



# Aviation Investigation Final Report

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<b>Location:</b>	Smoketown, Pennsylvania	<b>Accident Number:</b>	GAA20CA060
<b>Date &amp; Time:</b>	November 4, 2019, 11:19 Local	<b>Registration:</b>	N8560A
<b>Aircraft:</b>	Robinson R22	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Dynamic rollover	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

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## Analysis

The flight instructor reported that he lifted off in the helicopter and ascended to between about 3 and 4 ft above the grassy field north of the runway to show the student pilot how to hover, and while having positive control of the collective and antitorque pedal, he gave the cyclic control to the student. While the instructor was "guarding" the cyclic, the student applied right cyclic. Subsequently, the helicopter descended, and the right skid contacted the ground. The instructor applied left cyclic, but the helicopter dynamically rolled over. The helicopter sustained substantial damage to the main rotor system and horizontal stabilizer. The instructor reported that there were no preaccident mechanical failures or malfunctions with 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 student pilot's improper cyclic input while hovering and the flight instructor's delayed remedial action, which resulted in a dynamic rollover.

## Findings

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

## Factual Information

### History of Flight

<b>Maneuvering-hover</b>	Low altitude operation/event
<b>Maneuvering-hover</b>	Simulated/training event
<b>Maneuvering-hover</b>	Dynamic rollover (Defining event)
<b>Maneuvering-hover</b>	Collision with terr/obj (non-CFIT)

### Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<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>	No
<b>Instructor Rating(s):</b>	Helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	February 1, 2019
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated)		

### Student pilot Information

<b>Certificate:</b>	None	<b>Age:</b>	44, 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>	No
<b>Medical Certification:</b>	Unknown	<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Robinson	<b>Registration:</b>	N8560A
<b>Model/Series:</b>	R22 Alpha	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	1985	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	0474
<b>Landing Gear Type:</b>	N/A; Skid	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	September 6, 2019 100 hour	<b>Certified Max Gross Wt.:</b>	1370 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	10410.1 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	O-360-B2A
<b>Registered Owner:</b>	Smoketown Helicopters LLC	<b>Rated Power:</b>	145 Horsepower
<b>Operator:</b>	Smoketown Helicopters 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>	Dawn
<b>Observation Facility, Elevation:</b>	KLNS,403 ft msl	<b>Distance from Accident Site:</b>	6 Nautical Miles
<b>Observation Time:</b>	15:53 Local	<b>Direction from Accident Site:</b>	318°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	14 knots / None	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	160°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.32 inches Hg	<b>Temperature/Dew Point:</b>	12°C / -1°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Smoketown, PA (S37)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Smoketown, PA (S37)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:00 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>	SMOKETOWN S37	<b>Runway Surface Type:</b>	Grass/turf
<b>Airport Elevation:</b>	370 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## 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>	40.041667,-76.201942(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Nepomuceno, Eleazar
<b>Additional Participating Persons:</b>	David Reeves; FAA; Harrisburg, PA
<b>Original Publish Date:</b>	May 21, 2020
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=100536">https://data.nts.gov/Docket?ProjectID=100536</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](#).