



# Aviation Investigation Final Report

---

<b>Location:</b>	Loveland, Ohio	<b>Accident Number:</b>	CEN20LA290
<b>Date &amp; Time:</b>	July 18, 2020, 17:30 Local	<b>Registration:</b>	N4816A
<b>Aircraft:</b>	Piper PA22	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel starvation	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

---

## Analysis

Before the pilot's departure on a cross-country flight, he added 7.5 gallons of fuel to each wing fuel tank. The pilot reported that before adding fuel, both fuel gauges read  $\frac{1}{4}$  tank. About an hour and half after departure, the engine lost power, had a momentary gain of power, and then lost power again. The pilot selected a road for a forced landing. During the landing, the airplane impacted several mailboxes and a light pole before coming to stop in a residential yard

Examination of the airplane found substantial damage to the left wing, damage to the right horizontal stabilizer and elevator, and right-side engine cowling. The right-wing fuel tank was then drained and about 5.5 gallons of fuel was recovered, the left-wing fuel tank did not contain any useable fuel. The left fuel gauge read about  $\frac{1}{4}$  and the right fuel gauge read zero. The examination did not confirm the accuracy of the gauges or if the wires were swapped from the left and right fuel tanks. Fuel was added to right wing fuel tank, and the engine started. The engine was operated from idle, to a high power setting, with no abnormalities noted.

The pilot reported on the NTSB Form 6120.1, that he thought the reason for the engine failure was due to fuel exhaustion.

With fuel remaining in the right-wing fuel tank, the loss of engine power is consistent with fuel starvation.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:  
The loss of engine power due to fuel starvation

## Findings

---

<b>Personnel issues</b>	Fuel planning - Pilot
<b>Aircraft</b>	Fuel - Fluid management
<b>Aircraft</b>	Fuel indication system - Not specified

## Factual Information

### History of Flight

<b>Enroute</b>	Fuel starvation (Defining event)
<b>Landing-landing roll</b>	Collision during takeoff/land

On July 18, 2020, about 1730 eastern daylight time, a Piper PA-22 airplane, N4816A, was substantially damaged when it was involved in an accident near Loveland, Ohio. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, before adding fuel, both fuel gauges read  $\frac{1}{4}$  tank and he added about 7.5 gallons to each tank, for an additional 15 gallons of fuel. He then departed the Wadsworth Municipal Airport (3G3), Wadsworth, Ohio, en route to the Cincinnati Municipal Airport-Lunken Field (LUK), Lunken, Ohio. About an hour and half after departure, the engine lost power, had a momentary gain of power, and then lost power again. The pilot selected a road for a forced landing. During the landing, the airplane impacted several mailboxes and a light pole before coming to stop in a residential yard.

The pilot reported that he typically switches fuel tanks every 10-15 minutes but did not recall if he did it on this flight. He also did not switch fuel tanks after the initial loss of engine power.

Examination of the airplane found substantial damage to the left wing, damage to the right horizontal stabilizer and elevator, and right-side engine cowling. The fuel selector was in the off position. The right-wing fuel tank was then drained and about 5.5 gallons of fuel was recovered, the left-wing fuel tank did not contain any useable fuel. The carburetor float bowl was checked and no contaminants were found. The left fuel gauge read about  $\frac{1}{4}$  and the right fuel gauge read zero. The examination did not confirm the accuracy of the gauges or if the wires were swapped from the left and right fuel tanks.

During the examination, fuel was added to right wing fuel tank, and the engine started. The engine was operated from idle to a high power setting with no abnormalities noted.

The pilot reported on the NTSB Form 6120.1 that he thought the reason for the engine failure was due to fuel exhaustion.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	31
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	Lap only
<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 1	<b>Last FAA Medical Exam:</b>	March 1, 2016
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	April 30, 2019
<b>Flight Time:</b>	528 hours (Total, all aircraft), 168 hours (Total, this make and model), 383 hours (Pilot In Command, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N4816A
<b>Model/Series:</b>	PA22 150	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	22-3969
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>	March 4, 2020 Annual	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>		<b>Engine Model/Series:</b>	O-320-A2B
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	150 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>	KLUK	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	16:53 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	7 miles
<b>Lowest Ceiling:</b>	Broken / 5500 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	230°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.03 inches Hg	<b>Temperature/Dew Point:</b>	32°C / 21°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Wadsworth, OH (3G3 )	<b>Type of Flight Plan Filed:</b>	
<b>Destination:</b>	Lunken, OH (KLUK)	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	14:50 Local	<b>Type of Airspace:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	39.267501,-84.26583(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hatch, Craig
<b>Additional Participating Persons:</b>	Brian Crogan; FAA FSDO; Cincinnati , OH
<b>Original Publish Date:</b>	February 2, 2021
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</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=101622">https://data.ntsb.gov/Docket?ProjectID=101622</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](#).