



Aviation Investigation Final Report

Location:	Olympia, Washington	Accident Number:	WPR24LA139
Date & Time:	May 3, 2024, 16:00 Local	Registration:	N4082J
Aircraft:	ROBINSON HELICOPTER R22 BETA	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	1 Minor, 1 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor taxied the helicopter from one side of the airport to the other during an instructional flight with a student while the helicopter’s loading was near (about 12 lbs over) its maximum gross weight. As the helicopter approached the intended hover practice area, the instructor began a descending, left pedal turn to align the helicopter into the wind. During the descending turn and while about 10 ft above ground level (agl), the instructor began to add collective to arrest the helicopter’s descent; however, the helicopter continued to descend and impacted the ground with the toe of its right skid, leading to a dynamic rollover.

No evidence of pre-accident mechanical malfunction or failure was revealed during a postaccident examination of the helicopter. Thus, given the helicopter’s high gross weight and left turn during the descent (both of which require more antitorque thrust and reduce the amount of engine power available to produce lift), it is likely that the instructor’s action to raise the collective was delayed, which resulted in an inadequate amount of time and altitude for the increased collective to be able to arrest the helicopter’s descent before impact with the ground.

Probable Cause and Findings

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

The flight instructor's delayed action to arrest the descending, left pedal turn while maneuvering for a low-altitude hover with the helicopter near the maximum gross weight limitation, which resulted in an impact with the ground and a dynamic rollover.

Findings

Personnel issues	Task monitoring/vigilance - Instructor/check pilot
Personnel issues	Delayed action - Instructor/check pilot
Aircraft	Altitude - Not attained/maintained
Aircraft	Dynamic load - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Maneuvering-low-alt flying	Loss of control in flight (Defining event)
Landing	Dynamic rollover

On May 3, 2024, about 1600 Pacific daylight time, a Robinson Helicopter R22, N4082J, was substantially damaged when it was involved in an accident near Olympia, Washington. The flight instructor received minor injuries, and the student pilot was uninjured. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

According to the flight instructor, he and the student pilot were conducting a hover training flight at the Olympia Regional Airport (OLM), Olympia, Washington. Before the accident, the instructor taxied the helicopter about 50 ft agl and 50 kts from a practice area in the southwest corner of the airport toward a practice area near the northeast corner of the airport. As the helicopter approached the second practice area from the southwest, the instructor began a descending pedal turn to the left to realign the helicopter into the wind. During the left pedal turn, the helicopter was in a descent and still traveling in a northerly direction.

According to the flight instructor, when the helicopter was about 10 ft agl, he began to raise the collective to arrest the helicopter's descent, but the helicopter "did not seem to respond" and continued to descend. Subsequently, the right skid struck the ground, the helicopter pitched forward, and the main rotor blades struck the ground and tailboom before the helicopter came to rest on its left side. The helicopter sustained substantial damage to the tailboom and the drivetrain.

The flight instructor stated that the helicopter had a maximum gross weight operation limitation of 1,370 lbs, that its weight at takeoff was 1,413 lbs, and that its weight at the time of the accident was 1,382 lbs. He stated that he did not observe any engine rpm drop and estimated that he had added about 85% of the available collective before ground impact.

Postaccident examination of the airframe and test run of the engine revealed no evidence of any pre-accident anomaly that would have precluded normal operation.

Review of maintenance records show that the most recent maintenance was a 100-hour inspection, performed on April 4, 2024.

According to the FAA Helicopter Flying Handbook (FAA-H-8083-21B), "At higher gross weights, the increased power required to hover produces more torque, which means more antitorque thrust is required.... Strong crosswinds and tailwinds may require the use of more tail rotor thrust to maintain directional control. This increased tail rotor thrust absorbs power from the engine, which means there is less power available to the main rotor for the production of lift...."

The handbook also stated that, “the following flight characteristics may be expected during maneuvering flight...: [In] left turns, torque increases (more antitorque).”

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	23, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	3-point
Instrument Rating(s):	Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Helicopter; Instrument helicopter	Toxicology Performed:	
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	September 21, 2022
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	February 7, 2024
Flight Time:	468 hours (Total, all aircraft), 218 hours (Total, this make and model), 308 hours (Pilot In Command, all aircraft), 114 hours (Last 90 days, all aircraft), 73 hours (Last 30 days, all aircraft)		

Student pilot Information

Certificate:	Student	Age:	21
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	None None	Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 4 hours (Total, all aircraft), 4 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	ROBINSON HELICOPTER	Registration:	N4082J
Model/Series:	R22 BETA	Aircraft Category:	Helicopter
Year of Manufacture:	1991	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	1794
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	April 4, 2024 100 hour	Certified Max Gross Wt.:	1370 lbs
Time Since Last Inspection:	79.5 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	6007.3 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Not installed	Engine Model/Series:	O-320-B2C
Registered Owner:	On file	Rated Power:	160 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KOLM,200 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	16:00 Local	Direction from Accident Site:	326°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Broken / 11000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	6 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	200°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.78 inches Hg	Temperature/Dew Point:	18°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Olympia, WA	Type of Flight Plan Filed:	None
Destination:	Olympia, WA	Type of Clearance:	VFR
Departure Time:		Type of Airspace:	Class D

Airport Information

Airport:	Olympia Regional Airport OLM	Runway Surface Type:	
Airport Elevation:	207 ft msl	Runway Surface Condition:	Dry
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Minor, 1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 Minor, 1 None	Latitude, Longitude:	46.97,-122.9

Administrative Information

Investigator In Charge (IIC):	Blocher, Kristyn
Additional Participating Persons:	Steve Loete ; Federal Aviation Administration; Seattle, WA
Original Publish Date:	April 3, 2026
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=194211

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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](#).