Aviation Investigation Final Report

Location:	Sand Springs, Oklahoma	**Accident Number:**	CEN16LA164
Date & Time:	April 21, 2016, 11:40 Local	**Registration:**	N6870N
Aircraft:	Mooney M20C	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot did not confirm the amount of fuel onboard the airplane during the preflight inspection, but later reported that the fuel gauges indicated that the left tank was about 1/4 full and that the right tank was about 1/3 full. He then departed on the airplane's first flight in nearly one year. During the initial climb after takeoff, the airplane experienced a total loss of engine power. Only a few drops of fuel were recovered from the fuel pump and gascolator, but the fuel revealed no evidence of water or other contamination. The fuel tanks were not compromised during impact. No fuel was observed in the left tank, and 10 to 12 ounces were drained from that sump. The right tank appeared to contain several gallons of fuel; however, the amount could not be quantified. The fuel selector was positioned to the left tank. The pilot reported that he relied on bad information from the fuel gauges and overestimated the amount of fuel available in the left tank; therefore, the loss of engine power is consistent with fuel starvation due to the pilot's selection of the left fuel tank, which contained an unusable amount of fuel.

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 due to fuel starvation. Contributing to the accident was the pilot's inadequate preflight inspection.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Preflight inspection - Pilot

Factual Information

History of Flight

Initial climb	Loss of engine power (total) (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

On April 21, 2016, about 1140 central daylight time, a Mooney M20C, N6870N, was destroyed when it impacted trees and terrain after the engine lost power shortly after takeoff from William R. Pogue Municipal Airport (OWP), Sand Springs, Oklahoma. The pilot sustained minor injuries. The airplane was registered to and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a personal flight. Visual meteorological conditions (VMC) prevailed and no flight plan had been filed. The airplane departed OWP and was en route to Ponca City Regional Airport (PNC), Ponca City, Oklahoma, when the accident occurred.

During the preflight inspection, the pilot noted there was no contamination or water in the fuel, and the fuel was blue in color, similar to 100LL. He did not dip-stick the fuel tanks, but the [fuel gauges] "indicated fuel on board was ¼ tank on left and 1/3 on right, for a total of 15-16 gallons."

According to the pilot's accident report, there was complete loss of engine power during initial climb. The pilot made a "mayday" emergency radio call and attempted to turn back towards the airport. The airplane descended and impacted trees less than a mile northeast of OWP and came to rest inverted. Both wings, ailerons, fuselage, empennage, and tail surfaces were extensively damaged. Several witnesses heard the pilot's radio call and responded to the scene. Emergency medical personnel arrived shortly thereafter and extricated the pilot from the wreckage.

Federal Aviation Administration (FAA) inspectors from the Oklahoma City, Oklahoma, Flight Standards District Office (FSDO) went to the scene and examined the airplane. According to a conversation with the airworthiness inspector, the fuel tanks had not been compromised. Although the airplane had just received an annual inspection, it had not been flown for nearly a year and the fuel was at least that old. Examination of the fuel in the fuel pump and gascolator revealed only a few drops of fuel and no evidence of water or other contamination. No visible fuel was observed in the left fuel tank, and 10 to 12 ounces of fuel was drained from that sump. The right fuel tank contained a few gallons of fuel, but he was unable to drain/measure due to the wing resting on the hangar floor. The fuel selector was positioned on the left fuel tank.

In an e-mail dated May 12, 2016, the pilot said he thought the cause of the loss of engine power was due to fuel starvation because he was operating on bad information from the fuel gauges and overestimated the amount of fuel available in the left tank.

Pilot Information

Certificate:	Private	**Age:**	44,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	March 23, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 4, 2014
Flight Time:	(Estimated) 437 hours (Total, all aircraft), 297 hours (Total, this make and model), 393 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N6870N
Model/Series:	M20C	**Aircraft Category:**	Airplane
Year of Manufacture:	1968	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	680148
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	April 21, 2016 Annual	**Certified Max Gross Wt.:**	2575 lbs
Time Since Last Inspection:	0 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4994 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	C91 installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-360-A1D
Registered Owner:	On file	**Rated Power:**	180 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:	KTUL,650 ft msl	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	87°
Lowest Cloud Condition:	Few / 4000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	29.96 inches Hg	**Temperature/Dew Point:**	21°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Sand Springs, OK (OWP)	**Type of Flight Plan Filed:**	None
Destination:	Ponca City, OK (PNC)	**Type of Clearance:**	None
Departure Time:	11:40 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	William R. Pogue Municipal OWP	**Runway Surface Type:**	Asphalt
Airport Elevation:	892 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	35	**IFR Approach:**	None
Runway Length/Width:	5799 ft / 100 ft	**VFR Approach/Landing:**	Forced landing

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:**	36.186668,-96.150001(est)

Administrative Information

Investigator In Charge (IIC):	Latson, Thomas
Additional Participating Persons:	Aaron Varland; FAA Oklahoma City FSDO; Oklahoma City, OK Todd A Evans; FAA Oklahoma City FSDO; Oklahoma City, OK
Original Publish Date:	September 11, 2018
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=93058