Aviation Investigation Final Report

Location:	Pottsville, Pennsylvania	**Accident Number:**	ERA17LA098
Date & Time:	January 30, 2017, 14:04 Local	**Registration:**	N4796P
Aircraft:	Cessna P210	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot reported that he did not perform a preflight inspection, including sumping the fuel tanks, before departing for a cross-country flight with full fuel tanks. When the airplane reached 12,500 ft mean sea level and the pilot reduced engine rpm for cruise flight, the engine suddenly, and without warning, stopped producing power. The pilot tried several times to restart the engine to no avail and subsequently conducted a forced landing, during which the airplane collided with trees. The airplane sustained substantial damage to the fuselage, both wings, and the tail section.

Postaccident examination of the airplane revealed that both wing fuel tanks were breached and that the fuel strainer drains for each wing were corroded due to exposure to moisture. Similar corrosion was also observed in the engine's fuel pump and fuel metering unit. The airplane had been sitting outside exposed to snow before and after it was recovered from the accident site. Given that the fuel system had been breached, it could not be determined when the corrosion occurred or whether the pilot's failure to sump the fuel tanks contributed to the loss of power. Examinations of the airframe and engine revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation, and the reason for the 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 total loss of engine power for reasons that could not be determined because postaccident examinations of the engine and airframe did not reveal any preimpact mechanical malfunctions or failures that would have precluded normal operation.

Findings

Not determined	(general) - Unknown/Not determined
Environmental issues	Tree(s) - Contributed to outcome
Personnel issues	Preflight inspection - Pilot

Factual Information

History of Flight

Enroute	Loss of engine power (total) (Defining event)
Enroute	Attempted remediation/recovery
Emergency descent	Off-field or emergency landing
After landing	Collision with terr/obj (non-CFIT)

On January 30, 2017, at 1404 eastern standard time, a Cessna P210N, N4796P, sustained substantial damage when it made a forced landing about 1-mile north of the Schuykill County Airport (ZER), Pottsville, Pennsylvania, after a total loss of engine power. The private pilot/registered owner and the passenger sustained minor injuries. A visual flight rules flight plan was filed for the flight that originated at the Allentown Queen City Municipal Airport (XLL), Allentown, Pennsylvania, about 1330, destined for the Erie-Ottawa International Airport (PCW), Port Clinton, Ohio. Visual meteorological conditions prevailed for the personal flight conducted under the provisions of 14 *Code of Federal Regulations* Part 91.

The pilot stated that the day before the accident he topped the airplane off with fuel (for 90 gallons total), completed a preflight inspection, started the engine, and taxied a short distance to make sure the airplane was operating okay. Everything was normal and he parked the airplane outside overnight. The following day, he arrived at the airport but did not do a preflight inspection or sump the fuel tanks. He started the engine and departed. The pilot climbed to 12,500 ft mean sea level (msl) and leveled off. When he reduced engine rpm for cruise flight, the engine "just shut off immediately." There was no warning or any indication of an engine problem prior to it shutting down and the propeller continued to windmill. The pilot attempted to re-start the engine for 3-4 minutes to no avail. He declared an emergency and proceeded to ZER, the nearest airport, but landed off field about 1 mile north of the airport. The airplane collided with trees and came to rest upright on an embankment. The left and right wings sustained substantial damage and the engine had separated from the firewall. The tail section also sustained structural damage.

A postaccident examination of the airplane revealed that left and right-wing fuel tanks were breached and the fuel selector rotated freely to each detent. The fuel sump drains were removed, and both were heavily corroded due to exposure to moisture.

The engine sustained impact damage but the cylinders, components, and accessories remained attached to the engine. The oil pan was damaged, and the engine could not be test run. The engine was manually rotated, and compression and valve train continuity were established on each cylinder. Engine timing was also confirmed. Both magnetos were placed on a test-bench and produced spark to their respective leads. The spark plugs were removed and compared to the Champion Check-A-Plug chart. Each plug exhibited normal operating signatures.

The fuel pump was removed, and the coupling was intact, but the pump was locked up and could not be rotated. The pump was disassembled and the internal components (including the housing bolts and screws) were corroded due to exposure with moisture. The fuel manifold was removed and placed on a test-bench. The flow check was normal. The manifold's fuel inlet screen was removed, and a small amount of debris was observed. The fuel metering unit sustained impact damage and the mixture control was bent and the fuel inlet AN fitting was broken. The screen was removed and absent of debris. The unit was disassembled, and the mixture cam, throttle cam, and the metering plug exhibited a large amount of corrosion consistent with exposure to moisture. The airplane had been sitting outside exposed to snow before and after it was recovered. Since the fuel system had been breached, it could not be determined when the corrosion occurred. The pilot confirmed he had no previous issues with water in the airplane's fuel system.

The oil sump was removed, and some residual oil remained. No metallic material was observed. The oil pick-up tube and screen were absent of debris. The oil pump was disassembled, and no anomalies were noted. The oil filter was opened, and the element was absent of debris. No mechanical anomalies were noted that would have precluded normal operation of the engine.

The last annual inspection for the airplane and engine were completed on June 8, 2016, at a tachometer time of 3,663 hours. The engine was installed new in 2010, and had accrued about 644.6 hours.

The pilot held a private pilot certificate with a rating for airplane single-engine land. His last Federal Aviation Administration (FAA) third-class medical was issued on October 9, 2015. The pilot reported a total of 3,000 flight hours and 1,500 hours in the same make/model as the accident airplane.

A weather observation taken about 19 miles southwest of the accident site, at Muir Army Airfield (MUI), Fort Indiantown Gap (Annville), Pennsylvania, at 1358, reported wind from 280 degrees at 7 knots, with variable wind between 240 and 310 degrees, visibility 10 statute miles, few clouds at 7,500 feet, temperature -1-degree C, dew point -4 degrees C, and an altimeter setting of 29.81 inches of mercury.

Pilot Information

Certificate:	Private	**Age:**	47,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	October 9, 2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 5, 2017
Flight Time:	3000 hours (Total, all aircraft), 1500 hours (Total, this make and model), 150 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N4796P
Model/Series:	P210 N	**Aircraft Category:**	Airplane
Year of Manufacture:	1978	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000110
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	June 8, 2016 Annual	**Certified Max Gross Wt.:**	4001 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3686 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	TSIO-520 SER
Registered Owner:	On file	**Rated Power:**	310 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	MUI,487 ft msl	**Distance from Accident Site:**	19 Nautical Miles
Observation Time:	13:58 Local	**Direction from Accident Site:**	220°
Lowest Cloud Condition:	Few / 7500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.8 inches Hg	**Temperature/Dew Point:**	-1°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Allentown, PA (XLL)	**Type of Flight Plan Filed:**	VFR
Destination:	Erie-Ottawa, OH (PCW)	**Type of Clearance:**	VFR flight following
Departure Time:	13:30 Local	**Type of Airspace:**	Unknown

Airport Information

Airport:	SCHUYLKILL COUNTY /JOE ZERBEY/ ZER	**Runway Surface Type:**	
Airport Elevation:	1729 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	40,-76(est)

Administrative Information

Investigator In Charge (IIC):	Read, Leah
Additional Participating Persons:	Jim Pool; FAA/FSDO; Harrisburg, PA Kurt Gibson; CMI; Mobile, AL
Original Publish Date:	April 4, 2019
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=94668