



# Aviation Investigation Final Report

---

<b>Location:</b>	Laguna Pueblo, New Mexico	<b>Accident Number:</b>	CEN16LA112
<b>Date &amp; Time:</b>	February 29, 2016, 13:25 Local	<b>Registration:</b>	N2711M
<b>Aircraft:</b>	CIRRUS DESIGN CORP SR22	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel exhaustion	<b>Injuries:</b>	4 Minor
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

---

## Analysis

The private pilot and three passengers were on a cross-country flight and stopped en route to refuel. The pilot reported that services were limited and only self-serve fuel pumps were available. The pilot intended to add about 25 gallons of fuel to each wing tank and asked one of the passengers for assistance in reading the fuel meter and reporting the quantity as she added fuel to the airplane. The passenger stated that the sun was shining on the meter, which made it hard to read. She yelled for the pilot to stop refueling when she read 25 gallons on the meter but stated to the pilot that the amount of time had not seemed sufficient to dispense 25 gallons. The pilot replied that the pumps were not like automotive pumps. The pilot then added fuel to the other wing, and the passenger called out when the meter reached 52 gallons. Upon completion of fueling, the pilot was unable to get a fuel receipt from the pump. The pilot reported that she did her normal pre-takeoff checks and then departed. About an hour after departure at an altitude of 13,000 ft, the engine experienced a total loss of power, and the pilot deployed the airplane's parachute system. The airplane descended under canopy and impacted terrain, where it came to rest upright. Before the occupants egressed, a gust of wind caught the parachute and dragged the airplane into trees, flipping the airplane upside down.

A visual inspection of the airplane at the accident site did not reveal any discrepancies with the engine. A credit card receipt for the fuel transaction indicated that the pilot purchased 5.23 gallons of fuel. Because the airplane was only filled with 5.23 gallons instead of the 52 gallons the pilot expected, the airplane did not have adequate fuel onboard to complete the flight. The before takeoff checklist includes the step "fuel quantity – confirm." The airplane's operating handbook states the airplane is equipped with a fuel gauge and a warning light that will illuminate if the fuel quantity drops below 14 gallons in each fuel tank. The investigation could not determine whether the pilot monitored the fuel system or observed a fuel warning light, but the circumstances are consistent with the pilot not verifying the fuel quantity prior to the flight, or monitoring the fuel quantity in flight, which resulted in a total loss of engine power due to fuel exhaustion.

## 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 exhaustion. Contributing to the accident was the pilot's inadequate oversight of the airplane's refueling and her subsequent failure to verify and monitor the fuel quantity before and during the flight.

### Findings

<b>Aircraft</b>	(general) - Incorrect service/maintenance
<b>Personnel issues</b>	(general) - Pilot

## Factual Information

### History of Flight

<b>Prior to flight</b>	Aircraft servicing event
<b>Enroute</b>	Fuel exhaustion (Defining event)
<b>Enroute</b>	Loss of engine power (total)
<b>Uncontrolled descent</b>	Collision with terr/obj (non-CFIT)
<b>After landing</b>	Nose over/nose down

On February 29, 2016, about 1325 mountain standard time (MST), a Cirrus SR22 airplane, N2711M, descended under the canopy of the Cirrus Airframe Parachute System (CAPS) and impacted terrain near Laguna Pueblo, New Mexico. The private rated pilot and three passengers received minor injuries. The airplane was substantially damaged during the accident. The airplane was registered to and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed at the time. The flight departed the Seward Municipal Airport (KSWT), Seward, Nebraska, about 0820 MST, and was en route to the Phoenix Goodyear Airport (KGYR) Goodyear, Arizona; with an en route stop at the Las Vegas Municipal Airport (KLVS), Las Vegas, New Mexico.

The pilot reported that they landed at KLVS, with about 12 gallons of fuel left onboard the airplane. She reported that there were limited services at the airport and only self-serve fuel pumps. She added that one of the passengers helped with the refueling, and they only wanted to take on about 50 gallons of fuel.

One of the passengers reported that the pilot wanted to put 25 gallons in each tank, and she would read the meter. As the meter approached 25 gallons, she yelled to the pilot to stop. She added that the sun was on the fuel meter and it was hard to read. She reported that she didn't think enough time had elapsed to pump 25 gallons, but the pilot stated that the pumps are not like automotive pumps. The pilot moved over to the other fuel tank, and the passenger yelled "stop", at 52 gallons. The passenger also thought that one of the other passengers also read 52 gallons to the pilot, so that it was okay.

The pilot added that she was unable to get a printed sales receipt. The pilot then reported that she did her normal take-off checks, and she and passengers departed for KGYR.

About an hour after departure, and while cruising at 13,000 ft, the engine slowly lost power. The pilot informed the air traffic controller and shortly afterwards the engine stopped. The pilot looked for a plateau area and then deployed the CAPS. The airplane descended and landed near some trees; however, wind caught the parachute and pulled the airplane into the trees; flipping the airplane inverted.

The responding Federal Aviation Administration (FAA) inspector reported the airplane had come to rest inverted. The wings had sustained only minor damage; however, the fuselage was buckled. Only the

lower part of the engine was accessible and a visual examination of the engine did not reveal any obvious discrepancies.

The inspector obtained a credit card receipt from the fixed based operator (FBO) at KLVS. The receipt indicated that the pilot had purchased 5.23 gallons of fuel.

A review of radar data from FlightAware, revealed that the airplane was at an altitude above 12,500 ft for about 44 minutes, before the airplane descended below 12,500 ft. as a result of the loss of engine power. According to the airplane manufacturer's representative, the airplane was not equipped with a factory installed oxygen system.

A review of the airplane's Pilot Operating Handbook and Airplane Flight Manual (POH), section 7, stated that the airplane is equipped with a fuel quantity indicator on the console, forward of the fuel selector valve; pointers indicate the quantity of fuel in the left and right fuel tanks. Additionally, when the quantity drops below 14 gallons in each tank, a FUEL caution light will illuminate on the annunciator panel.

The Before Takeoff checklist in Section 4, Normal Procedures of the POH, advises Fuel Quantity – Confirm, and Fuel Selector – Fullest tank, before takeoff.

Title 14 Part 91.211 Supplemental oxygen states in part:

(a) General. No person may operate a civil aircraft of U.S. registry –

(1) At cabin pressure altitudes above 12,500 feet (MSL) up to and including 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration;

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	65,Female
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	February 25, 2015
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	November 20, 2015
<b>Flight Time:</b>	493 hours (Total, all aircraft), 273 hours (Total, this make and model), 445 hours (Pilot In Command, all aircraft), 23 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	CIRRUS DESIGN CORP	<b>Registration:</b>	N2711M
<b>Model/Series:</b>	SR22 NO SERIES	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2006	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	2103
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>	February 9, 2016 Annual	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	930.3 Hrs as of last inspection	<b>Engine Manufacturer:</b>	CONT MOTOR
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	IO-550-N
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	0 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>		<b>Temperature/Dew Point:</b>	
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Las Vegas, NM (KLVS)	<b>Type of Flight Plan Filed:</b>	Unknown
<b>Destination:</b>	Phoenix, AZ (KGYR)	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	12:30 Local	<b>Type of Airspace:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	3 Minor	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	4 Minor	<b>Latitude, Longitude:</b>	35.036109,-107.367225(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hatch, Craig
<b>Additional Participating Persons:</b>	John Schroeder; FAA FSDO; Albuquerque, NM Christopher Lang; Continental Motors; Mobile, AL Brannon Mayer; Cirrus Aircraft; Duluth, MN
<b>Original Publish Date:</b>	November 28, 2016
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=92786">https://data.ntsb.gov/Docket?ProjectID=92786</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).