Aviation Investigation Final Report

Location:	Jacksonville, Florida	**Accident Number:**	WPR18LA183
Date & Time:	June 23, 2018, 14:40 Local	**Registration:**	N5682B
Aircraft:	Cessna 182	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Skydiving		

Analysis

The commercial pilot reported that he had been conducting skydiving support flights on the day of the accident. Before his first flight, the airplane had about 23 gallons of fuel onboard. He flew the airplane for about 4.0 hours and then added about 18 gallons of fuel to the airplane. He flew three more local flights and then made a second fuel stop and added 14 gallons of fuel to the airplane. The pilot did not conduct fuel consumption checks to estimate the engine's fuel consumption rate nor did he check the total fuel quantity in the tanks after the first and second refuelings. After making two more local flights and while on final approach to the airport, the engine lost total power, and the pilot conducted a forced landing to a residential area, during which the right elevator and right wing sustained substantial damage.

After the accident, no fuel was found in the wing tanks; however, the airplane had come to rest on its right side with the right-wing tank breached and the left-wing tank in a position to allow drainage, which likely allowed any remaining fuel to leak out into the ground. Further, the original carburetor engine had been replaced with a fuel-injected engine and wing extensions had been added to the airplane. Performance charts for the airplane did not account for these changes. Therefore, the amount of fuel onboard the airplane when the engine lost power could not be determined. The engine was test-run, and it started and ran successfully. The reason for the loss of engine power could not be determined based on the available evidence.

Probable Cause and Findings

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

A total loss of engine power for reasons that could not be determined due to insufficient evidence.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Emergency descent	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Emergency descent	Collision with terr/obj (non-CFIT)

On June 23, 2018, about 1440 eastern daylight time, a Cessna 182, N5682B, struck three vehicles following a complete loss of engine power and subsequent forced landing to a residential area about one mile east of Herlong Recreational Airport (HEG), Jacksonville, Florida. The commercial pilot was not injured. The airplane received substantial damage to the right elevator and the right wing. The airplane was registered to Jumpstart Skydiving LLC and operated by the pilot as a title 14 *Code of Federal Regulations* Part 91 skydiving flight. Visual meteorological conditions were reported in the area about the time of the accident and no flight plan was filed. The local flight originated from HEG at 1400.

The pilot reported that after delivering four skydivers, he returned to the airport. On final approach, at about 1 mile from HEG at 2,500 ft above ground level (agl), the engine lost power. He realized he did not have sufficient altitude to clear a stand of trees and landed on a road in a residential area. Upon landing, the airplane struck three vehicles then came to rest on its right side. The pilot stated he did not know of any mechanical issues that may have precipitated this accident.

On the day of the accident the pilot received the airplane with about 22-24 gallons of fuel on board according to his fuel quantity check, which he accomplished using a dip stick. He then flew three local flights, one up to 10,000 ft msl, the second up to 11,500 ft msl, and the third up to 10,000 ft msl. He refueled and put 18 gallons of fuel in the airplane, but did not check the total fuel quantity with the dipstick. He then flew three more local flights, the first up to 11,500 ft msl, the second up to 10,000 ft msl, and the third up to 11,500 ft msl. He made a second fuel stop and put in 14 gallons of fuel, but again, did not check the total fuel quantity with the dip stick. He then made two more local flights, the first up to 10,000 ft msl, and the second and accident flight up to 11,500 ft msl. The pilot flew a total of eight local flights, four up to 11,500 feet msl, and four up to 10,000 ft msl. The total flight time amounted to four hours. The pilot did not perform a fuel consumption check during any of the eight flights. He stated that to prevent shock cooling the engine, he would descend with power applied, not at idle. He also stated that on the accident leg, he gave way to an airplane that was also landing at HEG.

Pilot Information

Certificate:	Commercial	**Age:**	40,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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	March 31, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	June 24, 2017
Flight Time:	(Estimated) 1286 hours (Total, all aircraft), 609 hours (Total, this make and model), 1136 hours (Pilot In Command, all aircraft), 44 hours (Last 90 days, all aircraft), 31 hours (Last 30 days, all aircraft), 4.5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N5682B
Model/Series:	182	**Aircraft Category:**	Airplane
Year of Manufacture:	1956	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	33682
Landing Gear Type:	Tricycle	**Seats:**	1
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	2651 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Cont Motor
ELT:	Not installed	**Engine Model/Series:**	IO-470 SERIES
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

The airplane was manufactured in 1956 and underwent several modifications to date. The original Continental O-470-L engine was replaced with a Continental IO-470. This normally fuel injected engine was modified to use a carburetor, in accordance with supplemental type certificate number: SA00562NY. The airplane was further modified to include Monarch fuel tanks, speed brakes, shoulder harness and wing extensions. After the modifications, the wings had 12.4 additional square feet of surface area. The maximum gross weight was increased from 2,550 to 2,950 pounds and the empty weight was reported as 1,592 pounds.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KHEG,87 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	17:35 Local	**Direction from Accident Site:**	275°
Lowest Cloud Condition:	Scattered / 4600 ft AGL	**Visibility**	9 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	32°C / 22°C
Precipitation and Obscuration:			
Departure Point:	Jacksonville, FL (HEG)	**Type of Flight Plan Filed:**	
Destination:	Jacksonville, FL (HEG)	**Type of Clearance:**	None
Departure Time:	14:00 Local	**Type of Airspace:**	Class E

The Meteorological Aerodrome Report for HEG, located about one mile east of the accident site, about the time of the accident reported an outside air temperature of 33°, which is 18° higher than the standard temperature of 15° C for sea level. The dew point was reported as 22°C. These values were plotted on a carburetor icing chart and placed the carburetor icing probability at light, during cruise and descent.

Airport Information

Airport:	Herlong Recreational HEG	**Runway Surface Type:**	Asphalt
Airport Elevation:	85 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	29	**IFR Approach:**	None
Runway Length/Width:	3500 ft / 100 ft	**VFR Approach/Landing:**	Traffic pattern

Herlong Recreational Airport (HEG) is an uncontrolled, public airport located 8 miles south-west of Jacksonville, Florida. It is at 85.9 ft above sea level and has four runways, 7/25 and 11/29. The pilot was attempting to land on runway 29 when the accident occurred.

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:**	30.276388,-81.786392(est)

Fuel from the airplane was unavailable for testing. On the day of the accident, at the accident site, a representative from the FAA flight standards district office checked for fuel in the fuel tanks and found none, however, the airplane had come to rest on its right side with the right-wing tank breached and the left-wing tank in a position to allow drainage through the fuel supply into the breached right-wing tank. Additionally, the pilot stated in the past he had seen fuel coming out of an area around the vent and inside of the strut while he was in a left-hand turn.

On August 8, 2018, the engine was tested at the recovery facility. The engine ran successfully, and the magneto's tested within the acceptable standards.

Administrative Information

Investigator In Charge (IIC):	Salazar, Fabian
Additional Participating Persons:	Robert Melcher; Orlando FSDO; Orlando, FL
Original Publish Date:	April 30, 2019
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=97631