Aviation Investigation Final Report

Location:	Holland, Michigan	**Accident Number:**	CEN15LA332
Date & Time:	July 19, 2015, 19:05 Local	**Registration:**	N5607F
Aircraft:	ALON A2	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he visually checked the airplane's fuel tanks before departure but that he did not measure the amount of fuel. He added that the fuel flow meter showed that the airplane had 9.7 gallons of fuel at takeoff. After takeoff, the pilot flew to a city about 70 miles away, took some photographs over another city, and then conducted a touch-and-go at another airport. Shortly after, he turned the airplane north, and, about 30 seconds later, the engine lost power and then "quit." During the subsequent forced landing on a beach, the engine sustained damage, and the fuselage and right wing spar sustained substantial damage.

An on-scene examination of the wreckage revealed no apparent fuel spills, leaks, or stains nor were any found in the hangar after the airplane was recovered. Due to the damage, the engine could not be test run. When examined, the gascolator was found nearly filled with fuel; the total recovered fuel on board was estimated to be about 1/2 gallon. It is likely that most of the fuel was used during the flight and that the small amount of fuel remaining was not sufficient to reach the engine while the airplane was turning, which led to the engine losing power. Given the lack of fuel, the pilot likely did not conduct adequate preflight fuel planning to ensure that there was sufficient fuel for the flight and that required reserves (30 minutes) for visual flight rules flight remained.

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 during cruise flight. Contributing to the accident was the pilot's inadequate preflight fuel planning.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Fuel planning - Pilot
Environmental issues	Soft surface - Contributed to outcome

Factual Information

History of Flight

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

On July 19, 2015, about 1905 eastern daylight time, an Alon A2 single-engine airplane, N5607F, impacted soft terrain during a forced landing following a total loss of engine power near Holland, Michigan. The private pilot, who was the sole occupant, sustained minor injuries. The airplane sustained substantial damage. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, which did not operate on a flight plan. The flight originated from the West Michigan Regional Airport (BIV), near Holland, Michigan, about 1900, and was destined for the Grand Haven Memorial Airpark (3GM), near Grand Haven, Michigan.

The pilot indicated that he visually checked the airplane's fuel tanks before departure but that he did not measure the amount of fuel. According to his accident report, the airplane had 9.7 gallons of fuel at its last takeoff. He reported that he flew south from Grand Haven, Michigan, to St. Joseph, Michigan (which was 70 miles away), then turned north to take photographs over Fenville, Michigan. He proceeded to BIV and conducted a touch-and-go-landing. After taking off from BIV, he turned the airplane from a west heading to a north heading to return to 3GM. After completing the turn, the airplane lost engine power, and the engine "quit" about 30 seconds later. He said that there was low-level turbulence during the flight. He performed a forced landing on a beach where the airplane came to an abrupt stop when the nose landing gear contacted the soft sand. The airplane sustained engine damage and substantial fuselage and right wing spar damage.

A Federal Aviation Administration inspector examined the wreckage on scene. The inspector indicated that there were no apparent fuel spills, leaks, or stains at the beach site, nor in the hangar where the airplane was recovered. The gascolator was nearly filled with fuel before being drained to ascertain the total fuel on board. The amount of recovered fuel was estimated to be about 1/2 gallon.

The type certificate data sheet for the accident airplane indicated that it had a fuel capacity of 24 gallons of fuel and it did not list an unusable amount of fuel for the airplane's fuel system.

At 1855, the recorded weather at the Muskegon County Airport, near Muskegon, Michigan, was: Wind 310 degrees at 6 knots, visibility 10 statute miles; sky condition few clouds at 5,500, broken clouds at 21,000; temperature 24 degrees C; dew point 14 degrees C; altimeter 29.85 inches of mercury.

Pilot Information

Certificate:	Private	**Age:**	66
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
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:**	June 17, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 23, 2014
Flight Time:	(Estimated) 194.8 hours (Total, all aircraft), 47.7 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	ALON	**Registration:**	N5607F
Model/Series:	A2 UNDESIGNAT	**Aircraft Category:**	Airplane
Year of Manufacture:	1966	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	A-207
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	June 25, 2014 Annual	**Certified Max Gross Wt.:**	1450 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2974.77 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	C-90
Registered Owner:	Pilot	**Rated Power:**	90 Horsepower
Operator:	Pilot	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KMKG,633 ft msl	**Distance from Accident Site:**	23 Nautical Miles
Observation Time:	22:55 Local	**Direction from Accident Site:**	357°
Lowest Cloud Condition:	Few / 5500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 21000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	310°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.85 inches Hg	**Temperature/Dew Point:**	24°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	HOLLAND, MI (BIV)	**Type of Flight Plan Filed:**	None
Destination:	GRAND HAVEN, MI (3GM)	**Type of Clearance:**	None
Departure Time:	19:00 Local	**Type of Airspace:**	

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:**	42.781112,-86.209999(est)

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	Steven Betzer; Federal Aviation Administration; Grand Rapids, MI
Original Publish Date:	January 5, 2016
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=91689