



# Aviation Investigation Final Report

<b>Location:</b>	Sanford, Florida	<b>Accident Number:</b>	ERA24LA287
<b>Date &amp; Time:</b>	June 27, 2024, 15:34 Local	<b>Registration:</b>	N174SC
<b>Aircraft:</b>	Airbus Helicopters AS350	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Settling with power/vortex ring state	<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Public aircraft		

## Analysis

As part of a law enforcement simulation exercise, the helicopter pilot was orbiting near the departure airport between 200 to 300 ft above ground level, at 20 to 40 knots indicated airspeed. The pilot described that while the helicopter was in a left orbit the airspeed decreased to near 0. At that time, the helicopter began to descend in a vortex ring state (VRS). Due to the low altitude, the pilot was not able to recover from VRS and entered an autorotation to a grass area on the airport. The helicopter subsequently landed hard and came to rest upright in the grass area resulting in substantial damage to the helicopter’s tail boom. The pilot reported that there were no preimpact mechanical malfunctions or failures of the helicopter.

## Probable Cause and Findings

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

The helicopter pilot’s improper maneuvering at low altitude in gusty wind conditions, which resulted in the helicopter entering a vortex ring state, and hard landing during a subsequent autorotation.

## Findings

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<b>Personnel issues</b>	Incorrect action performance - Pilot
<b>Environmental issues</b>	Gusts - Response/compensation

## Factual Information

### History of Flight

<b>Maneuvering-low-alt flying</b>	Settling with power/vortex ring state (Defining event)
<b>Autorotation</b>	Hard landing

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	36, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	Helicopter	<b>Second Pilot Present:</b>	No
<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>	July 13, 2023
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	September 16, 2023
<b>Flight Time:</b>	979 hours (Total, all aircraft), 934 hours (Total, this make and model), 912 hours (Pilot In Command, all aircraft), 62 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Airbus Helicopters	<b>Registration:</b>	N174SC
<b>Model/Series:</b>	AS350 B3	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	2023	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	9349
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	June 17, 2024 AAIP	<b>Certified Max Gross Wt.:</b>	5225 lbs
<b>Time Since Last Inspection:</b>	1 Hrs	<b>Engines:</b>	1 Turbo shaft
<b>Airframe Total Time:</b>	402.1 Hrs as of last inspection	<b>Engine Manufacturer:</b>	SAFRAN
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	ARRIEL 2D
<b>Registered Owner:</b>	SEMINOLE COUNTY SHERIFFS OFFICE	<b>Rated Power:</b>	952 Horsepower
<b>Operator:</b>	SEMINOLE COUNTY SHERIFFS OFFICE	<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>	SFB,55 ft msl	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>	15:49 Local	<b>Direction from Accident Site:</b>	282°
<b>Lowest Cloud Condition:</b>	Few / 5500 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 10000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	11 knots / 20 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	290°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.88 inches Hg	<b>Temperature/Dew Point:</b>	32°C / 22°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Sanford, FL (SFB)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Sanford, FL (SFB)	<b>Type of Clearance:</b>	VFR flight following
<b>Departure Time:</b>	15:16 Local	<b>Type of Airspace:</b>	Class C

## Airport Information

<b>Airport:</b>	Orlando Sanford International Airport SFB	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	55 ft msl	<b>Runway Surface Condition:</b>	
<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>	2 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	28.777642,-81.231234(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Gretz, Robert
<b>Additional Participating Persons:</b>	Joe Gramzinsky; FAA/FSDO; Orlando, FL
<b>Original Publish Date:</b>	July 25, 2024
<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=194587">https://data.ntsb.gov/Docket?ProjectID=194587</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](#).