



Aviation Investigation Final Report

Location:	Fairbanks, Alaska	Accident Number:	ANC18LA073
Date & Time:	September 27, 2018, 15:00 Local	Registration:	N70391
Aircraft:	Cessna A185	Aircraft Damage:	Substantial
Defining Event:	Fuel exhaustion	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that, before departure for the 24-minute roundtrip flight, the airplane was refueled; 25 gallons of useable fuel was on board the airplane. The fuel quantity was confirmed with a custom-made fuel dipstick before departure. After landing at a lake, the pilot departed for the return flight. While in level cruise flight, at an altitude of about 1,000 ft above ground level (agl), the engine lost total power. In an effort to restore power, the pilot switched fuel tanks and activated the fuel boost pump to no avail. He performed an emergency descent to a landing on a small lake, during which the airplane impacted trees, the floats separated from the fuselage, and the airplane came to rest partially submerged with substantial damage to the wings and fuselage.

Postaccident examination revealed that both left and right fuel tanks were intact; however, the fuel bladders were loose in the tank cavity with wrinkles present. About 2 gallons of fuel were recovered from the fuel tanks. The fuel line between the fuel pump and the fuel control unit was removed, and about 2 tablespoons of fluid that was light blue in color and consistent with 100LL AvGas was recovered. The fuel line between the fuel control unit and fuel manifold was removed, and no fluid was present. Examination of the engine revealed no evidence of malfunctions or anomalies.

The airplane was equipped with optional long-range fuel tanks. According to the owner's manual, the total unusable fuel for an aircraft equipped with long-range fuel tanks is 6 gallons.

The investigation was unable to determine if the loose fuel bladders were a result of the accident or recovery and what impact they would have had on fuel quantity and unusable fuel. However, given the lack of malfunctions or anomalies noted during the engine examination and the lack of fluid present in the fuel lines, it is likely that the engine lost power due to fuel exhaustion.

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 due to fuel exhaustion.

Findings

Aircraft	Fuel - Fluid level
Environmental issues	Tree(s) - Contributed to outcome

Factual Information

History of Flight

Enroute-cruise	Fuel exhaustion (Defining event)
Emergency descent	Off-field or emergency landing

On September 27, 2018, about 1500 Alaska daylight time, a float-equipped Cessna A185F airplane, N70391, sustained substantial damage during a forced landing following a total loss of engine power while in level cruise flight near Fairbanks, Alaska. The airline transport pilot was not injured. The airplane was registered to and operated by the pilot as a 14 *Code of Federal Regulations* Part 91 visual flight rules (VFR) flight. Visual meteorological conditions prevailed, and no flight plan had been filed. The flight departed Chena Marina Airport (AK28), Fairbanks, Alaska for an unknown lake in the Minto Flats near Fairbanks, Alaska with a planned return to AK28.

According to the pilot, prior to departure for the 24-minute round trip flight, the airplane was refueled and a total of 25 gallons of useable fuel was on board the airplane. The fuel quantity was confirmed with a custom-made fuel dipstick prior to departure. After landing at an unknown lake in the Minto Flats, the pilot departed for the return leg to AK28. While in level cruise flight, at an altitude of about 1,000 feet above ground level (AGL), the engine lost all power. In an effort to restore power, the pilot switched fuel tanks and activated the fuel boost pump. When power was not restored, he performed an emergency descent to a small lake. During the emergency descent and landing, the airplane impacted trees, the floats separated from the fuselage and the airplane came to rest partially submerged, resulting in substantial damage to the wings and fuselage.

A postaccident examination of the airframe and engine revealed that both left and right fuel tanks were intact and about 35 gallons of fluid was drained from the tanks. Of that 35 gallons, about 2 gallons of fuel was recovered. Examination of the fuel bladders revealed that both left and right bladders were loose in the tank cavity with wrinkles present.

The fuel line between the fuel pump and the fuel control unit was removed and about 2 tablespoons of fluid light blue in color consistent with 100LL AvGas was recovered. The fuel line between the fuel control unit and fuel manifold was removed and no fluid was present.

The airplane was equipped with optional long-range fuel tanks. According to the Cessna 185 Owner's Manual, the total unusable fuel for an aircraft equipped with long range fuel tanks is 6 gallons.

Examination of the Continental IO-520 engine revealed no anomalies, or evidence of malfunction in any of the accessories. The cylinders, piston, valve train and crankshaft, and other internal components were all without evidence of anomaly or malfunction.

Pilot Information

Certificate:	Airline transport; Commercial	Age:	27,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	May 4, 2018
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	July 5, 2018
Flight Time:	3150 hours (Total, all aircraft), 150 hours (Total, this make and model), 1828 hours (Pilot In Command, all aircraft), 242 hours (Last 90 days, all aircraft), 238 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N70391
Model/Series:	A185 F	Aircraft Category:	Airplane
Year of Manufacture:	1973	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	18502144
Landing Gear Type:	Tailwheel	Seats:	6
Date/Type of Last Inspection:	September 27, 2017 Annual	Certified Max Gross Wt.:	3350 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	4389.3 Hrs as of last inspection	Engine Manufacturer:	Continental
ELT:	C91A installed, not activated	Engine Model/Series:	IO-520-D
Registered Owner:		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:	PAFA	Distance from Accident Site:	
Observation Time:	22:53 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Few / 6500 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	80°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.31 inches Hg	Temperature/Dew Point:	11°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fairbanks, AK	Type of Flight Plan Filed:	None
Destination:	Fairbanks, AK	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	64.760559,-148.596389(est)

Administrative Information

Investigator In Charge (IIC):	Banning, David
Additional Participating Persons:	Andrew Noble; Federal Aviation Administration; Juneau, AK
Original Publish Date:	June 29, 2020
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98392

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).