Aviation Investigation Final Report

Location:	Sulphur Spring, Texas	**Accident Number:**	CEN19LA129
Date & Time:	April 27, 2019, 09:45 Local	**Registration:**	N233P
Aircraft:	Piper PA 23	**Aircraft Damage:**	Substantial
Defining Event:	Fuel contamination	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot of a twin-engine airplane was in cruise flight when the left engine lost partial power. He turned on the boost pumps, checked the fuel quantity and engine gauges, verified fuel tank selection, and added throttle. However, the left engine continued to lose power. The pilot reported that, without warning, the right engine lost total power and would not restart. The right propeller went to the feathered position. The pilot initiated a forced landing to a field. During the descent, the left engine lost total power but the propeller continued to rotate, and the left engine was unresponsive to throttle input. During the forced landing, the airplane sustained substantial damage to the left and right wings and the fuselage.

Examination of the right engine found the magneto timing at 12.5º (data plate specifies 25º). Otherwise, no preimpact abnormalities were noted during the right engine examination that would have precluded normal operations. The investigation was not able to determine why the right propeller was stopped in the feathered position.

Examination of the left engine found the magneto timing at 23º. The bolts that secured the upper and lower halves of the carburetor were found loose. When the carburetor was opened, the inside of the bowl was dry, and the gasket appeared worn, consistent with rubbing between the two carburetor halves. The top set of spark plugs displayed heavy carbon coating consistent with the left engine running at a rich fuel setting. During a test run, the left engine would not produce rated power and ran rich. When the mixture was leaned, the left engine ran smooth and ran normally. The carburetor was bench tested and operated as expected. The carburetor was disassembled, and evidence of water staining was present.

A fuel sample collected from the left side fuel tank appeared divided with the top part blue, consistent with 100 LL avgas, and the lower portion of the liquid was clear with brown sediment visible at the intersection of the two liquids. The fuel strainer bowl revealed rust colored liquid and sediment in the bowl. The fuel strainer screen contained numerous small flakes of an unidentified contaminant. A sample of fuel drained from the left-wing tank tested positive for water when tested with water-finding paste. The loss of power on the left engine is likely due to water contamination.

Probable Cause and Findings

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

The pilot's inadequate preflight inspection, during which he failed to detect the water contamination in the left fuel, which resulted in a partial loss of power in the left engine. Contributing to the accident was the total loss of power in the right engine for undetermined reasons.

Findings

Aircraft	Fuel - Fluid condition
Aircraft	Fuel control/carburetor - Inadequate inspection
Aircraft	(general) - Unknown/Not determined
Personnel issues	Preflight inspection - Pilot
Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Prior to flight	Aircraft inspection event
Enroute-cruise	Fuel contamination (Defining event)
Enroute-cruise	Loss of engine power (partial)
Enroute-descent	Loss of engine power (total)
Landing	Off-field or emergency landing

On April 27, 2019, about 0945 central daylight time, a Piper PA-23 airplane, N233P, was substantially damaged when it was involved in an accident near Sulphur Springs Municipal Airport (SLR), Sulphur Springs, Texas. The pilot was not injured. The flight was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that before departure from Mount Pleasant Regional Airport (OSA), the airplane's main fuel tanks were "topped off." The pilot added that as he passed over SLR, he noticed a slight drop in rpm on the left engine. He increased the left engine manifold pressure to "full," but the engine speed continued to decrease. He observed a small amount of black smoke coming from left engine and checked that the fuel primer was still locked.

The airspeed was decreasing, so he decided to turn back to SLR. He turned on the boost pumps, then checked the fuel quantity, verified the fuel selector was set to the main tanks, and checked the engine gauges. The left engine tachometer showed only 2,000 rpm, with full throttle. The airplane was about 3,000 ft mean sea level (msl) and descended 100 to 200 ft per minute while the airspeed decreased. The pilot stated that, "with no warning, the right engine died." He attempted to restart it, but the right engine would not restart, and the propeller went to the feathered position.

The airplane was not able to maintain altitude or airspeed, so the pilot located a field to perform a forced landing. As he descended to the field, the left engine lost power. The pilot stated that the "left engine continued to windmill but was not responsive to throttle changes." After the forced landing and the airplane came to rest, the pilot turned off the fuel pumps, fuel, avionics, and the master switch. During the forced landing, the airplane sustained substantial damage to the left and right wings and the fuselage.

After the airplane was recovered, an examination was conducted on the engines and airframe. About 45 gallons of fuel was recovered from the airplane's main fuel tanks. The left-wing main fuel tank appeared intact, and fluid was observed in the fuel cell when viewed from the filler opening. A sample of fuel collected from the left side fuel tank appeared divided with the top part blue, consistent with 100 LL avgas, and the lower portion of the liquid was clear with brown sediment visible at the intersection of the two liquids. The fuel strainer bowl contained rust colored liquid and sediment. The fuel strainer screen contained numerous small flakes of an unidentified material. A sample of fuel drained from the left tank tested positive for water when tested with Kolor-Kut water finding paste. A fuel sample taken

from the right-wing tank appeared blue; consistent with 100 LL avgas. The fuel strainer bowl and screen were absent debris/contaminants.

Examination of the right engine found the magneto timing at 12.5º (data plate specifies 25º). Otherwise no preimpact abnormalities were noted during the engine examination. The right engine's two-bladed propeller was found in the feathered position. Both blades appeared straight absent bending.

Examination of the left engine found the magneto timing at 23º (data plate specifies 25º). The bolts that secured the upper and lower halves of the carburetor were found loose. When the carburetor was opened, the inside of the bowl was dry, and the gasket appeared worn, consistent with rubbing between the two carburetor halves. The top set of spark plugs displayed heavy carbon coating consistent with the engine running at a rich fuel setting. A non-original equipment manufacturer air induction system was observed and appeared free of any blockages. The left engine's two-bladed propeller was not in the feathered position. Both blades showed signs of polishing with slight S-bending of the blades.

The left engine was mounted on a test stand, the bent propeller was replaced with the propeller from the right engine. An engine test run was completed and noted that the left engine would not produce rated power and ran rich. The fuel mixture control was leaned, and the left engine smoothed out and ran normally. The carburetor was bench tested and operated as expected. The carburetor was disassembled, and evidence of water staining was present.

Pilot Information

Certificate:	Private	**Age:**	47,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	August 24, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 4, 2018
Flight Time:	398 hours (Total, all aircraft), 35 hours (Total, this make and model), 286 hours (Pilot In Command, all aircraft), 16 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N233P
Model/Series:	PA 23 Undesignat	**Aircraft Category:**	Airplane
Year of Manufacture:	1956	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	23-604
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:	April 8, 2019 Annual	**Certified Max Gross Wt.:**	3501 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	3823.2 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-320-B3B
Registered Owner:		**Rated Power:**	160
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:	KSLR,489 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	15:35 Local	**Direction from Accident Site:**	190°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	13 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.94 inches Hg	**Temperature/Dew Point:**	23°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Mount Pleasant, TX (OSA)	**Type of Flight Plan Filed:**	None
Destination:	Mount Pleasant, TX (OSA)	**Type of Clearance:**	None
Departure Time:	08:30 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	33.193054,-95.611389(est)

Administrative Information

Investigator In Charge (IIC):	Liedler, Courtney		
Additional Participating Persons:	Julius Sutton; FAA FSDO; North Texas, TX Jonathon Hirsch; Piper Aircraft Company; Vero Beach, FL		
Original Publish Date:	October 20, 2021	**Investigation Class:**	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=99329		