Aviation Investigation Final Report

Location:	Fremont, Michigan	**Accident Number:**	CEN13LA286
Date & Time:	May 18, 2013, 14:00 Local	**Registration:**	N9075T
Aircraft:	Cessna 182C	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Skydiving		

Analysis

The pilot reported that the purpose of the accident flight was to release four skydivers at 10,500 feet mean sea level (msl). The pilot reported that, before the accident flight, he used a calibrated dipstick to determine how much fuel was on board the airplane. The left and right fuel tanks contained 10 and 5 gallons of fuel, respectively. He noted that the skydiving flight typically took a single pass over the landing zone, which required about 20 to 25 minutes of flight time and 8 gallons of fuel; however, the accident flight required two passes over the landing zone at 10,500 feet msl, which added about 2 to 5 minutes to the accident flight. He reported that the flight climbed to 10,500 feet msl and the skydivers were released without any anomalies or malfunctions with the airplane. The pilot immediately initiated a descent to reenter the traffic pattern at the departure airport, and the airplane experienced a loss of engine power while on the downwind leg. A helicopter was approaching the airport at a similar altitude, which delayed the turn onto the base leg. Believing he had insufficient altitude to reach the runway, the pilot performed a forced landing to a field. The nose landing gear collapsed shortly after touchdown, and the airplane subsequently nosed over. Following the accident, the pilot reported to several individuals that the airplane "ran out of fuel," which resulted in the loss of engine power while in the traffic pattern. Additionally, the pilot stated that there were no mechanical issues with the engine before the loss of engine power. During a postaccident examination, 3.5 gallons of fuel were recovered from the airplane. According to the Pilot Operating Handbook, the airplane has 3 gallons of unusable fuel while operating in level flight and 10 gallons of unusable fuel while in flight attitudes other than level flight; therefore, the airplane did not have enough fuel for the accident flight.

Probable Cause and Findings

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

The pilot's improper preflight planning, which resulted in a loss of engine power due to fuel exhaustion while in the traffic pattern.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Fuel planning - Pilot

Factual Information

History of Flight

Approach-VFR pattern downwind	Fuel exhaustion
Approach-VFR pattern downwind	Loss of engine power (total) (Defining event)
Landing	Off-field or emergency landing
Landing-landing roll	Nose over/nose down

On May 18, 2013, at 1400 eastern daylight time, a Cessna model 182C airplane, N9075T, was substantially damaged during a forced landing near the Fremont Municipal Airport (KFFX), Fremont, Michigan. The commercial pilot was not injured. The airplane was registered to a private individual and operated by Premier Skydiving, under the provisions of 14 Code of Federal Regulations Part 91, without a flight plan. Day visual meteorological conditions prevailed for the skydiving flight that departed KFFX at 1330.

The pilot reported that the purpose of the accident flight was to release four skydivers at 10,500 feet mean sea level (msl). He had flown a similar flight earlier that day to the same altitude without any anomalies with the airplane. Before the accident flight, he used a calibrated dipstick to determine how much fuel was on board the airplane. The left fuel tank contained 10 gallons of fuel and the right fuel tank contained 5 gallons of fuel. The pilot noted that the skydiving flight to 10,500 feet msl typically took 20-25 minutes and required 8 gallons of fuel.

The pilot reported that the flight climbed to 10,500 feet msl without any anomalies or malfunctions with the airplane. Typically, all of the skydivers exit the airplane during a single pass over the landing zone; however, the accident flight required two passes over the landing zone which added an additional 2-5 minutes to the accident flight. After releasing the final skydivers on the second pass, the pilot immediately initiated a descent to reenter the traffic pattern at KFFX. He stated that his descent was made with 15-inches of engine manifold pressure at 2,200 rpm, which resulted in a 1,000-1,500 feet per minute descent rate at 150 miles per hour. After entering the traffic pattern for runway 9 (3,502 feet by 75 feet, asphalt) he applied carburetor heat about midfield on the downwind leg. The pilot reported there were no anomalies with engine operation immediately after the application of carburetor heat; however, the airplane experienced a loss of engine power before the turn to the base leg.

The pilot reported seeing a helicopter approaching the airport from the west at a similar altitude to his airplane. The pilot stated that he delayed his turn onto base leg because the helicopter would have conflicted with a normal traffic pattern. He attempted to radio the helicopter pilot that he needed to land immediately, but the airplane was already in a position where a glide to the runway was not possible due to insufficient altitude. The pilot elected to make a forced landing to an agricultural field located adjacent to the airport property. The nose landing gear collapsed shortly after touchdown and the airplane subsequently nosed over. The engine firewall and wings were substantially damaged during the accident sequence.

The Federal Aviation Administration (FAA) type certificate data sheet (TCDS) and pilot operating handbook (POH) for the Cessna model 182C lists a total fuel capacity of 65 gallons, evenly distributed between two wing fuel tanks. The airplane has 55 gallons of usable fuel (10 gallons unusable) available in all flight attitudes; however, an additional 3.5 usable gallons per wing fuel tank is available while the airplane operates in level flight.

A FAA maintenance inspector examined the airplane following the accident. The airplane remained upside down for two days before it was recovered to an upright attitude to facilitate the postaccident examination. The fuel tank selector valve was found positioned to draw fuel from both wing tanks. The FAA inspector reported that 2.5 gallons of fuel were recovered from the left wing fuel tank and 1.0 gallon of fuel was recovered from the right wing fuel tank. The FAA inspector did not identify any preimpact mechanical malfunctions or failures that would have precluded normal operation of the engine.

Following the accident, local law enforcement attempted to interview the pilot, who declined to be interviewed without legal representation. A sheriff deputy later interviewed the airport manager who was a first responder to the accident site. The airport manager reported that the pilot told him that he had run out of fuel while maneuvering to land. When interviewed by the National Transportation Safety Board (NTSB) investigator-in-charge, the pilot stated that the airplane "ran out of fuel" which resulted in a loss of engine power while in the traffic pattern. Additionally, the pilot said that there were no mechanical issues with the engine before the loss of engine power.

At 1354, the KFFX automated surface observing system reported the following weather conditions: wind 120 degrees true at 3 knots, visibility 10 miles, sky clear, temperature 25 degrees Celsius, dew point 6 degrees Celsius, altimeter setting 30.06 inches of mercury.

Pilot Information

Certificate:	Commercial	**Age:**	59,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	June 9, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	April 1, 2012
Flight Time:	2984 hours (Total, all aircraft), 2480 hours (Total, this make and model), 2700 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N9075T
Model/Series:	182C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	52975
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 20, 2012 100 hour	**Certified Max Gross Wt.:**	2650 lbs
Time Since Last Inspection:	87 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4429 Hrs as of last inspection	**Engine Manufacturer:**	Teledyne Continental Motors
ELT:	C91A installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-470-L
Registered Owner:	William A. Schram	**Rated Power:**	230 Horsepower
Operator:	Premier Skydiving	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KFFX,772 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	13:54 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	120°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.05 inches Hg	**Temperature/Dew Point:**	25°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fremont, MI (KFFX)	**Type of Flight Plan Filed:**	None
Destination:	Fremont, MI (KFFX)	**Type of Clearance:**	None
Departure Time:	13:30 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Fremont Municipal Airport KFFX	**Runway Surface Type:**	Asphalt
Airport Elevation:	772 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	09	**IFR Approach:**	None
Runway Length/Width:	3502 ft / 75 ft	**VFR Approach/Landing:**	Forced landing;Traffic pattern

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:**	43.439445,-85.995002(est)

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	John Farnham; Federal Aviation Administration, Grand Rapids FSDO; Grand Rapids, MI
Original Publish Date:	December 11, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=86941