Aviation Investigation Final Report

Location:	Cedar Lake, Indiana	**Accident Number:**	CEN23LA247
Date & Time:	June 19, 2023, 13:07 Local	**Registration:**	N4076H
Aircraft:	ROBINSON HELICOPTER R22 BETA	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor stated that when they performed the vortex ring state emergency procedure, the pilot under instruction told him that the helicopter was not producing power. During the descent, the flight controls were then transferred to the flight instructor. The flight instructor stated that the helicopter was not producing power. The flight instructor said he then proceeded to turn northbound to avoid a boat and personnel and landed on a lake. A witness video showed the helicopter descend above the lake and stop the descent in about a 12-15 ft hover. It did a left hover turn for about 90°. The helicopter then stopped turning and appeared to hover taxi forward before it entered a descent. The helicopter skids entered the water and were submerged up to the bottom of the helicopter fuselage. While partially submerged, the helicopter began to rotate to the right and climb out to the bottom of the skids before it rolled left and descended into the water. The video showed that the helicopter was able to hover, perform a hover turn, and attain a partial climb out of the water, all of which demonstrated that the helicopter was not limited in engine performance due to the excess power available to perform these maneuvers.

Postaccident examination of the helicopter revealed no mechanical anomalies that would have precluded normal helicopter operation.

Probable Cause and Findings

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

The failure of the flight instructor to attain/maintain aircraft control while maneuvering, which resulted in an uncontrolled descent and impact with the lake.

Findings

Aircraft	(general) - Not attained/maintained
Personnel issues	Aircraft control - Instructor/check pilot

Factual Information

History of Flight

Maneuvering	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On June 19, 2023, at 1307 central daylight time, a Robinson R22 Beta, N4076H, was involved in an accident near Cedar Lake, Indiana. The flight instructor and a student pilot were uninjured. The helicopter was operated under Title 14 *Code of Federal Regulations* Part 91 as an instructional flight.

The flight instructor reported that the flight departed from the Lansing Municipal Airport (KIGQ), Lansing, Indiana, about 1254 on a local flight. The flight proceeded about 15 miles to the southeast to fly over Cedar Lake. The flight instructor stated that he was providing flight instruction to a pilot under instruction, who was his son, at the time of the accident. The flight instructor rented the helicopter from the operator and was not employed by the operator. According to the operator's rental agreement, the flight instructor was not allowed to provide flight instruction in the helicopter, nor was he allowed to let anyone else fly the helicopter.

The flight instructor stated they practiced a vortex ring state emergency procedure during accident flight. The flight instructor stated that pilot under instruction told him that the helicopter was not producing power. During the descent, the flight controls were transferred to the flight instructor. The flight instructor said he then proceeded to turn northbound and land on Cedar Lake. The flight instructor said that when he set the helicopter down into the lake, he pushed the cyclic to the left so that the rotor would hit the water. The helicopter was submerged in about 8 ft of water and sustained substantial damage to the tail boom and vertical stabilizer.

In a postaccident telephone interview, the flight instructor stated that when the pilot under instruction said the helicopter was not producing power, the engine gauges indicated 24 inches of manifold pressure and 103% and 104% for the engine and rotor speeds, respectively. He said there was a low rotor warning at about 150 ft above ground level (agl), and he did not recall a prior low rotor warning. He did not mention hearing a squealing noise during any part of the accident flight.

A National Transportation Safety Board Pilot/Operator Aircraft Accident/Incident Report, Form 6120.1 was not received from the flight instructor upon initial request on June 21, 2023. Upon a second request, the pilot provided the form on March 25, 2024. On the form, the flight instructor checked that the purpose of the flight was personal, but stated in the accident narrative that it was a training flight. He stated that there was a loss of power at 1,200 ft over Cedar Lake and was rapidly losing altitude as he looked for somewhere to land. He stated that there was a squealing noise, and about 250 ft agl, he saw and heard the low rpm light and warning horn. Unable to make his intended landing point, he turned left to 360° north to avoid a boat and people. The helicopter landed in the water with the tail touching the water. The helicopter spun three times and the flight instructor pushed the cyclic to the left and the main rotor hit the water. The spinning stopped and the helicopter started to sink in the lake. The flight instructor and student pilot exited the open passenger door.

A witness video showed the helicopter descend above the lake and stop its descent in about a 12-15 ft hover. It did a left hover turn for about 90°. The helicopter then stopped turning and appeared to hover taxi forward before it entered a descent. The helicopter skids entered the water and were submerged up to the bottom of the helicopter fuselage. While partially submerged, the helicopter began to rotate to the right and climb out to the bottom of the skids before it rolled left and descended into the water.

Postaccident examination of the helicopter found no mechanical anomalies that would have precluded normal helicopter operation.

The Helicopter Flyng Handbook (FAA-H-8083-21B), Chapter 2. Aerodynamics of Flight, states, "…as the helicopter begins to accelerate from a hover, the rotor disk becomes more efficient due to translational lift (see translational lift on page 2-19). The result is excess power over that which is required to hover. Continued acceleration causes an even larger increase in airflow through the rotor disk (up to a maximum determined by drag and the engine's limit of power), and more efficient flight." Chapter 9, Basic Flight Maneuvers, Hovering Turn, states, "It should be noted that during a turn to the left, more power is required because left pedal pressure increases the pitch angle of the tail rotor, which, in turn, requires additional power from the engine."

Flight instructor Information

Certificate:	Airline transport; Flight engineer; Flight instructor	**Age:**	55,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land; Multi-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Balloon; Glider; Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Glider; Helicopter; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 1 None	**Last FAA Medical Exam:**	June 23, 2023
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	September 25, 2022
Flight Time:	19187 hours (Total, all aircraft)		

Student pilot Information

Certificate:	Private	**Age:**	22,Male
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):		**Second Pilot Present:**	Yes
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	May 23, 2023
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	448 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	ROBINSON HELICOPTER	**Registration:**	N4076H
Model/Series:	R22 BETA	**Aircraft Category:**	Helicopter
Year of Manufacture:	1991	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1799
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	October 25, 2022 100 hour	**Certified Max Gross Wt.:**	1370 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2841.7 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	O-320-B2C
Registered Owner:	SUMMERSKYZ INC	**Rated Power:**	124 Horsepower
Operator:	SUMMERSKYZ INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	IGQ,620 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	12:55 Local	**Direction from Accident Site:**	157°
Lowest Cloud Condition:	Scattered / 6000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.91 inches Hg	**Temperature/Dew Point:**	29°C / 15°C
Precipitation and Obscuration:			
Departure Point:	Cedar Lake, IN	**Type of Flight Plan Filed:**	None
Destination:	Cedar Lake, IN	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	41.364761,-87.440828(est)

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	John Shaver; Federal Aviation Administration, Greater Chicago FSDO; Des Plaines, IL
Original Publish Date:	May 14, 2024
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=192412