Aviation Investigation Final Report

Location:	Ottawa, Ohio	**Accident Number:**	ERA24LA014
Date & Time:	October 22, 2023, 15:15 Local	**Registration:**	N6757P
Aircraft:	Piper PA-24-250	**Aircraft Damage:**	Substantial
Defining Event:	Fuel related	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was flying cross-country to his home airport after purchasing the airplane. No problems were noted during the preflight inspection. About 40 minutes into the flight at 6,700 ft mean sea level (msl), he noticed a 5-inch drop in manifold pressure. He immediately applied carburetor heat for about 90 seconds. He stated that the airplane “buffered really hard.” He continued to monitor engine performance and applied carburetor heat no less than 4 times for about 30 seconds each time. With the carburetor heat still on he heard a bang and the airplane shuddered. There was no response from the propeller or the engine. The engine lost all power and he began looking for a road to land the airplane on. He discussed his intentions with air traffic control. Unable to find a road without powerlines or automobile traffic, he landed the airplane in a flat field. After touchdown, the airplane entered a cornfield and came to rest upright, resulting in substantial damage to the wings and lower fuselage.

Examination of the engine and fuel system did not reveal evidence of an anomaly or malfunction that would have prevented normal operation. The airplane was operated in conditions conducive to carburetor icing at glide and cruise power and serious icing at glide power. Although the pilot reported that he used carburetor heat, it is likely that the ice had already accumulated to the degree that the carburetor heat was insufficient to melt the ice and restore engine power.

Probable Cause and Findings

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

A total loss of engine power due to the formation of carburetor ice..

Findings

Environmental issues	Conducive to carburetor icing - Effect on operation

Factual Information

History of Flight

Enroute-cruise	Fuel related (Defining event)
Emergency descent	Off-field or emergency landing

On October 22, 2023, about 1515 eastern daylight time, a Piper PA-24-250 airplane, N6757P, was substantially damaged when it was involved in an accident near Ottawa, Ohio. The private pilot incurred minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that he was preparing for the flight from Abrams Municipal Airport (4D0), Grand Ledge, Michigan to Pompano Beach Airpark (PMP), Pompano Beach, Florida, after purchasing the airplane. He conducted a full walk-around inspection and found no issues with the airplane. He departed from runway 27 with full fuel tanks (about 60 gallons).

About 5 minutes after takeoff, he observed a few sporadic clouds overhead, so he applied carburetor heat for about 30 seconds, and the airplane "buffered a lot." About 40 minutes into the flight, at 6,700 ft msl, he noticed a 5-inch drop in manifold pressure. He immediately applied carburetor heat for about 90 seconds. He stated that the airplane "buffered really hard."

Between 1450 and 1506, he applied carburetor heat no less than 4 times for about 30 seconds each time while continuing to monitor the other engine indications. About 1507, with the carburetor heat still on, he heard a bang and the airplane shuddered. There was no response from the propeller or the engine. The engine lost all power and he began looking for a road to land the airplane on. He discussed his intentions with air traffic control. Unable to find a road without powerlines or automobile traffic, he landed the airplane in a flat field. After touchdown, the airplane entered a cornfield and came to rest upright. He exited the airplane on his own and was met by first responders.

An inspector with the Federal Aviation Administration responded to the accident site and examined the wreckage. The wreckage was found upright in the cornfield. There was no fire. The fuselage and wings were substantially damaged.

The wreckage was recovered to an aircraft storage facility where an examination was performed by the NTSB investigator-in-charge. The engine remained attached to the engine mount that was attached to the firewall. External examination of the engine did not reveal any evidence of case rupture or oil leakage. Control continuity was established from the cockpit controls to the carburetor and propeller. The fuel system gascolators were drained; one contained about 2 ounces of blue-colored fuel and the other contained about 1 ounce of blue-colored fuel. Both samples contained a trace amount of gray particulates that resembled sand.

The top spark plugs were removed; the electrodes exhibited normal wear and light gray, lean coloring as compared to a Champion Check-A-Plug inspection chart. Internal engine continuity was confirmed by manually turning the propeller. Compression and suction were observed on all cylinders when the propeller was rotated. Valve action was correct. Both magnetos produced spark to all leads when rotated manually.

The carburetor was removed and partially disassembled. The bowl was dry and clean. The brass floats were undamaged. The inlet fuel screen was unobstructed and contained a trace amount of light gray particulates that resembled sand. The accelerator pump operated normally. The engine-driven fuel pump was unremarkable.

Examination of the engine and fuel system did not reveal an anomaly or malfunction that would have prevented normal operation.

FAA Special Airworthiness Information Bulletin (CE-09-35) – Carburetor Icing Prevention, stated that:

"…pilots should be aware that carburetor icing doesn't just occur in freezing conditions, it can occur at temperatures well above freezing temperatures when there is visible moisture or high humidity. Icing can occur in the carburetor at temperatures above freezing because vaporization of fuel, combined with the expansion of air as it flows through the carburetor, (Venturi Effect) causes sudden cooling, sometimes by a significant amount within a fraction of a second. Carburetor ice can be detected by a drop in rpm in fixed pitch propeller airplanes and a drop in manifold pressure in constant speed propeller airplanes. In both types, usually there will be a roughness in engine operation."

A review of the CE-09-35 carburetor icing probability chart revealed the airplane was operated in conditions conducive to icing at glide and cruise power and serious icing at glide power.

Pilot Information

Certificate:	Private	**Age:**	49,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	January 25, 2023
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 14, 2023
Flight Time:	94 hours (Total, all aircraft), 3 hours (Total, this make and model), 20 hours (Pilot In Command, all aircraft), 6 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N6757P
Model/Series:	PA-24-250	**Aircraft Category:**	Airplane
Year of Manufacture:	1960	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-1886
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	September 9, 2023 Annual	**Certified Max Gross Wt.:**	2800 lbs
Time Since Last Inspection:	5 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2775 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	C91 installed, not activated	**Engine Model/Series:**	O-540-A1B5
Registered Owner:	On file	**Rated Power:**	250 Horsepower
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:	KFDY,809 ft msl	**Distance from Accident Site:**	19 Nautical Miles
Observation Time:	14:53 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Scattered / 3400 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots / 19 knots	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	13°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Abrams, MI (4D0)	**Type of Flight Plan Filed:**	None
Destination:	Pompano Beach, FL (PMP)	**Type of Clearance:**	VFR
Departure Time:	14:20 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	41.01707,-84.09306(est)

Administrative Information

Investigator In Charge (IIC):	Hicks, Ralph
Additional Participating Persons:	David M Schleup; FAA/FSDO; Columbus, OH
Original Publish Date:	July 24, 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=193279