



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Livonia, New York	<b>Accident Number:</b>	ERA23LA157
<b>Date &amp; Time:</b>	March 21, 2023, 13:30 Local	<b>Registration:</b>	N73905
<b>Aircraft:</b>	Bell 47G-2A-1	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Abnormal runway contact	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

During a practice autorotation with a tail wind, the pilot began the maneuver and the helicopter initially lost airspeed; the pilot immediately corrected with forward cyclic input, which also increased his descent rate. The higher than normal descent rate continued, and he began the power recovery earlier than normal. Shortly before touchdown, the pilot noticed a slope in the terrain with the rising side to his aft. The helicopter continued to descend and the helicopter's tail rotor contacted the ground during the landing flare. The resulting impact resulted in a loss of control and substantial damage to the tail boom and tail rotor. The pilot stated that there were no preimpact malfunctions or failures of the helicopter that would have precluded normal operation.

## Probable Cause and Findings

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

The pilot's delayed action to arrest the high descent rate during a practice autorotation in tailwind conditions which ultimately resulted in loss of control.

## Findings

<b>Aircraft</b>	Descent rate - Not attained/maintained
<b>Personnel issues</b>	Delayed action - Pilot

## Factual Information

### History of Flight

<b>Landing-flare/touchdown</b>	Abnormal runway contact (Defining event)
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### Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	62, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 1 With waivers/limitations	<b>Last FAA Medical Exam:</b>	February 10, 2023
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated) 20000 hours (Total, all aircraft), 460 hours (Total, this make and model)		

### Student pilot Information

<b>Certificate:</b>	Student	<b>Age:</b>	Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	None	<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated) 5 hours (Total, all aircraft), 0 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Bell	<b>Registration:</b>	N73905
<b>Model/Series:</b>	47G-2A-1	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	1963	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	2860
<b>Landing Gear Type:</b>	None; Skid	<b>Seats:</b>	3
<b>Date/Type of Last Inspection:</b>	July 3, 2022 Annual	<b>Certified Max Gross Wt.:</b>	2950 lbs
<b>Time Since Last Inspection:</b>	10 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	9400 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	VO-435
<b>Registered Owner:</b>	FROST HOLLOW HELICOPTER LLC	<b>Rated Power:</b>	220 Horsepower
<b>Operator:</b>	FROST HOLLOW HELICOPTER LLC	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	ROC, 540 ft msl	<b>Distance from Accident Site:</b>	18 Nautical Miles
<b>Observation Time:</b>	13:54 Local	<b>Direction from Accident Site:</b>	347°
<b>Lowest Cloud Condition:</b>	Scattered / 9000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	14 knots / 25 knots	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	260°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.3 inches Hg	<b>Temperature/Dew Point:</b>	11°C / -4°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Livonia, NY	<b>Type of Flight Plan Filed:</b>	
<b>Destination:</b>	Livonia, NY	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class G

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	42.826067,-77.585174(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Mccarter, Lawrence
<b>Additional Participating Persons:</b>	Anthony Luttrell; FAA/FSDO; Rochester, NY
<b>Original Publish Date:</b>	June 23, 2023
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 4</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=106929">https://data.ntsb.gov/Docket?ProjectID=106929</a>

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](#).