



Aviation Investigation Final Report

Location:	Eau Claire, Wisconsin	Accident Number:	CEN23LA099
Date & Time:	February 5, 2023, 12:55 Local	Registration:	N9770J
Aircraft:	Piper PA-28-160	Aircraft Damage:	Destroyed
Defining Event:	Fire/smoke (non-impact)	Injuries:	3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot attempted to start the engine six times before the battery died. He recharged the battery and attempted six more engine starts before ceasing further attempts. He said that during each engine start attempt, he applied the engine primer three times and pumped the throttle control two times. The throttle control was positioned about ¼ inch forward during each start attempt. At times during the start attempts, he placed the mixture control into idle cutoff and ran the engine starter.

The pilot and one passenger exited the airplane while one passenger remained inside. The passenger who exited the airplane noticed a small flame inside the engine cowling. The pilot told the passenger inside the airplane to move the mixture control to idle cutoff. The passenger then exited the airplane. The fuel selector was not turned to the off position. A large fire erupted from the engine compartment, which destroyed the airplane. Fire damage precluded determination of the fuel and ignition sources of the fire.

Probable Cause and Findings

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

The engine fire that began for undetermined reasons following numerous engine start attempts.

Findings

Not determined	(general) - Unknown/Not determined
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Factual Information

History of Flight

Prior to flight	Unknown or undetermined
Prior to flight	Fire/smoke (non-impact) (Defining event)

On February 5, 2023, at 1255 central standard time, a Piper PA-28-180, N9770J, was destroyed when it was involved in an accident near Eau Claire, Wisconsin. The commercial pilot and two passengers were uninjured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot stated that he last flew the airplane on December 4, 2022, during which time the airplane started and flew with no anomalies. On December 25, 2022, he was unable to start the airplane for a flight, which he attributed to the outside air temperature of -7°F.

On the day of the accident, the pilot attempted about six engine starts before the battery died and, once the battery was recharged, he attempted an additional six engine starts before he ceased further attempts to start the engine. He said that during each engine start attempt he applied engine primer three times and pumped the throttle control two times. The throttle control was positioned about ¼ inch forward during each start. At times during the start attempts, he placed the mixture control into idle cutoff and ran the engine starter. He stopped trying to start the engine and decided to contact an aircraft mechanic. The pilot and the passengers exited the airplane, and one of the passengers saw a small flame inside the engine cowl. The pilot told the remaining passenger to move the mixture control to idle cutoff. The fuel selector was not turned to the off position. The flames continued to spread and the airplane was destroyed by the fire.

A photo showed flames during the accident in two areas. The first area was beneath the engine and the second area was near the right aft top side of the engine by the right forward fuselage. Examination of the engine compartment in the first area revealed that the carburetor airbox assembly and the carburetor heat assembly were consumed by fire. The fuel line leading to the carburetor was intact. The area above the carburetor exhibited soot consistent with lower combustion temperatures above a hotter area, which lacked soot and was around the carburetor bowl. Examination of the second area revealed a separated and thermally damaged engine primer line for the No. 3 cylinder. The remainder of the engine primer lines were intact. The area near the separated primer line did not contain a comparable amount of soot as that of the area further from the separated primer line. Fire damage precluded determination of the fuel and ignition sources of the fire.

Pilot Information

Certificate:	Commercial	Age:	56, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Lap only
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Helicopter; Instrument helicopter	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	January 11, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	October 19, 2022
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N9770J
Model/Series:	PA-28-160	Aircraft Category:	Airplane
Year of Manufacture:	1967	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	28-3698
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	July 20, 2022 Annual	Certified Max Gross Wt.:	2400 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3765.1 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	C91 installed, not activated	Engine Model/Series:	O-360-A4A
Registered Owner:	On file	Rated Power:	180
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:	EAU, 913 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	12:56 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.99 inches Hg	Temperature/Dew Point:	-3°C / -9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Eau Claire, WI (EAU)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:		Type of Airspace:	Class D

Airport Information

Airport:	Chippewa Valley Regional Airport EAU	Runway Surface Type:	
Airport Elevation:	913 ft msl	Runway Surface Condition:	
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Destroyed
Passenger Injuries:	2 None	Aircraft Fire:	On-ground
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	44.865806, -91.48425(est)

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Michael Brockel; Federal Aviation Administration; Milwaukee FSDO; Milwaukee, WI
Original Publish Date:	March 28, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=106682

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](#).