



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Pontiac, Michigan	Accident Number:	CEN23LA219
Date & Time:	May 31, 2023, 13:00 Local	Registration:	N7102Z
Aircraft:	ROBINSON HELICOPTER R44	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

A flight instructor and a private pilot receiving instruction were performing a hovering maneuver as part of a flight lesson. During an exchange of the flight controls, a gust of wind moved the helicopter backward. The flight instructor reassumed control of the helicopter, but the tail rotor assembly struck the ground and separated from the helicopter. He then performed a hovering autorotation, the helicopter landed upright on its skids and the occupants egressed the helicopter without injury. The ground strike resulted in substantial damage to the tailboom assembly. The flight 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 flight crew's inadequate compensation for gusting wind, and the flight instructor's delayed remedial action, which resulted in impact with the ground.

Findings

Personnel issues	Aircraft control - Instructor/check pilot
Environmental issues	Gusts - Response/compensation
Aircraft	(general) - Not attained/maintained

Factual Information

History of Flight

Maneuvering-hover	Loss of control in flight (Defining event)
Maneuvering-hover	Low altitude operation/event
Maneuvering-hover	Other weather encounter

Flight instructor Information

Certificate:	Commercial; Flight instructor; Remote	Age:	44,Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter; Unmanned (sUAS)	Restraint Used:	3-point
Instrument Rating(s):	Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Helicopter; Instrument helicopter	Toxicology Performed:	
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	June 14, 2022
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	May 18, 2021
Flight Time:	(Estimated) 9165 hours (Total, all aircraft), 6675 hours (Total, this make and model)		

Student pilot Information

Certificate:	Private	Age:	21
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	July 15, 2020
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	May 31, 2022
Flight Time:	(Estimated) 235 hours (Total, all aircraft), 235 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	ROBINSON HELICOPTER	Registration:	N7102Z
Model/Series:	R44	Aircraft Category:	Helicopter
Year of Manufacture:	2013	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	2309
Landing Gear Type:	Skid	Seats:	4
Date/Type of Last Inspection:	February 10, 2023 Annual	Certified Max Gross Wt.:	2400 lbs
Time Since Last Inspection:	42.5 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	146.24 Hrs	Engine Manufacturer:	LYCOMING
ELT:	C126 installed, not activated	Engine Model/Series:	O-540-F1B5
Registered Owner:	MICHIGAN HELICOPTERS LLC	Rated Power:	225 Horsepower
Operator:	MICHIGAN HELICOPTERS LLC	Operating Certificate(s) Held:	None
Operator Does Business As:	N/A	Operator Designator Code:	N/A

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KPTK, 969 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	13:53 Local	Direction from Accident Site:	109°
Lowest Cloud Condition:	Few / 7000 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	6 knots / 16 knots	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	170°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.12 inches Hg	Temperature/Dew Point:	29°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Waterford, MI (PTK)	Type of Flight Plan Filed:	None
Destination:	Pontiac, MI	Type of Clearance:	VFR
Departure Time:	11:00 Local	Type of Airspace:	Class D

Airport Information

Airport:	OAKLAND COUNTY INTL PTK	Runway Surface Type:	Asphalt
Airport Elevation:	980 ft msl	Runway Surface Condition:	Dry
Runway Used:	9R/27L	IFR Approach:	None
Runway Length/Width:	6521 ft / 150 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	42.665636,-83.420506(est)

Administrative Information

Investigator In Charge (IIC):	Galbraith, Damian
Additional Participating Persons:	Douglas Peterson; FAA East Michigan FSDO; Belleville, MI
Original Publish Date:	September 28, 2023
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=192275

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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](#).