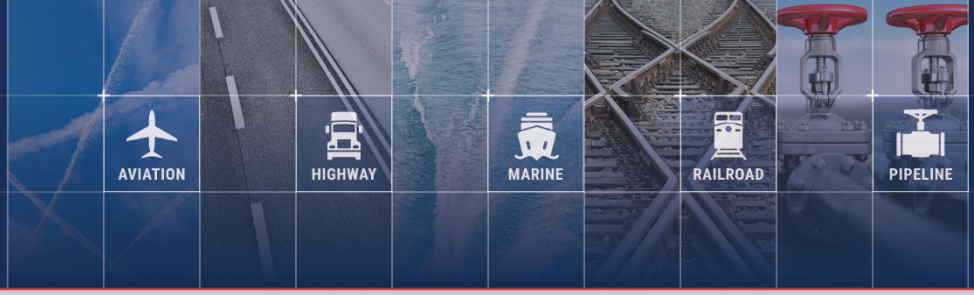

Aviation Investigation Final Report

Location:	Pence Springs, West Virginia	**Accident Number:**	ERA23LA275
Date & Time:	June 23, 2023, 09:50 Local	**Registration:**	N9543E
Aircraft:	Aeronca 11AC	**Aircraft Damage:**	Substantial
Defining Event:	Fuel related	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he reduced power while leveling off in the airport traffic pattern, at an altitude of 1,000 feet above ground level, then subsequently felt as though the airplane was sinking. He noticed that the engine rpm was at 1,500 and there was no forward thrust. He attempted to troubleshoot, applied carburetor heat, and lowered the nose to maintain glide speed, but was unable to restore engine power before the airplane descended into trees, resulting in substantial damage to the fuselage and wings.

Postaccident examination of the engine revealed no evidence of preimpact mechanical malfunctions or failures that would have precluded normal engine operation, with the exception that the carburetor heat tubing was not completely attached to the carburetor intake box. It did not display evidence of impact damage. The disconnected tubing would likely have resulted in a reduced quantity of heated air reaching the carburetor and would have reduced the system's effectiveness. The weather conditions at the time of the accident were conducive to the formation of serious carburetor icing at glide engine power settings. Based on the available information, it is likely that the loss of engine power was the result of carburetor ice accumulation. While the pilot reported that he did not utilize carburetor heat until after he thought the engine had lost power, which would have substantially reduced the likelihood that it could have eliminated any accumulated icing in the carburetor, given the findings that the system may not have been operating properly when the engine lost power, even timely activation may not have impacted the outcome.

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 carburetor icing.

Findings

Environmental issues	Conducive to carburetor icing - Effect on equipment
Personnel issues	Delayed action - Pilot
Aircraft	Intake anti-ice, deice - Damaged/degraded

Factual Information

History of Flight

Maneuvering	Fuel related (Defining event)
Landing	Off-field or emergency landing
Landing-flare/touchdown	Collision with terr/obj (non-CFIT)

On June 23, 2023, about 0950 eastern daylight time, an Aeronca 11AC, N9543E, was substantially damaged when it was involved in an accident at Hinton-Alderson Airport (WV77), Pence Springs, West Virginia. The commercial pilot and student pilot were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that, while in the airport traffic pattern about 1,000 ft above ground level, he reduced engine power and the airplane began “sinking.” He attempted to arrest the descent by adding full power, but the engine did not respond. He noticed that the engine rpm was at 1,500 and there was no forward thrust. He attempted to troubleshoot, applied carburetor heat, and lowered the nose to maintain glide speed but was unable to restore power; the airplane descended into the trees. The left wing impacted the trees first and the airplane subsequently impacted terrain before coming to rest upright.

A postaccident examination revealed substantial damage to the wings. The left wing was fractured and displaced aft near its midspan. Further examination of the engine and components revealed the propeller was undamaged and showed no signatures consistent with rotation at impact. Engine continuity was confirmed and a compression check of the engine’s cylinders was conducted along with a spark plug exam, both of which showed no anomalies. Fuel sampled from the airframe was free of water or debris. The carburetor heat tubing was not completely attached to the carburetor intake box and did not display evidence of impact damage.

At 0950, the weather reported at Greenbrier Valley Airport (LWB), Lewisburg, West Virginia, about 18 miles northeast east of the accident site, included a temperature of 18°C and a dew point of 16°C and there was visible moisture in the area with overcast conditions at 800 ft. The calculated relative humidity at this temperature and dewpoint was 62%. Review of the icing probability chart contained in Federal Aviation Administration (FAA) Special Airworthiness Information Bulletin CE-09-35 revealed that the weather conditions at the time of the accident were "conducive to serious icing at glide [idle] power."

According to FAA Advisory Circular 20-113, "To prevent accidents due to induction system icing, the pilot should regularly use [carburetor] heat under conditions known to be conducive to atmospheric icing and be alert at all times for indications of icing in the fuel system." The

circular recommended that when operating in conditions where the relative humidity is greater than 50%, "…apply carburetor heat briefly immediately before takeoff, particularly with float type carburetors, to remove any ice which may have been accumulated during taxi and runup." It also stated, "Remain alert for indications of induction system icing during takeoff and climb-out, especially when the relative humidity is above 50 percent, or when visible moisture is present in the atmosphere."

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	79,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	August 5, 2022
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 1, 2023
Flight Time:	2584 hours (Total, all aircraft), 2440 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:		**Age:**	Male
Airplane Rating(s):		**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	Lap only
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Aeronca	**Registration:**	N9543E
Model/Series:	11AC	**Aircraft Category:**	Airplane
Year of Manufacture:	1946	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	11AC-1179
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	May 1, 2023 Annual	**Certified Max Gross Wt.:**	1250 lbs
Time Since Last Inspection:	4 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1816 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	
Registered Owner:	On file	**Rated Power:**	65 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:	LWB,2302 ft msl	**Distance from Accident Site:**	19 Nautical Miles
Observation Time:	09:50 Local	**Direction from Accident Site:**	53°
Lowest Cloud Condition:	Unknown	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 800 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	18°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Pence Springs, WV	**Type of Flight Plan Filed:**	None
Destination:	Pence Springs, WV	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

Airport:	Hinton-Alderson Airport WV77	**Runway Surface Type:**	Grass/turf
Airport Elevation:	1520 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	28	**IFR Approach:**	None
Runway Length/Width:	2700 ft / 25 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	37.679565,-80.710358(est)

Administrative Information

Investigator In Charge (IIC):	Mccarter, Lawrence
Additional Participating Persons:	Brian E Givens; FAA/FSDO; Charleston, WV
Original Publish Date:	June 26, 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=192445