



# Aviation Investigation Final Report

<b>Location:</b>	Fallston, Maryland	<b>Accident Number:</b>	ERA22LA140
<b>Date &amp; Time:</b>	March 1, 2022, 11:20 Local	<b>Registration:</b>	N786SH
<b>Aircraft:</b>	ROBINSON HELICOPTER COMPANY R22	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Dynamic rollover	<b>Injuries:</b>	1 Minor, 1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## Analysis

The flight instructor and his student were performing maneuvers as part of a flight lesson. About 40 minutes into the flight, while attempting a left pedal turn, the helicopter descended just enough to touch the left rear skid, which surprised the student, who then added right lateral cyclic control. The helicopter's right skid dug in the ground, and the helicopter rolled over on to its right side, which resulted in substantial damage to the fuselage and main rotor blades.

The helicopter manufacturer's flight maneuvers guide advised that a 5-foot hover should be used for all taxi and hover operations, and a minimum 5-foot hover was the policy of the flight school.

After the accident, the flight school had discussions with all their helicopter instructors to emphasize the need to maintain proper height above the ground, the need to closely guard the controls while instructing, and the need for improved awareness of the capabilities and experience of the students.

## Probable Cause and Findings

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

The student pilot's unstabilized hover, which resulted in ground contact and a dynamic rollover. Contributing to the accident was the flight instructor's inadequate supervision of the student and his delayed remedial action.

## Findings

<b>Aircraft</b>	Altitude - Not attained/maintained
<b>Aircraft</b>	Lateral/bank control - Not attained/maintained
<b>Personnel issues</b>	Aircraft control - Student/instructed pilot
<b>Personnel issues</b>	Identification/recognition - Student/instructed pilot
<b>Personnel issues</b>	Use of equip/system - Student/instructed pilot
<b>Personnel issues</b>	Decision making/judgment - Instructor/check pilot
<b>Personnel issues</b>	Delayed action - Instructor/check pilot
<b>Personnel issues</b>	Total experience - Student/instructed pilot

## Factual Information

### History of Flight

<b>Maneuvering-hover</b>	Low altitude operation/event
<b>Maneuvering-hover</b>	Altitude deviation
<b>Maneuvering-hover</b>	Attempted remediation/recovery
<b>Maneuvering-hover</b>	Dynamic rollover (Defining event)

### Flight instructor Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	30, 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; Instrument helicopter	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 1 With waivers/limitations	<b>Last FAA Medical Exam:</b>	April 8, 2021
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	March 6, 2021
<b>Flight Time:</b>	1038 hours (Total, all aircraft), 828 hours (Total, this make and model), 969 hours (Pilot In Command, all aircraft), 126 hours (Last 90 days, all aircraft), 776 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

### Student pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	35, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>		<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	January 27, 2022
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	November 14, 2019
<b>Flight Time:</b>	143 hours (Total, all aircraft), 2 hours (Total, this make and model), 83 hours (Pilot In Command, all aircraft), 2 hours (Last 30 days, all aircraft), 1 hour (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	ROBINSON HELICOPTER COMPANY	<b>Registration:</b>	N786SH
<b>Model/Series:</b>	R22	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	2004	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	3626
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	February 2, 2022 Annual	<b>Certified Max Gross Wt.:</b>	1370 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	7473.86 Hrs as of last inspection	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	O-360-J2A
<b>Registered Owner:</b>	SPITZER HELICOPTER LLC	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	Fly For Fun Aircraft LLC	<b>Operating Certificate(s) Held:</b>	Pilot school (141)
<b>Operator Does Business As:</b>	Middle River Flight Center	<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KMTN,21 ft msl	<b>Distance from Accident Site:</b>	10 Nautical Miles
<b>Observation Time:</b>	11:54 Local	<b>Direction from Accident Site:</b>	181°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 12000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	7 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	130°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.13 inches Hg	<b>Temperature/Dew Point:</b>	7°C / 2°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Baltimore, MD (MTN)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Fallston, MD (W42)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:50 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	Fallston Airport W42	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	460 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	22	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	2200 ft / 50 ft	<b>VFR Approach/Landing:</b>	Full stop;Traffic pattern

## 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>	39.501324,-76.411335(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Gunther, Todd
<b>Additional Participating Persons:</b>	Dedrick P. Richards; FAA / FSDO; Baltimore, MD
<b>Original Publish Date:</b>	July 5, 2022
<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=104715">https://data.ntsb.gov/Docket?ProjectID=104715</a>

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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](#).