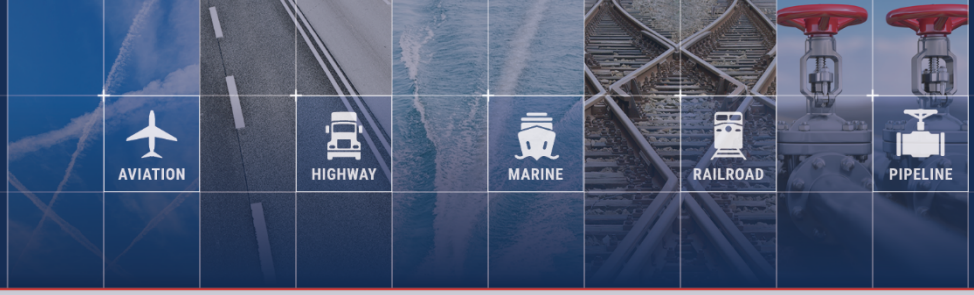

Aviation Investigation Final Report

Location:	Haines, Alaska	**Accident Number:**	ANC16LA005
Date & Time:	November 4, 2015, 13:45 Local	**Registration:**	N4611U
Aircraft:	Cessna 180	**Aircraft Damage:**	Substantial
Defining Event:	Fuel exhaustion	**Injuries:**	1 Serious, 3 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot departed for the personal cross-country flight in the wheel-equipped, single-engine airplane over an area of inland fjords, coastal waterways, and steep mountainous terrain. The pilot estimated that the fuel quantity at departure was about 53 gallons, which should have been sufficient fuel for about 4 hours 40 minutes of flight; the flight was expected to be 1 hour long. The pilot stated that the fuel quantity gauges showed about 48 gallons remaining at departure. However, shortly after takeoff and while en route, both fuel gauges dropped to 0, but the pilot chose to continue to his destination. As the flight neared the destination airport, the engine lost total power, and the pilot's attempts to restore power using the emergency engine restart procedures failed. The pilot was subsequently forced to ditch the airplane in the ocean, and the four occupants swam to shore. The airplane later sank in deep ocean water and was not recovered.

Given the pilot's statement about the fuel on board at departure, it is likely that that the fuel system was compromised forward of the firewall. However, because the airplane could not be examined, the reason for the fuel exhaustion could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

A loss of engine power due to fuel exhaustion for reasons that could not be determined based on available evidence and the pilot's decision to continue the flight after realizing the remaining fuel quantity was near 0.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Decision making/judgment - Pilot
Environmental issues	Water - Contributed to outcome

Factual Information

History of Flight

Enroute-cruise	Fuel exhaustion (Defining event)
Enroute-cruise	Ditching

On November 4, 2015, about 1345 Alaska standard time, a wheel-equipped Cessna 180 airplane, N4611U, is presumed to have sustained substantial damage during impact with ocean waters, about 23 miles southeast of Haines, Alaska, following a reported loss of engine power. The airplane was being operated as a visual flight rules (VFR) cross-country personal flight under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91, when the accident occurred. Of the three occupants on board, the certificated private pilot and two passengers sustained minor injuries, and one passenger sustained serious injuries. Visual meteorological conditions (VMC) prevailed along the route of flight, and no flight plan had been filed. The flight departed the Juneau Airport, Juneau, Alaska, at 1313, en route to the Haines Airport, Haines.

Shortly before the accident, the pilot of another airplane flying in the area reported hearing a "Mayday" call from the pilot of N4611U, stating that the engine had failed near Eldred Rock and he was attempting to land on the east side of Lynn Canal. No further communications were received from the accident airplane after the initial distress call. The pilot of the other airplane then immediately relayed the report to the Federal Aviation Administration (FAA) Air Traffic Control Tower at the Juneau Airport.

The area that the airplane descended into was Lynn Canal, which flows into Icy Strait, and then into the Gulf of Alaska. The area consists of remote inland fjords, coastal waterways, and steep mountainous terrain. The water depth in Lynn Canal can reach about 2,000 feet. The water depth at the location of the accident is estimated to be between 600 and 780 feet.

During an interview with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) and an FAA aviation safety inspector on November 5, a passenger on board the accident airplane stated that after observing the pilot complete what appeared to be a walk around inspection of the airplane, they boarded the airplane and departed Juneau to begin the flight to Haines. She said that while in cruise flight, as the airplane passed the Kensington Mine, they felt a drop similar to turbulence in conjunction with a change in engine noise, and the engine speed began to decrease. The pilot then began pumping the engine fuel primer, which resulted in a momentary increase of engine power, followed by a total loss of power. She said that the pilot searched for a place to land on the beach, but due to the rocks on the beach he elected to ditch in the water near the shoreline. During touchdown on the water, the airplane's main landing gear wheels skipped several times across the water before the airplane nosed over, coming to rest inverted. The passenger stated they were all able to extricate themselves from the airplane and stand on the wing for a short period before the airplane began sinking. All four occupants were able to swim to shore to await rescue.

During a telephone conversation with the NTSB IIC on November 6, the pilot stated that before departing Haines for the 50-minute flight to Juneau, he added more than 38 gallons of fuel to the airplane, which entirely filled both wing mounted fuel tanks. He estimated his normal fuel burn between 10 and 12 gallons per hour, and the flight to Juneau was uneventful. Prior to departing Juneau for Haines the pilot said he did a walk around inspection of the airplane, and did not notice any anomalies. He noted that when the airplane's engine was started, the fuel gauges read between 3/4 and 7/8 full.

The pilot said that after departing from Juneau for the return flight to Haines, and just after passing Eagle Beach, which is about 20 miles northwest of Juneau, he noticed both fuel gauges were now indicating zero. He checked to ensure that all of the circuit breakers were closed. The engine continued to run normally, and as the cloud ceilings improved, the pilot elected to climb the airplane to 2,500 feet above mean sea level (msl). During the climb, he tapped on the face of the fuel gauges and the indication on the right gauge increased between 1/4 and 3/8. The pilot said that he was convinced that the erroneous fuel quantity indication was due to an electrical malfunction, so he elected to continue to Haines. As the flight progressed and it neared Haines, the engine lost all power. The pilot said that he tried to restart the engine, but he was unsuccessful. During the restart attempt, the pilot pumped the engine primer in an attempt to inject fuel directly into the cylinders, and the propeller speed would increase, but the engine would not fully start. At no point was an odor consistent with aviation fuel detected in the cabin of the airplane. Unable to find a safe landing area on the beach, he decided to ditch in the water. He said that during touchdown on the water, the airplane nosed over, and all four occupants had to swim for about 10-15 minutes before reaching the shore.

An alert notice was issued by the FAA Juneau Flight Service Station at 1448, and a search was conducted by personnel from the U.S. Coast Guard and two civilian air carriers.

About 1500, the four occupants were located on a beach on the east side of Lynn Canal by Temsco Helicopters and the U.S. Coast Guard. All four occupants were suffering from hypothermia. Three occupants were taken to Temsco Helicopters, where they were met by an ambulance for transport to the hospital, and one occupant was transported directly to the hospital from the beach.

To date, the airplane has not been recovered; therefore a wreckage examination is not possible. Should the airplane be recovered, a detailed examination will occur.

The closest weather reporting facility is Haines Airport, Haines, about 23 miles northwest of the accident site. At 1254, an aviation routine weather report (METAR) from the Haines Airport was reporting in part: Wind, 290 degrees at 15 knots, gusting to 20 knots; sky condition, clear; visibility, 10 statute miles; temperature 39 degrees F; dewpoint 30 degrees F; altimeter, 29.89 inHg.

TESTS AND RESEARCH

According to the pilot, he departed Haines with full fuel tanks; about 65 gallons total and estimated the fuel consumption during the flight from Haines to Juneau to be about 12 gallons, which would equate to about 53 gallons remaining. Based on a 12 gallon per hour fuel consumption rate, 53 gallons would be equivalent to about 4 hours and 40 minutes of remaining endurance (time for fuel exhaustion).

The distance between Juneau and Haines is about 66 nautical miles, and the estimated flight time was about 1 hour. The estimated fuel remaining once the flight reached its final destination of Haines would have been about 41 gallons.

Pilot Information

Certificate:	Private	**Age:**	56,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	August 12, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 23, 2014
Flight Time:	(Estimated) 158 hours (Total, all aircraft), 73 hours (Total, this make and model), 101 hours (Pilot In Command, all aircraft), 46 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N4611U
Model/Series:	180	**Aircraft Category:**	Airplane
Year of Manufacture:	1963	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	18051311
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	August 11, 2015 Annual	**Certified Max Gross Wt.:**	2650 lbs
Time Since Last Inspection:	4 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	7464 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	O-470 SERIES
Registered Owner:	On file	**Rated Power:**	230 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:	PAHN,16 ft msl	**Distance from Accident Site:**	23 Nautical Miles
Observation Time:	21:54 Local	**Direction from Accident Site:**	332°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots / 20 knots	**Turbulence Type Forecast/Actual:**	/ Terrain-Induced
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/ Light
Altimeter Setting:	29.88 inches Hg	**Temperature/Dew Point:**	4°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	JUNEAU, AK (JNU)	**Type of Flight Plan Filed:**	None
Destination:	HAINES, AK (HNS)	**Type of Clearance:**	VFR
Departure Time:		**Type of Airspace:**	Class E

Airport Information

Airport:	HAINES HNS	**Runway Surface Type:**	Water
Airport Elevation:	15 ft msl	**Runway Surface Condition:**	Water-choppy
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 Serious, 2 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 3 Minor	**Latitude, Longitude:**	58.901668,-135.152496

Administrative Information

Investigator In Charge (IIC):	Williams, David
Additional Participating Persons:	Greg Harrel; FAA; Juneau, AK
Original Publish Date:	July 26, 2017
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=92287