



Aviation Investigation Final Report

Location:	Big Bear, California	Accident Number:	WPR15LA014
Date & Time:	October 16, 2014, 14:00 Local	Registration:	N612SP
Aircraft:	Cessna 172S	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (partial)	Injuries:	3 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot was conducting a personal cross-country flight during daytime visual meteorological conditions over mountainous terrain. He reported that, about 30 minutes into the flight, the engine began to lose power. The airplane descended into a box canyon, and the pilot then attempted to maneuver the airplane to initiate a 180-degree turn out of the canyon toward lower terrain. The airplane continued to descend, and the stall warning horn sounded, so the pilot decided to land in trees.

First responders reported that the wing fuel tanks were breached and that fuel had drained out through holes in the wings. A postaccident examination of the airframe and engine revealed no evidence of any preexisting mechanical malfunctions or failures that would have precluded normal operation. The reason for the partial loss of engine power could not be determined.

Probable Cause and Findings

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

A partial loss of engine power for reasons that could not be determined because postaccident examination of the airframe and engine did not reveal any anomalies that would have precluded normal operation.

Findings

Not determined	(general) - Unknown/Not determined
Environmental issues	Mountainous/hilly terrain - Contributed to outcome
Environmental issues	Tree(s) - Contributed to outcome

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (partial) (Defining event)
Enroute-cruise	Collision with terr/obj (non-CFIT)

On October 16, 2014, about 1400 Pacific daylight time, a Cessna 172S, N612SP, was substantially damaged when it collided with terrain near Big Bear City Airport (L35), Big Bear, California. Sohail Air Ventures LLC was operating the rental airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The commercial pilot and two passengers sustained serious injuries. Visual meteorological conditions prevailed and no flight plan was filed for the personal flight. The cross-country flight departed Corona, California, at an undetermined time with an intended destination of L35.

According to a Federal Aviation Administration (FAA) inspector, the pilot reported that he intended on flying to L35 for lunch prior to returning to Corona. Prior to the flight, he verified the fuel level of each fuel tank at 11 to 12 gallons of fuel and noted that the airplanes log sheet indicated 13 gallons of fuel should have been in each wing's fuel tank. The pilot further reported to the inspector that he anticipated getting fuel at Big Bear and that he planned to fly directly above the box canyons of the mountainous terrain west of the airport.

The pilot stated that thirty minutes into the flight, he noticed that he could not maintain altitude above the canyons and the engine was losing power. Once inside a box canyon, he maintained a position on the left side of the canyon with the intent to execute a right turn out of the canyon toward lower terrain. As the airplane continued to sink, he noticed that he did not have enough engine power to maintain a close proximity to the face of the mountain. The pilot further stated that when he heard the stall warning horn, he decided to initiate a landing on top of the trees instead of stalling [the airplane]. The pilot added that he had adjusted the mixture early in the flight, but the events of the flight happened too fast to attempt corrective adjustments immediately prior to the accident.

First responders confirmed that the wing fuel tanks were breached, and fuel had drained out through holes in the wings.

Pilot Information

Certificate:	Commercial; Private	Age:	42, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N612SP
Model/Series:	172S	Aircraft Category:	Airplane
Year of Manufacture:	2000	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	172S8594
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	March 6, 2013 Annual	Certified Max Gross Wt.:	2299 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	1959 Hrs as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	Installed	Engine Model/Series:	IO-360-L2A
Registered Owner:	SOHAIL AIR VENTURES LLC	Rated Power:	180 Horsepower
Operator:	SOHAIL AIR VENTURES LLC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	L35	Distance from Accident Site:	8 Nautical Miles
Observation Time:	14:15 Local	Direction from Accident Site:	82°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/ Unknown
Wind Direction:	260°	Turbulence Severity Forecast/Actual:	/ Unknown
Altimeter Setting:	30.14 inches Hg	Temperature/Dew Point:	20°C / -17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Corona, CA (AJO)	Type of Flight Plan Filed:	None
Destination:	Big Bear, CA	Type of Clearance:	None
Departure Time:		Type of Airspace:	

An aviation routine weather report (METAR) for L35, elevation 6,756 feet msl, located about 8 miles northeast of the accident site was issued at 1415. It indicated wind from 260 degrees at 10 knots, 10 miles or greater visibility, sky clear, temperature at 20 degrees C, dew point -17 degrees C, and an altimeter setting at 30.15 inches of mercury. The relative humidity was 7%.

A METAR for San Bernardino International Airport (SBD), elevation 1,159 feet msl, located about 15 miles southwest of the accident site, was issued at 1350. It indicated wind calm, 10 miles or greater visibility, sky few at 5,000 feet, temperature at 24 degrees C, dew point 8 degrees C, and an altimeter setting at 29.96 inches of mercury.

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	2 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Serious	Latitude, Longitude:	34.24361,-117.019447(est)

Tests and Research

Examination of the recovered wreckage was conducted on October 28, 2014, by representatives of the FAA, Cessna, and Lycoming Engines under the supervision of the National Transportation Safety Board investigator-in-charge.

Airframe

The electrical master switch was in the ON position. The ignition switch was in the BOTH position with the key in the switch. The auxiliary fuel pump switch was in the ON position. Investigators determined that the fuel selector valve was in the BOTH position. The gascolator contained a clear blue fluid that smelled like aviation gasoline; a water finding paste test had no response indicating that there was no water contamination. The screen was clean.

Engine

Investigators manually rotated the crankshaft with a tool in the vacuum pump drive pad. The crankshaft rotated freely, and the valves moved approximately the same amount of lift in firing order. The accessory gears turned freely. Investigators obtained thumb compression on all cylinders in firing order. A borescope inspection revealed no mechanical deformation on the valves, cylinder walls, or internal cylinder head. When each magneto drive shaft was rotated by hand, both magnetos produced spark at all posts.

The fuel pump's rubber diaphragm was intact and the pump contained a fluid consistent with the appearance and odor of aviation fuel.

Propeller

The two blades were bent and twisted. Both blades exhibited leading edge gouges and chordwise striations.

No evidence of any preexisting mechanical anomalies with the airframe or engine was found that would have precluded normal operation. For further information, see the NTSB Airframe and Engine Examination Notes within the public docket for this accident.

Additional Information

Neither the pilot nor the operator submitted an NTSB form 6120.1, Pilot/Operator Aircraft Accident/Incident Report.

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	Rod Ealy; Riverside; Riverside, CA Mark Platt; Lycoming; Williamsport, PA Jan Smith; Cessna Aircraft; Wichita, KS
Original Publish Date:	January 18, 2017
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=90264

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](#).