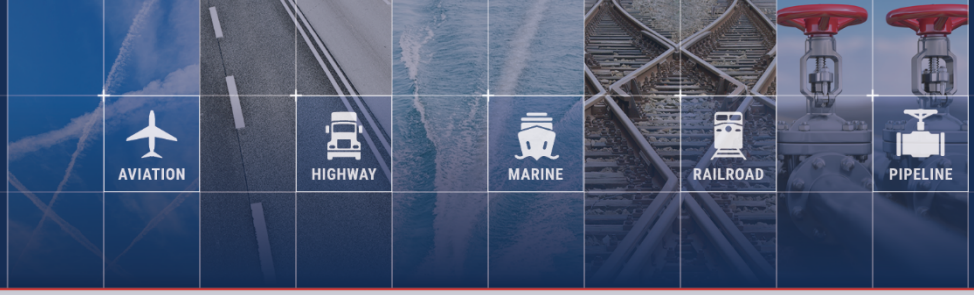

Aviation Investigation Final Report

Location:	Bronson, Florida	**Accident Number:**	ERA22FA098
Date & Time:	December 30, 2021, 20:25 Local	**Registration:**	N442VB
Aircraft:	ROBINSON HELICOPTER COMPANY R44 II	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	4 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The noninstrument-rated pilot departed into night conditions with three passengers. Flight track information indicated that the helicopter flew northwest at altitudes between about 350 and 700 ft before impacting wooded terrain about 2.5 miles from the departure point. The helicopter was heavily fragmented, and the wreckage path was about 225 ft long. The examination of the airframe and engine did not reveal any preimpact mechanical anomalies that would have precluded normal operation.

Atmospheric conditions were favorable to the development of widespread, dense radiational fog in the area of the accident site during the time the helicopter departed. The pilot was aware of these conditions, as he stated to an individual before he departed that the fog and visibility were “bad,” and that he needed to find another way home. The helicopter was not certified for instrument flight.

As the pilot maneuvered the helicopter into reduced visibility, night conditions, it is likely he could not see outside visual references. When there is a lack of outside visual references, the pilot would have to use his flight instruments to understand the helicopter’s position in space. Based on the automatic dependent surveillance-broadcast (ADS-B) data, the helicopter’s trajectory changed several times in that last .5 miles. It is likely that the pilot was not referencing his flight instruments or was experiencing the effects of spatial disorientation. Based on the available information, it is likely that the pilot became spatially disoriented and lost control of the helicopter after departing on a visual flight rules flight into reduced visibility, night conditions

Probable Cause and Findings

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

A loss of control due to spatial disorientation as a result of the noninstrument-rated pilot's improper decision to attempt a visual flight rules flight at night into an area of known reduced visibility due to fog.

Findings

Environmental issues	Fog - Decision related to condition
Personnel issues	Decision making/judgment - Pilot
Personnel issues	Spatial disorientation - Pilot
Personnel issues	Qualification/certification - Pilot

Factual Information

History of Flight

Enroute	Loss of control in flight (Defining event)

HISTORY OF FLIGHT

On December 30, 2021, about 2025 eastern standard time, a Robinson R44 II, N442VB, was destroyed when it was involved in an accident near Bronson, Florida. The pilot and three passengers were fatally injured. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot was not instrument rated and the helicopter was not certified for flight in instrument conditions. The pilot departed a private residence located in Bronson, Florida, about 2023, destined for his personal residence in Bell, Florida. According to automatic dependent surveillance-broadcast data provided by the Federal Aviation Administration, the helicopter departed about 2.5 miles south of the accident site. The helicopter flew northwest about 1.5 miles, then turned right and flew northeast for 1 mile. During the last .5 miles, the helicopter descended from 700 ft mean sea level (msl), to 350 ft msl, then climbed back up to 625 ft msl. The last data point showed the helicopter descending again at 550 ft msl.

A witness at the residence from which the pilot departed stated that the pilot was checking the weather and wanted to depart soon. He stated that the pilot said the fog and visibility was getting “bad” and his initial route home did not look good, and they needed to take another route home.

A witness, who was out walking her dog, stated that she heard a helicopter about 2025. She looked for the helicopter but could not see it because it was too dark outside, and she did not see any lights. Seconds later, she heard the helicopter crash and a “large fireball” light up the sky.

METEOROLOGICAL INFORMATION

Williston Municipal Airport (X60), Williston, Florida, was located about 10 miles east-southeast of the accident site. At 2035, recorded weather at X60 included calm wind, visibility of 7 statute miles, mist, scattered clouds at 500 ft agl, temperature of 21°C, dew point temperature of 20°C, altimeter setting of 30.08 inches of mercury.

The NWS Weather Forecast Office (WFO) in Tampa Bay, Florida, issued the following “Update” section of an Area Forecast Discussion (AFD) at 1908. This was the last AFD issued from this WFO before the accident.

UPDATE...
Atmospheric conditions are very favorable for widespread radiational dense fog over land and advection fog over marine zones this evening, tonight and into Friday morning. An expanding area of low clouds and sea fog has already developed from Sarasota County through Tampa Bay and into portions of the Nature Coast with near zero visibility reported in Venice early this evening. Later this evening expected fog development to expand and become widespread and very dense overnight. Expect Dense Fog Advisories to be issued as fog impacts more areas into tonight.

WRECKAGE AND IMPACT INFORMATION

The accident site was located in a wooded area and the wreckage path was about 225 ft long. The helicopter was heavily fragmented and scattered along a debris path on a heading of about 360° magnetic. The right skid was embedded in the ground at a 42° angle. An 8-foot-long section of the main rotor blade was embedded in the ground about 3 ft deep. The engine was located about 225 ft north of the main impact point. The main rotor gearbox and sections of the main rotor blades were located about 175 feet northeast of the main impact point.

The main rotor gearbox was forwarded to the manufacturer for further examination. The examination revealed that the damage to the gearbox was impact related and no preimpact anomalies were noted. Examination of the engine did not reveal any preimpact mechanical malfunctions.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was performed by the Office of the Medical Examiner, District 8, Gainesville, Florida. The autopsy report was reviewed by the NTSB Investigator-In-Charge. According to the autopsy report, the cause of death was injuries sustained in a helicopter crash, and the manner of death was accident.

Pilot Information

Certificate:	Private	**Age:**	36,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	February 20, 2020
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	360 hours (Total, all aircraft), 144 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	ROBINSON HELICOPTER COMPANY	**Registration:**	N442VB
Model/Series:	R44 II	**Aircraft Category:**	Helicopter
Year of Manufacture:	2019	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	14296
Landing Gear Type:	Skid	**Seats:**	4
Date/Type of Last Inspection:	January 14, 2021 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	319.48 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-540
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	KCTY,38 ft msl	**Distance from Accident Site:**	27 Nautical Miles
Observation Time:	20:35 Local	**Direction from Accident Site:**	298°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	22°C / 21°C
Precipitation and Obscuration:			
Departure Point:	Bronson, FL	**Type of Flight Plan Filed:**	None
Destination:	Bell, FL	**Type of Clearance:**	None
Departure Time:	20:23 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	3 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Fatal	**Latitude, Longitude:**	29.419204,-82.646579(est)

Administrative Information

Investigator In Charge (IIC):	Boggs, Daniel
Additional Participating Persons:	Mike Childers; Lycoming ; Atlanta, GA Thom Webster; Robinson Helicopters; Torrance, CA Ismael Reyes; FAA Tampa; Tampa, FL
Original Publish Date:	October 19, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=104462