Aviation Investigation Final Report

Location:	Minneapolis, Minnesota	**Accident Number:**	CEN24LA050
Date & Time:	November 28, 2023, 10:31 Local	**Registration:**	N8274H
Aircraft:	Piper PA-28-181	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane's engine momentarily lost power while approaching to land near the conclusion of about a 3.5-hour flight. The pilot advanced the throttle control and engine power was restored for about 30 seconds to one minute before all engine power was again lost. The pilot reported that the airplane was operating on the right fuel tank when the power loss occurred and that all attempts to restore power were unsuccessful, including switching to the left fuel tank. The airplane struck a car during the ensuing forced landing to a road, resulting in substantial damage to the left wing and fuselage.

Postaccident examination shortly after the accident revealed that the left fuel tank drain was leaking an undetermined amount of fuel, and the left fuel tank did not contain a usable amount of fuel. The fuel tank was not compromised. The right fuel tank contained an undetermined amount of usable fuel. Examination of the fuel tank drain revealed that the o-ring seal was deformed and gouged. Subsequent examination revealed no other anomalies that would have prevented normal engine operation.

Based on the available information, although the pilot believed he was operating on the right fuel tank, he was likely operating on the left fuel tank, which had leaked an undetermined amount of fuel. The leakage from the tank drain resulted in fuel starvation and the subsequent loss of engine power. Due to the low altitude when the power loss occurred, the pilot was unable to restore fuel flow to the engine before the forced landing.

Probable Cause and Findings

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

Loss of engine power due to fuel starvation that was the result of a leaking fuel drain.

Findings

Aircraft	Fuel - Fluid level
Aircraft	(general) - Damaged/degraded

Factual Information

History of Flight

Approach	Fuel starvation (Defining event)

On November 28, 2023, about 1031 central standard time, a Piper PA-28-181, N8274H, was substantially damaged when it was involved in an accident near Minneapolis, Minnesota. The pilot received minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that he departed from Crystal Airport (MIC), near Minneapolis, Minnesota, about 0710. He noted that he departed with full fuel (48 gallons) onboard. He then flew the airplane to Watertown Regional Airport (ATY), near Watertown, South Dakota, a flight which he said took about 2 hours due to a headwind encountered along the route. He performed a touch-and-go landing at ATY and then proceeded back toward MIC, which he said took about 1hour 15 minutes due to a tailwind. Automatic dependent surveillance-broadcast (ADS-B) data confirmed that the flight lasted 3 hours and 26 minutes.

The pilot stated that during the flight he switched the selected fuel tank every 30 minutes and noted that the airplane was equipped with a fuel timer to remind the pilot when to switch the fuel tanks. As he approached MIC, he contacted the control tower and was given instructions for sequencing to land on runway 14. When he turned onto a right base for runway 14, the engine lost partial power momentarily. He stated that he pushed the throttle control forward and the engine power was restored. He then started the turn to the final approach for runway 14 and the engine lost all power. The pilot noted that the engine had remained under power for 30 seconds to one minute following the momentary power loss before it lost all power.

The pilot notified the tower controller of his engine issues and began emergency procedures that included switching fuel tanks, turning the magnetos off and back on, checking that the primer was locked, checking the throttle was full forward and the mixture was rich, turning on the fuel pump, and applying carburetor heat. These procedures were unsuccessful in restoring engine power, and he executed a forced landing to a road. During the forced landing the airplane struck a powerline and a vehicle, which resulted in substantial damage to the wing and fuselage. The driver of the vehicle received minor injuries.

Postaccident examination of the airplane shortly after the accident revealed that the left fuel tank was not compromised but the tank drain was leaking fuel. The left fuel tank did not contain any usable fuel. The leakage rate from the left fuel tank drain was not determined. Removal of the fuel tank drain revealed that the o-ring seal was deformed and gouged. The

right fuel tank contained an undetermined amount of usable fuel. Subsequent examination revealed no other anomalies that would have prevented normal engine operation.

When queried after the accident, the pilot reported that the airplane was operating on the right fuel tank when the initial and subsequent power losses occurred. He stated that he switched from the right fuel tank to the left fuel tank during the troubleshooting procedures he attempted. He noted that the engine did not continue windmilling and the propeller stopped. He stated that he attempted to restart the engine by engaging the starter once and the propeller turned but then stopped again. At that point, he focused on the forced landing.

Pilot Information

Certificate:	Private	**Age:**	23,Male
Airplane Rating(s):	Single-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:**	
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	September 20, 2022
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 2, 2023
Flight Time:	240 hours (Total, all aircraft), 95 hours (Total, this make and model), 136 hours (Pilot In Command, all aircraft), 32 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N8274H
Model/Series:	PA-28-181	**Aircraft Category:**	Airplane
Year of Manufacture:	1980	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	28-8190052
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	November 15, 2023 100 hour	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	22 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	9849 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	C91 installed	**Engine Model/Series:**	O-360-A4M
Registered Owner:	THUNDERBIRD AIRCRAFT CO	**Rated Power:**	180 Horsepower
Operator:	THUNDERBIRD AIRCRAFT CO	**Operating Certificate(s) Held:**	Pilot school (141)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KMIC	**Distance from Accident Site:**	
Observation Time:	10:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	190°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	-7°C / -14°C
Precipitation and Obscuration:			
Departure Point:	Crystal, MN (MIC)	**Type of Flight Plan Filed:**	
Destination:	Crystal, MN (MIC)	**Type of Clearance:**	VFR
Departure Time:	07:05 Local	**Type of Airspace:**	Class D

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	1 Minor	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	45.062469,-93.353965

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	Daniel Sindt; FAA; Minneapolis, MN
Original Publish Date:	May 30, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=193454