



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Dwight, Illinois	Accident Number:	CEN19LA126
Date & Time:	April 19, 2019, 16:30 Local	Registration:	N838JH
Aircraft:	Piper PA28	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (partial)	Injuries:	3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was in cruise flight in the single-engine airplane when the engine started to run rough. He applied carburetor heat, but the engine continued to run rough. He noticed that the fuel pressure gauge indicated 0, so he turned on the electric fuel boost pump, which did not restore power. He then switched fuel tanks, which momentarily restored engine power. The pilot decided to divert to a nearby airport and continued to switch between fuel tanks to obtain short bursts of engine power. During landing, the airplane departed the runway surface and the nose landing gear collapsed.

Examination of the fuel system found available fuel in the tanks and only a small amount of debris in the gascolator. Both the engine-driven and electric fuel boost pumps were removed from the airplane. Hand testing of the engine-driven pump found suction and pressure at the inlet and outlet ports. Testing of the electric boost pump revealed that liquid would not flow when activated. Despite the failure of the electric boost pump, it was not indicated for use in cruise flight, and its failure should not have resulted in a loss of fuel flow. It is possible that an unidentified fuel restriction prevented fuel from getting to the engine-driven fuel pump; however, the reason for or source of the fuel restriction could not be determined during postaccident examination.

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 due to a restriction in fuel flow for undetermined reasons.

Findings

Aircraft	Fuel distribution - Malfunction
Aircraft	Fuel pumps - Malfunction
Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Enroute-cruise	Fuel related
Enroute-cruise	Loss of engine power (partial) (Defining event)
Landing-landing roll	Runway excursion

On April 19, 2019, about 1630 central daylight time, a Piper PA-28-235 airplane, N838JH, conducted a precautionary landing at the Dwight Airport (KDTG), Dwight, Illinois. The pilot and two passengers were not injured, and the airplane was substantially damaged during the landing. The airplane was registered to and operated by Aten, Inc, under the provisions of 14 *Code of Federal Regulations* Part 91 as personal flight. Visual meteorological conditions prevailed at the time.

The pilot reported to the responding Federal Aviation Administration inspector, that he was in cruise flight at 6,500 ft. The engine started to run rough, so he applied carburetor heat, but the engine continued to run rough. He noticed the fuel pressure was zero, so he turned on the electric boost pump, but nothing changed. He then switched fuel tanks and the engine smoothed out a little with a slight increase in fuel pressure. The pilot then decided to divert to KDTG for a precautionary landing. A couple minutes later, the fuel pressure again went to zero; he switched to the left tip fuel tank, and the engine regained power momentarily. The scenario would repeat; after switching tanks, the engine momentarily regained power, so he kept switching tanks, in order to reach KDTG.

During the crosswind landing, the airplane drifted off the runway and the nose gear collapsed. Inspection of the airplane noted a collapsed nose landing gear and substantial damage to the engine mount. Fuel was found in 3 of the 4 fuel tanks.

A mechanic and FAA inspector examined the airplane's fuel system. Fuel did not appear to be flowing properly to the carburetor. The fuel line was separated before the engine driven fuel pump and the electric boost pump activated. Adequate fuel flow was still not observed. Only a small amount of debris was found in the gascolator bowl. Both the engine driven pump and electric boost pump were removed from the airplane. An initial test of the engine driven pump found the it would not pump fuel. A restriction or any additional anomalies were not found with the airplane's fuel system.

The engine driven pump and electric boost pump was then tested by the NTSB Investigator-in-Charge. When the engine driven pump was operated by hand, suction and pressure was felt on the pump's inlet and outlet ports. The inlet of the electric boost pump was connected to a hose and the inlet end submerged in a pail of water. A 12-volt battery was then connected to the pump; the pump ran but would not draw water from the pail, and only, "spit" a small quantity of liquid.

Pilot Information

Certificate:	Private	Age:	48
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 3 With waivers/limitations	Last FAA Medical Exam:	October 1, 2017
Occupational Pilot:	No	Last Flight Review or Equivalent:	November 21, 2018
Flight Time:	1100 hours (Total, all aircraft), 800 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N838JH
Model/Series:	PA28 235	Aircraft Category:	Airplane
Year of Manufacture:	1971	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	28-7110009
Landing Gear Type:	Tricycle	Seats:	
Date/Type of Last Inspection:	July 1, 2018 Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:	18 Hrs	Engines:	Reciprocating
Airframe Total Time:	2374 Hrs	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-540
Registered Owner:		Rated Power:	
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KPNT	Distance from Accident Site:	16 Nautical Miles
Observation Time:	16:35 Local	Direction from Accident Site:	240°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	21 knots / 30 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	20°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.79 inches Hg	Temperature/Dew Point:	13°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Dupage, IL (KDPA)	Type of Flight Plan Filed:	None
Destination:	St Louis, IL (KCPS)	Type of Clearance:	VFR
Departure Time:	16:10 Local	Type of Airspace:	

Airport Information

Airport:	Dwight Airport DTG	Runway Surface Type:	Asphalt
Airport Elevation:	632 ft msl	Runway Surface Condition:	Dry
Runway Used:	27	IFR Approach:	None
Runway Length/Width:	2364 ft / 21 ft	VFR Approach/Landing:	Forced landing;Precautionary landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	41.132778,-88.438331(est)

Administrative Information

Investigator In Charge (IIC):	Hatch, Craig		
Additional Participating Persons:	Edward Dabrowski; FAA FSDO; Dupage, IL		
Original Publish Date:	January 28, 2021	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=99301		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).