National Transportation Safety Board
Aviation Accident Final Report

Location:	Elberta, UT	**Accident Number:**	WPR12LA190
Date & Time:	05/01/2012, 1315 MDT	**Registration:**	N210LH
Aircraft:	CESSNA T210	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Serious, 1 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

During an instructional flight, when the pilot receiving instruction was recovering from a practice power-off stall, the engine lost power. Multiple attempts by the flight instructor to restart the engine were unsuccessful, and she subsequently performed a forced landing to an open field. During the landing roll, the nose gear dug into the ground, and the airplane nosed over, coming to rest inverted. During a postaccident examination, after a substitute propeller was installed in place of the airplane's damaged propeller, the engine started and operated normally, exhibiting normal pressures and acceleration. The reason for the loss of engine power was not determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power for reasons that could not be determined because postaccident examination did not reveal any anomalies that would have precluded normal operation.

Findings

Environmental issues	Rough terrain - Contributed to outcome
Not determined	Not determined - Unknown/Not determined (Cause)

Factual Information

On May 1, 2012, about 1315 mountain daylight time, a Cessna T210L, N210LH, was substantially damaged following a forced landing due to a loss of engine power about 7 nautical miles north of Elberta, Utah. The certified flight instructor (CFI) was not injured, and the private pilot sustained serious injuries. The local instructional flight was being operated in accordance with 14 Code of Federal Regulations (CFR) Part 91, and a flight plan was not filed. Visual meteorological conditions prevailed at the time of the accident. The flight departed the Provo Municipal Airport (PVU), Provo, Utah, about 1245.

In a statement provided to the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the CFI reported that the purpose of the instructional flight was to practice power-off stalls, of which 3 had been performed prior to the accident. The CFI stated that during the 4th stall as the pilot receiving instruction proceeded to recover from the stall, a loss of power was observed. At this time the CFI took control of the airplane and attempted to restart the engine by leaning the mixture, increasing the throttle, turning the boost pump on, switching fuel tanks, and pumping the throttle; the restart was not successful. She then called the PVU air traffic control tower, declared an emergency, and then began looking for a suitable field in which to make a forced landing. During the descent the CFI observed the manifold pressure gauge reading rise to about 25 inches but not the tachometer gauge. The CFI reported that she attempted to restart the engine all the way down to the flare prior to landing, but with no success. She subsequently landed with the landing gear extended in a flat and bumpy field. The airplane sustained substantial damage after

it rolled into a ravine and nosed over due to the nose landing gear digging into some soft dirt.

A postaccident examination of the airplane's engine was overseen by a Federal Aviation Administration (FAA) airworthiness aviation safety inspector. In a written statement provided to the IIC, the inspector reported that after a substitute propeller was installed, the fuel system was disconnected at the right wing root. An external fuel line was then connected from an external fuel tank and routed to the right wing root where it was connected to the aircraft fuel system. A normal engine start procedure was used, with no anomalies noted. After the engine was started a normal run up was accomplished from the idle to a medium power setting, but not to full power. This was due to the less than total secure nature of the airplane to the trailer on which the engine was positioned. Additionally, the operation of the boost pump was checked and showed normal indications and operation. The examination revealed no anomalies that would have precluded normal operation of the engine.

The pilot provided a fuel receipt that was dated April 30, 2012, the day prior to the accident, which indicated that the airplane was topped off with 55.8 gallons of 100LL aviation fuel. The pilot reported to the FAA inspector that the airplane had not been flown between the time of the last refueling and the time of the accident flight.

At 1253, the weather reporting facility located at the Salt Lake International Airport (SLC), Salt Lake City, Utah, located about 40 miles north of the accident site, reported wind 140 degrees at 4 knots, visibility 10 miles, few clouds at 4,500 feet, scattered clouds 7,000 feet, temperature 17 degrees Celsius (C), dew point 8 degrees C, and an altimeter setting of 29.86 inches of mercury.

According to the Cessna Pilots Association Tech Note No. 011, entitled "Vapor Lock Problems in 210 Series From 1964 to 1981 Model Year," dated December 5, 1996, Cessna Aircraft

Company issued service bulletin SE81-33, which called out for the modification of the fuel system so that the forward fuel feed line is teed into the rear fuel feed line to the reservoir tank. The intent of this modification was to greatly reduce vapor collection in the reservoir tank and associated vapor related problems. During the investigation it was not determined if the modification had been performed. The Tech Note further revealed that an FAA Airworthiness Directive 79-15-01, which dealt with the subject of fuel vapor in Cessna 210s, called for the installation of a placard on the instrument panel that contained specific instructions of what to do if major fuel flow fluctuations/power surges were encountered. The instructions are to turn the auxiliary fuel pump on and adjust the mixture, switch fuel tanks, and when the flow steadied to resume normal operations. The accident airplane was equipped with the mandated placard. The above referenced Tech Note, Service Bulletin, and Airworthiness Directive are each appended to this report in the public docket.

In a conversation with the author of the above referenced Tech Note, the author related that in order to recover from a vapor lock condition, all you would need to do is to switch to the other fuel tank and turn on the fuel boost pump. This would result in the engine starting in a few seconds.

History of Flight

Maneuvering	Loss of engine power (total) (Defining event)
Landing	Off-field or emergency landing Nose over/nose down

Flight Instructor Information

Certificate:	Flight Instructor; Commercial	**Age:**	47, Female
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without Waivers/Limitations	**Last Medical Exam:**	05/23/2011
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	03/26/2012
Flight Time:	3500 hours (Total, all aircraft), 400 hours (Total, this make and model), 3326 hours (Pilot In Command, all aircraft), 18 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	**Age:**	53, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With Waivers/Limitations	**Last Medical Exam:**	05/23/2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	05/31/2011
Flight Time:	338 hours (Total, all aircraft), 232 hours (Total, this make and model), 307 hours (Pilot In Command, all aircraft), 2 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	**Registration:**	N210LH
Model/Series:	T210 L	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	21061253
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	02/15/2012, Annual	**Certified Max Gross Wt.:**	3800 lbs
Time Since Last Inspection:	10 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	3103 Hours	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	TSIO 520R-12R
Registered Owner:	LIMA Hotel LC	**Rated Power:**	310 hp
Operator:	LIMA Hotel LC	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	PVU, 4497 ft msl	**Observation Time:**	1230 MDT
Distance from Accident Site:	17 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:	50°	**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Few / 4000 ft agl	**Temperature/Dew Point:**	16°C / 3°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	4 knots, 140°	**Visibility (RVR):**	
Altimeter Setting:	29.93 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Provo, UT (PVU)	**Type of Flight Plan Filed:**	None
Destination:	Provo, UT (PVU)	**Type of Clearance:**	None
Departure Time:	1245 MDT	**Type of Airspace:**	

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	Thomas Little	**Adopted Date:**	04/10/2013
Additional Participating Persons:	Tanya Glines; Federal Aviation Administration; Salt Lake City, UT		
Publish Date:	04/10/2013		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=83524		

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