Aviation Investigation Final Report

Location:	Boalsburg, Pennsylvania	**Accident Number:**	ERA25LA044
Date & Time:	November 9, 2024, 19:03 Local	**Registration:**	N504JN
Aircraft:	Schweizer 269C-1	**Aircraft Damage:**	Substantial
Defining Event:	Unknown or undetermined	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot of the helicopter reported that he departed and initiated a slow climb to clear a nearby mountain. The pilot stated that, based on the temperature, dew point, and humidity, he applied carburetor heat; the helicopter's icing gauge also indicated the need for carburetor heat. As the helicopter approached the mountain, the engine lost partial power, and the pilot maneuvered toward lower terrain to conduct a precautionary landing. The pilot identified a residential cul-de-sac as a landing site and attempted to apply power before touching down; however, the engine did not respond. The helicopter subsequently landed hard from a height of about 4 ft, and the tail boom impacted an embankment, resulting in substantial damage.

A postaccident engine run did not reveal evidence of any preexisting anomalies or failures that would have prevented normal engine operation. The recorded temperature and dew point near the accident site were conducive to the development of carburetor icing at cruise and glide engine power settings; however, the pilot stated that he applied carburetor heat before the loss of engine power. Based on this information, the reason for the loss of engine power could not be determined.

Probable Cause and Findings

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

A loss of engine power for reasons that could not be determined.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Unknown	Unknown or undetermined (Defining event)
Autorotation	Hard landing

On November 9, 2024, at 1903 eastern standard time, a Schweizer 269 C-1 helicopter, N504JN, was substantially damaged when it was involved in an accident near Boalsburg, Pennsylvania. The private pilot and passenger were not injured. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, he departed and initiated a slow climb to clear a mountain. The pilot reported that, based on the temperature, dew point, and humidity, he applied carburetor heat; the helicopter's icing gauge also indicated the need for carburetor heat. The pilot slightly leaned the fuel mixture while maintaining full power for the climb. As the helicopter approached the mountain, the pilot increased the throttle and raised the collective. The pilot then heard an unfamiliar noise from the engine, followed by a noticeable loss of power. The rotor gauge did not reach the upper end of the scale, prompting the pilot to reduce collective and apply additional throttle, which resulted in an engine backfire.

With insufficient power to clear the mountain, the pilot executed a right turn toward lower terrain. The engine continued to produce power, but was insufficient to sustain flight. Concerned about a potential total loss of engine power, the pilot initiated a descent toward a nearby farm field, but due to uneven terrain, the pilot chose to land on a paved road in a housing development. While maintaining a controlled descent, the pilot attempted to apply power upon reaching a cul-de-sac, but received no response from the engine. The helicopter subsequently landed hard from a height of about 4 feet, and the tail rotor impacted an embankment on the lower side of the cul-de-sac.

During a postaccident engine run, the engine operated without any notable anomalies, including smoke or abnormal sounds. At 1,400 to 1,500 rpm, magneto checks were performed, and the engine continued to operate normally in the left, right, and both magneto positions. Carburetor heat activation resulted in the expected rpm change, and when the mixture was pulled to idle cut-off, the engine exhibited a normal rpm increase before shutting down. The engine run revealed no anomalies that would have precluded normal operation of the engine.

The recorded temperature and dew point near the accident site was about 43°F and 25°F, respectively. On a carburetor icing probability chart, those temperatures were in the “icing – glide and cruise power” range. The pilot stated that he applied carburetor heat before the loss of engine power.

According to FAA Special Airworthiness Information Bulletin CE-09-35 (Carburetor Ice Prevention), pilots should be aware that carburetor icing does not 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.

Pilot Information

Certificate:	Private	**Age:**	77,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	June 1, 2023
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 1, 2023
Flight Time:	(Estimated) 307 hours (Total, all aircraft), 307 hours (Total, this make and model), 46 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

Passenger Information

Certificate:		**Age:**	Male
Airplane Rating(s):		**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	3-point
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:	Schweizer	**Registration:**	N504JN
Model/Series:	269C-1	**Aircraft Category:**	Helicopter
Year of Manufacture:	2000	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	0112
Landing Gear Type:	None; Skid	**Seats:**	2
Date/Type of Last Inspection:	September 25, 2025 Annual	**Certified Max Gross Wt.:**	1750 lbs
Time Since Last Inspection:	6 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2356 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Not installed	**Engine Model/Series:**	HO-360-C1A
Registered Owner:	On file	**Rated Power:**	180 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	KUNV,1239 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	09:53 Local	**Direction from Accident Site:**	316°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / None	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	40°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.4 inches Hg	**Temperature/Dew Point:**	6°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Boalsburg, PA	**Type of Flight Plan Filed:**	None
Destination:	Mifflintown, PA (RVL)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class E

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:**	40.79005,-77.773546(est)

Administrative Information

Investigator In Charge (IIC):	Alleyne, Eric
Additional Participating Persons:	Tim Kelley; FAA/FSDO; Harrisburg , PA
Original Publish Date:	April 2, 2025
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=195479