



National Transportation Safety Board Aviation Accident Final Report

Location:	Marshalltown, IA	Accident Number:	CEN14LA472
Date & Time:	09/01/2014, 1740 CST	Registration:	N419B
Aircraft:	OHLGREN BRENT E RV-6A	Aircraft Damage:	Substantial
Defining Event:	Fuel exhaustion	Injuries:	1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot said he visually checked and verified that the right wing fuel tank was just under half full and that the left wing fuel tank was just over half full prior to takeoff. As the airplane approached the destination, about 190 nm from the departure airport, the pilot decided to conduct a practice visual approach. Shortly after turning onto final approach, the engine lost power. After employing emergency procedures, the pilot was able to restore power and climbed the airplane to 3,100 feet. He then checked the fuel gauges, which both indicated one-eighth full. The engine then lost power a second time. The pilot made a forced landing in a bean field, and the airplane nosed over. During postaccident examination, no fuel sloshing could be heard when the wings were rocked; both wing fuel caps were then removed from the inverted airplane and no fuel leaked out. The airplane was righted, and when the master switch was turned on, the left fuel gauge was one needle-width above empty and the right fuel gauge indicated empty. The integrity of the fuel tanks appeared to be intact, and no fuel leaked from the tanks. No fuel was visible in either fuel tank. No fuel was recovered when the left and right wing fuel sump drains were removed. After adding fuel, the engine was started and ran at idle power until it was shut down.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power due to fuel exhaustion as a result of the pilot's misjudgment of the amount of fuel onboard prior to flight.

Findings

Aircraft	Fuel - Not serviced/maintained (Cause)
Personnel issues	Decision making/judgment - Pilot (Cause) Preflight inspection - Pilot (Cause)

Factual Information

On September 1, 2014, about 1740 central standard time, the pilot of an Ohlgren Vans RV-6A, N419B, made a forced landing in a bean field after the engine lost power 5 miles south of the Marshalltown Municipal Airport (MIW), Marshalltown, Iowa,. The pilot, the sole occupant on board, was not injured. The airplane was substantially damaged. The airplane was registered to and operated by the pilot as a personal flight under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time of the accident, and no flight plan had been filed. The local flight originated from Marv Skie-Lincoln County Airport (Y14), Tea, South Dakota, about 1615.

The pilot said that prior to departing Y14, he visually checked and verified that the right wing fuel tank was "just under" half full and the left wing fuel tank was "just over" half full (a half-full tank contains 19 useable gallons). En route, the pilot switched tanks "multiple times." Approaching KMIW, the pilot decided he would practice a visual approach using the RNAV (GPS) RWY 31 instrument approach procedure. Shortly after turning onto final approach at VUNDY IAF (initial approach fix), the engine lost power. After employing emergency procedures, the pilot was able to restore power and climbed to 3,100 feet. He said he checked the fuel gauges and they both indicated 1/8-full. The engine lost power a second time. The pilot made a forced landing in a bean field and the airplane nose over.

On September 2, two airworthiness inspectors and an operations inspector from the Des Moines Flight Standards District Office went to the accident site. They reported the airplane was inverted and the vertical stabilizer and rudder were crushed. The right wing outboard leading edge and tip were crushed. The nose gear was bent. The inspectors rocked the wings rocked back and forth and could not hear any fuel sloshing. Both wing fuel caps were removed and no fuel leaked out.

On September 18, 2014, FAA inspectors returned to the accident site. A recovery crew was at the site and turned the aircraft over so that it was resting on its landing gear. With the master switch on, the left fuel gage was one needle-width above empty and the right fuel gage indicated empty. There was no dead or discolored vegetation around the airplane, and the integrity of the fuel tanks appeared intact. No fuel leaked from the tanks. No fuel was visible in either fuel tank. No fuel was recovered when the left and right wing fuel sump drains were removed.

Fuel was added to the right tank and the engine was started. It ran at an idle power for about 30 seconds before being shut down.

History of Flight

Maneuvering	Fuel exhaustion (Defining event)
Emergency descent	Off-field or emergency landing
Landing	Nose over/nose down

Pilot Information

Certificate:	Private	Age:	31
Airplane Rating(s):	Single-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 Medical Exam:	08/26/2014
Occupational Pilot:	No	Last Flight Review or Equivalent:	01/08/2013
Flight Time:	(Estimated) 164 hours (Total, all aircraft), 36 hours (Total, this make and model), 116 hours (Pilot In Command, all aircraft), 17 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	OHLGREN BRENT E	Registration:	N419B
Model/Series:	RV-6A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	21550
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	06/04/2014, Conditional	Certified Max Gross Wt.:	1750 lbs
Time Since Last Inspection:	13 Hours	Engines:	1 Reciprocating
Airframe Total Time:	377 Hours	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	O-360-C1G
Registered Owner:	STONE JASON M	Rated Power:	180 hp
Operator:	STONE JASON M	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	KMIW, 975 ft msl	Observation Time:	CDT
Distance from Accident Site:	5 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	320°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Few / 3800 ft agl	Temperature/Dew Point:	25° C / 17° C
Lowest Ceiling:		Visibility	10 Miles
Wind Speed/Gusts, Direction:	14 knots, 290°	Visibility (RVR):	
Altimeter Setting:	29.81 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:			
Departure Point:	Tea, SD (Y14)	Type of Flight Plan Filed:	None
Destination:	Marshalltown, IA (KMIW)	Type of Clearance:	None
Departure Time:	1615 CST	Type of Airspace:	Class E; Class G

Airport Information

Airport:	Marshalltown Municipal (LMIW)	Runway Surface Type:	N/A
Airport Elevation:	975 ft	Runway Surface Condition:	Unknown
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None		

Administrative Information

Investigator In Charge (IIC):	Arnold W Scott	Adopted Date:	02/11/2015
Additional Participating Persons:	James Konig; FAA Flight Standards District Office; Des Moines, IA		
Publish Date:	02/11/2015		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=90003		

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