



# Aviation Investigation Final Report

<b>Location:</b>	Cedar City, Utah	<b>Accident Number:</b>	WPR22LA267
<b>Date &amp; Time:</b>	July 25, 2022, 08:45 Local	<b>Registration:</b>	N497SU
<b>Aircraft:</b>	ROBINSON HELICOPTER COMPANY R44 II	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	1 Minor, 1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## Analysis

The helicopter flight instructor was performing straight-in autorotation with power recovery maneuvers with a student pilot. On the third autorotation, the flight instructor stated that the student started the maneuver at 700 ft above ground level (agl) with the main rotor rpm at 100%. During the glide, when the RPM decayed to 90% and the airspeed decreased to 60 knots, the instructor intervened, and he attempted to recover the lost RPM. About 100 ft agl, the instructor prepared for a roll-on landing. The helicopter subsequently landed hard, rolled over on its left side and sustained substantial damage when the main rotor blades severed the tailboom. The instructor reported that there were no preimpact mechanical failures or malfunctions with the airframe or engine 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 student pilot's failure to maintain rotor rpm and airspeed and the flight instructor's inadequate remedial action to regain helicopter control during the straight-in autorotation which resulted in a hard landing.

## Findings

<b>Personnel issues</b>	Use of equip/system - Student/instructed pilot
<b>Aircraft</b>	Airspeed - Not attained/maintained
<b>Personnel issues</b>	Monitoring other person - Instructor/check pilot
<b>Aircraft</b>	Descent rate - Not attained/maintained
<b>Personnel issues</b>	Aircraft control - Instructor/check pilot

## Factual Information

### History of Flight

<b>Autorotation</b>	Loss of control in flight (Defining event)
<b>Autorotation</b>	Hard landing

### Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	28, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Helicopter	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Helicopter	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	June 1, 2022
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	January 21, 2021
<b>Flight Time:</b>	376 hours (Total, all aircraft), 302 hours (Total, this make and model), 296 hours (Pilot In Command, all aircraft), 93 hours (Last 90 days, all aircraft), 57 hours (Last 30 days, all aircraft)		

### 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>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	January 24, 2022
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	27 hours (Total, all aircraft), 27 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	ROBINSON HELICOPTER COMPANY	<b>Registration:</b>	N497SU
<b>Model/Series:</b>	R44 II	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	2006	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	11441
<b>Landing Gear Type:</b>	None; Skid	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	June 28, 2022 100 hour	<b>Certified Max Gross Wt.:</b>	2500 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1
<b>Airframe Total Time:</b>	5286.9 Hrs as of last inspection	<b>Engine Manufacturer:</b>	
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	
<b>Registered Owner:</b>		<b>Rated Power:</b>	
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	Pilot school (141)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KCDC, 5590 ft msl	<b>Distance from Accident Site:</b>	10 Nautical Miles
<b>Observation Time:</b>	08:53 Local	<b>Direction from Accident Site:</b>	88°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.2 inches Hg	<b>Temperature/Dew Point:</b>	24°C / 14°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Cedar City, UT (KCDC)	<b>Type of Flight Plan Filed:</b>	Company VFR
<b>Destination:</b>	Cedar City, UT	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	07:00 Local	<b>Type of Airspace:</b>	Class G

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor, 1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Minor, 1 None	<b>Latitude, Longitude:</b>	37.70235,-113.30115

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Johnson, Scott		
<b>Additional Participating Persons:</b>	Kent Gibbons; Federal Aviation Administration; Salt Lake City , UT		
<b>Original Publish Date:</b>	December 2, 2022	<b>Investigation Class:</b>	4
<b>Note:</b>	The NTSB did not travel to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=105568">https://data.nts.gov/Docket?ProjectID=105568</a>		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).