



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Omaha, NE	<b>Accident Number:</b>	CEN18LA085
<b>Date &amp; Time:</b>	01/24/2018, 1418 CST	<b>Registration:</b>	N515BW
<b>Aircraft:</b>	QUARTZ MOUNTAIN AEROSPACE L-11E	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (total)	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Instructional		

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## Analysis

During an instructional flight, the two pilots—an airline transport pilot giving instruction and a commercial pilot receiving instruction—flew to two airports and made an instrument approach at each airport. Upon returning to the pilots' home airport and while on another instrument approach, the engine lost all power. The pilot giving instruction assumed control of the airplane and made a forced landing in a school baseball field. During the forced landing, the airplane struck trees and a fence, causing substantial damage to a wing spar.

During a postaccident examination, a total of ½ gallon of fuel was drained from both tanks. The airplane's fuel capacity was 42 gallons, of which 40 gallons was usable. The airplane had been serviced with fuel several days before the accident, and the service technician estimated that 34 gallons of fuel was on board the airplane at the beginning of the accident flight. The pilot giving instruction reported that he had visually verified that the airplane was "full of fuel" before the flight, and he expected that there would be enough fuel for 4 hours of flight. The pilot giving instruction planned 3 hours of flight time, and the airplane's Hobbs meter indicated 3.1 hours of flight time.

## Probable Cause and Findings

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

The instructor pilot's inadequate preflight fuel planning, which resulted in fuel exhaustion and a total loss of engine power.

## Findings

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**Aircraft**

Fuel - Fluid level (Cause)

Fuel - Not inspected (Cause)

**Personnel issues**

Preflight inspection - Instructor/check pilot (Cause)

Identification/recognition - Instructor/check pilot (Cause)

## Factual Information

On January 24, 2018, at 1418 central standard time, a Quartz Mountain Aerospace (Luscombe) 11E, N515BW, struck trees and a fence during a forced landing following a total loss of engine power in Omaha, Nebraska. The certificated airline transport flight instructor and certificated commercial flight instructor receiving instruction were not injured. The airplane sustained substantial damage. The rental airplane was registered to and operated by Oracle Aviation, LLC, Omaha, Nebraska, and operated under the provisions of Title 14 *Code of Federal Regulations* Part 91 as an instructional flight. Day visual meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan had been filed. The flight originated from Millard Airport (MLE), about 1100.

According to the instructor's accident report, the airplane was full of fuel (verified visually), which should have provided about four hours of flight time. The planned flight time was 3 hours. They flew to Wayne Municipal Airport (LCG), Wayne, Nebraska, and Central Nebraska Regional Airport (GRI), Grand Island Nebraska, where they made an instrument approach at each airport before returning to MLE. The airplane was on the GPS (Global Positioning System runway) 12 instrument approach, about 5.3 miles from MLE, when the engine lost power. Following the emergency checklist, the engine regained power for about 10 seconds. The instructor assumed control and made a forced landing in a school baseball field near a road intersection. During the forced landing, the airplane struck trees and a fence, causing damage to a wing spar.

The airplane was towed back to MLE where Federal Aviation Administration (FAA) inspectors from the Lincoln, Nebraska, Flight Standards District Office (FSDO) examined the airplane. They drained a total of 1/2-gallon of fuel from both tanks. Both the tachometer and Hobbs meter indicated a flight duration of 3.1 hours.

The instructor noted that a similar incident occurred about two weeks earlier. In that case, the pilots were able to land at the airport. No determination was made as to why the engine lost power, but the instructor surmised that either the tanks did not hold 42 gallons, or the engine was consuming a "significantly greater amount" of fuel.

According to the service technician, when he serviced the airplane a few days before the accident, and it was not full of fuel. He added fuel to a level "just above the tab portion" of the fuel neck. Using another similar airplane, the technician demonstrated to FAA inspectors how he fueled the airplane to his customary level. He then added 6 additional gallons (3 gallons per tank) to reach the full level. It was estimated about 34 gallons of fuel was on board the airplane.

## History of Flight

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

## Flight Instructor Information

<b>Certificate:</b>	Airline Transport; Commercial	<b>Age:</b>	68, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land; Single-engine Sea	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>		<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With Waivers/Limitations	<b>Last FAA Medical Exam:</b>	12/13/2017
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	12/05/2017
<b>Flight Time:</b>	(Estimated) 16046 hours (Total, all aircraft), 60 hours (Total, this make and model), 13400 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

## Pilot Information

<b>Certificate:</b>	Flight Instructor; Commercial; Private	<b>Age:</b>	26, Male
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Helicopter	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Single-engine; Helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without Waivers/Limitations	<b>Last FAA Medical Exam:</b>	03/01/2017
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	11/03/2016
<b>Flight Time:</b>	(Estimated) 1420 hours (Total, all aircraft), 7 hours (Total, this make and model), 1337 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	QUARTZ MOUNTAIN AEROSPACE	Registration:	N515BW
Model/Series:	L-11E	Aircraft Category:	Airplane
Year of Manufacture:	2008	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	1006
Landing Gear Type:	Tricycle	Seats:	3
Date/Type of Last Inspection:	12/21/2017, Annual	Certified Max Gross Wt.:	2280 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	276 Hours as of last inspection	Engine Manufacturer:	Continental
ELT:	C126 installed	Engine Model/Series:	IO-360-ES
Registered Owner:	Oracle Aviation, LLC	Rated Power:	185 hp
Operator:	Oracle Aviation, LLC	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MLE, 1051 ft msl	Distance from Accident Site:	
Observation Time:	1415 CST	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	140°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.22 inches Hg	Temperature/Dew Point:	3°C / -2°C
Precipitation and Obscuration:			
Departure Point:	Omaha, NE (MLE)	Type of Flight Plan Filed:	IFR
Destination:	Omaha, NE (MLE)	Type of Clearance:	IFR; VFR Flight Following
Departure Time:	1100 CST	Type of Airspace:	Class D

## Airport Information

Airport:	Millard (MLE)	Runway Surface Type:	Grass/turf
Airport Elevation:	105 ft	Runway Surface Condition:	Snow; Wet
Runway Used:	12	IFR Approach:	Global Positioning System; Practice
Runway Length/Width:	3801 ft / 75 ft	VFR Approach/Landing:	Forced Landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	41.196111, -96.112222 (est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Arnold W Scott	<b>Report Date:</b>	02/05/2019
<b>Additional Participating Persons:</b>	Robert Markise; FAA Flight Standards District Office; Lincoln, NE Greg Young; FAA Flight Standards District Office; Lincoln, NE Owen Grimm; FAA Flight Standards District Office; Lincoln, NE		
<b>Publish Date:</b>	02/05/2019		
<b>Note:</b>	The NTSB did not travel to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=96653">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=96653</a>		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).