountree; FAA-FSDO; Boise, ID Andrew Hall; Cessna Aircraft Company; Wichita, KS Scott Boyle; Teledyne Continental Motors; Arvada, CO
Original Publish Date:	September 6, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=52468