



Aviation Investigation Final Report

Location:	Homer, Alaska	Accident Number:	ANC12FA073
Date & Time:	July 10, 2012, 21:45 Local	Registration:	N206VR
Aircraft:	Cessna U206G	Aircraft Damage:	Substantial
Defining Event:	Abnormal runway contact	Injuries:	1 Fatal, 4 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that while landing in a southerly direction on a lake, a gust of wind lifted the left wing just after touchdown, and the right wing struck the water. The airplane nosed over abruptly, and the cabin immediately filled with water. The pilot estimated the wind to be from 130 degrees at 10 knots, with peak gusts between 12 to 14 knots. However, a pilot-rated witness who observed the accident from the southeastern shoreline of the lake reported that the wind was strong and gusty out of the northeast at 20 to 25 knots at the time. He thought the accident airplane was on a downwind leg, but it was on final approach. He said that the airplane had a very fast ground speed and touched down slightly nose down in a left-float-low attitude. The nose of the left float dug into the water, the left wing struck the water, and the airplane rapidly nosed over.

A postaccident examination revealed no evidence of a mechanical malfunction or failure with the airframe or engine that would have precluded normal operation. Based on the pilot-rated witness's statement and the damage to the airplane and its floats, it is likely that the pilot misjudged the wind conditions and landed with a strong, gusty tailwind. The airplane then contacted the rough water with the left float low and nosed over.

On this airplane, the right rear cargo door is blocked by the wing flap when it is extended. After the accident, the pilot and three of the passengers were able to egress the airplane by bending that door and sliding through the small opening that they created. The fourth passenger was unable to exit through the door; however, due to the nature of her injuries, it is unlikely that the blocked exit contributed to her death.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper evaluation of the weather conditions and his subsequent downwind water landing in gusting wind conditions, which resulted in a nose-over.

Findings

Personnel issues	Decision making/judgment - Pilot
Personnel issues	Aircraft control - Pilot
Environmental issues	Tailwind - Awareness of condition
Environmental issues	Tailwind - Contributed to outcome
Environmental issues	Gusts - Contributed to outcome

Factual Information

History of Flight

Landing-flare/touchdown	Abnormal runway contact (Defining event)
Landing-flare/touchdown	Loss of control on ground
Landing-flare/touchdown	Nose over/nose down

HISTORY OF FLIGHT

On July 10, 2012, about 2145 Alaska daylight time, a float-equipped Cessna 206 airplane, N206VR, sustained substantial damage while landing on Beluga Lake, Homer, 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 commercial pilot and three passengers sustained minor injuries, and one passenger was fatally injured. Visual meteorological conditions prevailed, and no flight plan had been filed. The flight departed Kenai Municipal Airport, Kenai, Alaska at 2100.

The pilot was taking friends and coworkers to Homer for a planned fishing trip scheduled the following day. The flight originated at the Sixmile Lake Seaplane Base, Anchorage, and it had completed a planned dinner stop in Kenai, before continuing to Homer.

During an on-scene interview with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on July 11, the pilot said his southerly approach to Beluga Lake was normal, but the air was turbulent during the descent. He estimated the wind conditions at Beluga Lake to be 130 degrees, at 10 knots, with peak gust between 12 to 14 knots. The pilot reported that while landing to the south, just after touchdown, a gust of wind lifted the left wing, and the right wing struck the water. The airplane nosed over abruptly, and the cabin immediately filled with cold lake water.

During a separate on-scene interview with the NTSB IIC on July 11, a passenger that was in a second row seat, on the right side of the airplane, reported that he and three other occupants struggled to escape the sinking wreckage through the aft, right-side door, but it was difficult to open since the airplane's flaps were in the down position, which blocked the upper portion of the door. He said that eventually he was able to force the door open slightly, and then he and the other three occupants were able to escape the submerged airplane through a 10 to 12-inch gap in the doorway.

Once free of the cabin, the passenger climbed atop the submerged and inverted fuselage, and used his feet and legs to force the door open, breaking the forward portion of the clam shell door free of its hinges. They then attempted to re-enter the fuselage and rescue the remaining passenger, but were unsuccessful.

Rescuers from the Homer Volunteer Fire Department, with assistance from a floatplane responded to the scene, and opened the rear portion of the clam shell door. Once rescuers gained access to the cabin area, they were able to free the unconscious and unresponsive passenger from her third row, left side seat. The passenger was found restrained in her seat, with the seatbelt fastened.

At the time of the accident, a pilot-rated witness standing on the southeastern shoreline of Beluga Lake reported strong and gusty wind conditions, out of the northeast at 20 to 25 knots. He observed the accident airplane on final approach for a southwest, downwind landing. He said, the airplane had a very fast ground speed, and touched down about mid-lake with a slight nose down, left float low attitude. The nose of the left float dug into the water, the left wing struck the water, and the airplane rapidly nosed over.

PERSONNEL INFORMATION

The pilot, age 70, held a commercial pilot certificate with an airplane multi-engine land, airplane single-engine land and instrument rating, and private pilot privileges for airplane single-engine sea. He also held an experimental aircraft authorization to operate an AV-L39 Albatros airplane. His most recent second class medical was issued on June 1, 2012, with the limitations that he must wear corrective lenses, and not valid for any class after June 30, 2013.

According to the Pilot/Operator Aircraft Accident Report, (NTSB Form 6120.1) submitted by the pilot, his total aeronautical experience was about 6,000 flight hours, of which about 125 were in the accident airplane make and model. In the preceding 90 and 30 days prior to the accident, the pilot flew a total of 17.5 and 13.7 flight hours.

AIRCRAFT INFORMATION

The airplane was a 1979 model year, Cessna U206, equipped with EDO 3430 Floats. It was powered by a Continental Motors IO-520-F engine, rated at 300 horsepower at 2700 rpm. The engine was equipped with a three-blade McCauley propeller.

The airplane had a left-side (pilot) door serving the front row seats and a clamshell rear cargo door on the right-side serving the back two rows of seats that doubles as an emergency exit. At the time of the accident the third row, right-side seat was removed.

The most recent annual inspection of the airframe and engine was completed on May 1, 2012, airframe total time of 4,344 hours, engine total time of 2501.1 hours, and engine time since major overhaul of 196 hours.

METEOROLOGICAL INFORMATION

The closest weather reporting facility is Homer Airport, approximately 1 mile east of the

accident site. At 2153, an aviation routine weather report (METAR) at Homer, Alaska, reported wind from 140 degrees, at 14 knots, gusting to 25 knots, visibility, 10 statute miles, broken clouds at 4,800 feet, broken clouds at 6,000 feet, overcast clouds at 7,000 feet, temperature, 53 degrees F; dew point 43 degrees F; altimeter, 29.92 inHG.

WRECKAGE AND IMPACT INFORMATION

On July 11, 2012 recovery crews and divers recovered the wreckage from Beluga Lake.

On July 12, two NTSB investigators, along with two FAA aviation safety inspectors from the Anchorage Flight Standards District Office (FSDO) examined the wreckage. All of the airplanes major components were recovered from the accident site, and control continuity was established to all flight controls.

The forward cabin and passenger compartment was slightly bent and buckled along the upper roof area. The top of the door frame, over the left-side front door was buckled downwards pinching the door in the frame. The structure over the left-side, second row passenger window was buckled inwards, and the window was broken. The empennage 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 left wing had leading edge crushing approximately 6 feet from the wing root to the wing tip. Approximately 14 ½ feet from the wing root the front and rear spars were fractured with the remainder of the wing bent upwards. Accordion style crushing was present at the wing root near the aft wing attach point.

The right wing had leading edge crushing approximately 12 feet from the wing root outboard.

The cowling was crushed upwards and aft consistent with water impact. The engine separated at all four engine mounts and displayed fractures consistent with overload failure. The engine had impact damage to the front and underside.

The engine propeller remained attached to the engine crankshaft. All three propeller blades remained attached to the propeller hub assembly.

The horizontal and vertical stabilizer, elevators and rudder remained attached to the empennage, and were relatively free of impact damage.

The flap jack screw was measured at approximately 6 inches which is consistent with the cockpit flap indication of 30 degrees.

Deformation was noted to the forward most section of both floats. The left float was fractured

approximately 4 feet from the nose of the float, and bent upwards at about a 15 degree angle. The right float was fractured approximately 3 feet from the nose of the float.

No evidence of preimpact mechanical anomalies was found.

MEDICAL AND PATHOLOGICAL INFORMATION

The Alaska State Medical Examiner's Office determined that the cause of death of the 65-year-old passenger was drowning. Significant anatomic diagnoses included a 4x2.5 inch area of subgaleal hemorrhage that was noted in the right parietooccipital region of the skull as well as multiple contusions/abrasions of the face, head and neck.

SURVIVAL ASPECTS

While the passengers reported that they struggled to escape through the "Cargo Door Emergency Exit", it is unlikely, due to the nature of her injuries that the emergency exit contributed to the death of the 65 year old female passenger.

The Cessna 206 Pilot Operating Handbook (POH), in the section titled "Cargo Door Emergency Exit" states, in part: "If it is necessary to use the cargo door as an emergency exit and the wing flaps are not extended, open the forward door and exit. If the wing flaps are extended, open the doors in accordance with the instructions shown on the placard which is mounted on the forward cargo door."

The red placard found on the front cargo door of the accident airplane stated:

EMERGENCY EXIT OPERATIONS

1. ROTATE FORWARD CARGO DOOR HANDLE FULL FORWARD THEN PULL AFT
2. OPEN FORWARD CARGO DOOR AS FAR AS POSSIBLE.
2. ROTATE RED LEVER IN REAR CARGO DOOR FORWARD.
3. FORCE REAR CARGO DOOR FULL OPEN.

Cessna Aircraft Company issued Service Bulletin SEB91-4 on March 22, 1991.

The purpose was to provide a modification for installing a return spring to the aft cargo door latch assembly and luminescent placards for door handle location and operation. The modification was designed to assist crews and passengers in operating the aft cargo door from inside the airplane during night operations. A copy of the Service Bulletin is available in the public docket for this accident.

Transport Canada issued Service Difficulty Alert AL-97-04 on November 16, 1997.

AL-97-04, strongly recommended that all owners and operators of Cessna 206 aircraft incorporate Cessna Service Bulletin SEB91-4; instruct flight crews to brief passengers and

demonstrate the operation of the rear door emergency exit when the flaps are lowered; and ensure flight crews periodically practice the procedure for opening the rear door emergency exit from outside the aircraft when the flaps are lowered. It also recommends that there be no more than four souls onboard for waterborne operations.

Common Wealth of Australia, Civil Aviation Safety Authority, Amendment 3 to AD/CESSNA 206/47 Rear Door Emergency Exit 16/2011 issued on August 5, 2011.

AD/CESSNA 206/47 Rear Door Emergency Exit 16/2011 required, in part. Removal of the existing cargo door “Emergency Exit Operation” placard. Visibly highlighting the location of the red lever in the rear cargo door, and installing a new placard on the forward pillar of the aft door. It also required modifying the cargo door in accordance with Cessna Service Bulletin SEB 91-4. A copy of the Airworthiness Directive is available in the public docket for this accident.

Pilot Information

Certificate:	Commercial	Age:	70, Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	June 1, 2012
Occupational Pilot:	No	Last Flight Review or Equivalent:	June 14, 2011
Flight Time:	6000 hours (Total, all aircraft), 125 hours (Total, this make and model), 5800 hours (Pilot In Command, all aircraft), 17 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N206VR
Model/Series:	U206G	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	U20604872
Landing Gear Type:	Float	Seats:	6
Date/Type of Last Inspection:	May 1, 2012 Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	4344 Hrs as of last inspection	Engine Manufacturer:	CONT MOTOR
ELT:	C91 installed, not activated	Engine Model/Series:	IO 520 SERIES
Registered Owner:	On file	Rated Power:	300 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	PAHO,84 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	21:53 Local	Direction from Accident Site:	80°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Broken / 4800 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	14 knots / 25 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	140°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.92 inches Hg	Temperature/Dew Point:	12°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kenai, AK (PAEN)	Type of Flight Plan Filed:	None
Destination:	Homer, AK (5BL)	Type of Clearance:	None
Departure Time:	21:00 Local	Type of Airspace:	

Airport Information

Airport:	Beluga Lake Seaplane Base 5BL	Runway Surface Type:	Water
Airport Elevation:	25 ft msl	Runway Surface Condition:	Water-choppy
Runway Used:	24	IFR Approach:	None
Runway Length/Width:	3000 ft / 600 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal, 3 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 4 Minor	Latitude, Longitude:	59.639999,-151.501113(est)

Administrative Information

Investigator In Charge (IIC):	Banning, David
Additional Participating Persons:	Patrick W Sullivan; Federal Aviation Administration; Anchorage, AK Jan R Smith; Cessna Aircraft Company; Wichita, KS Jason Lukasik; Continental Motors; Mobile, AL
Original Publish Date:	November 6, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=84268

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).