Aviation Investigation Final Report

Location:	Anchorage, Alaska	**Accident Number:**	ANC18LA038
Date & Time:	May 23, 2018, 16:30 Local	**Registration:**	N3748
Aircraft:	JAMES WIEBE BELITE PIPPER	**Aircraft Damage:**	Substantial
Defining Event:	Fuel related	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot stated that he was conducting a postmaintenance flight in the experimental amateur-built airplane in the traffic pattern. While landing, he applied full throttle to go around, but when the airplane was about 150 ft above ground level, the engine lost total power. During the forced landing, the airplane landed long, bounced, descended into a fence, and came to rest inverted, which resulted in substantial damage to the fuselage and both wings.

The engine had been altered from its original state by the addition of an after-market, high-displacement cylinder/piston kit to increase performance and horsepower of the engine. The kit, as installed, replaced the crankshaft, camshaft, engine gaskets, cylinders, and pistons. The pilot stated that he had been discussing with the kit manufacturer a problem with fuel flow to the engine and, thus, altered the fuel supply system with larger fuel lines. No modifications were made to the carburetors.

Because the carburetors were not altered, it is likely that the engine was not receiving enough fuel for full power operation, which resulted in a total loss of engine power during the go-around attempt.

Probable Cause and Findings

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

An inadequate fuel supply to the engine, which resulted in a total loss of engine power and subsequent impact with terrain.

Findings

Aircraft	Fuel - Not specified
Aircraft	Fuel distribution - Design

Factual Information

History of Flight

Approach-VFR go-around	Fuel related (Defining event)
Approach-VFR go-around	Collision with terr/obj (non-CFIT)

On May 23, 2018, about 1630 Alaska daylight time, a Belite Pipper, experimental amateur built airplane, N3748, sustained substantial damage during a forced landing, following a total loss of engine power at Lake Hood Seaplane Base (PLHD), Anchorage, Alaska. The airplane was registered to a private individual and operated by the pilot as a 14 *Code of Federal Regulations* (CFR) Part 91 visual flight rules flight when the accident occurred. The private pilot sustained minor injuries. Visual meteorological conditions prevailed, and no flight plan had been filed. The flight departed PLHD for a local flight in the airport traffic pattern.

According to the pilot, the accident flight was the first flight since maintenance was performed on the airplane's fuel system. The pilot stated that he departed Runway 32 and entered a right downwind to remain in the traffic pattern. While on final approach to Runway 32, he elected to execute a go-around. After advancing the throttle, when about 150 ft above ground level (AGL), all engine power was lost. He said the engine quit like there was no fuel. He did not see or hear anything that would be consistent with a mechanical failure.

During the forced landing, the pilot attempted to land back on the runway, but touched down between the runway end lights, bounced, and became airborne again. With no remaining runway surface available, the airplane descended into a fence and came to rest inverted in marshy terrain about 375 ft from the departure end of Runway 32. The airplane sustained substantial damage to the fuselage and both wings.

A post-accident examination of the Rotax 912 UL2 engine was performed by the NTSB investigator-in-charge along with another NTSB investigator. After removing the rocker box covers, all rocker arms exhibited discoloration consistent with high heat exposure. When the number 4 cylinder was removed, the valve was discovered fractured and a witness mark was present consistent with piston contact.

The engine had been altered from its original state by the addition of an Edge Performance Big Bore Kit. The kit, considered a high displacement cylinder/piston kit, was to increase performance and horsepower of the engine. As a result of the modification, the fuel requirements increased over that of a stock 912 UL2 engine. As installed, the kit replaced the crankshaft, camshaft, engine gaskets, cylinders and pistons. The fuel supply system remained the same and no modifications were made to the carburetors.

The pilot stated in a phone conversation that he had been discussing with the kit manufacturer a problem with fuel flow to the engine, which is why he was performing maintenance on it the day before and day of the accident. He said he had replaced all fuel lines and fittings with larger fuel lines but made no

changes to the carburetors. During subsequent ground tests, fuel flow at the carburetors was measured between 1.8 – 2.0 psi.

Prior to the above-mentioned maintenance, after allowing the engine to warm up, when he would apply full power, the engine would quit and the carburetor bowls would be empty. The pilot stated that since the engine continued to run after changing the fuel lines, the "ground tests seemed good with the exception of the fuel pump pressure."

Pilot Information

Certificate:	Private	**Age:**	59,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	BasicMed None	**Last FAA Medical Exam:**	April 3, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 26, 2017
Flight Time:	2076 hours (Total, all aircraft), 222 hours (Total, this make and model), 2007 hours (Pilot In Command, all aircraft), 66 hours (Last 90 days, all aircraft), 46 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	JAMES WIEBE	**Registration:**	N3748
Model/Series:	BELITE PIPPER NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:	2017	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	001
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	April 27, 2018 Condition	**Certified Max Gross Wt.:**	1232 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	156 Hrs as of last inspection	**Engine Manufacturer:**	Rotax
ELT:	C126 installed, not activated	**Engine Model/Series:**	912UL2
Registered Owner:		**Rated Power:**	122 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:	PALH,90 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	23:53 Local	**Direction from Accident Site:**	172°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	18 knots / 26 knots	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	29.76 inches Hg	**Temperature/Dew Point:**	12°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Anchorage, AK (LHD)	**Type of Flight Plan Filed:**	None
Destination:	Anchorage, AK (LHD)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class D

Airport Information

Airport:	LAKE HOOD LHD	**Runway Surface Type:**	Dirt
Airport Elevation:	79 ft msl	**Runway Surface Condition:**	Holes;Rough;Soft;Standing water;Vegetation;Wet
Runway Used:	32	**IFR Approach:**	None
Runway Length/Width:	2200 ft / 75 ft	**VFR Approach/Landing:**	Forced landing;Go around;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	61.190277,-149.969451

Administrative Information

Investigator In Charge (IIC):	Williams, David
Additional Participating Persons:	Bruce Cummings; FAA; Anchorage, AK
Original Publish Date:	June 3, 2020
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=97311