



Aviation Investigation Final Report

Location:	Orchard Lake, Michigan	Accident Number:	CEN18LA365
Date & Time:	September 3, 2018, 15:00 Local	Registration:	N1601Y
Aircraft:	Md Helicopters MD-369	Aircraft Damage:	Substantial
Defining Event:	Collision during takeoff/land	Injuries:	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The helicopter departed from a wheeled helicopter transportation dolly at the pilot's private heliport and came to an in-ground-effect hover. The pilot indicated that as he was maneuvering the helicopter to the right of the dolly at a hover, a flock of Canada geese "came flying in to the front and right" of the helicopter. The pilot reported "quickly moving" the helicopter back to the right to avoid the birds; that was the last action he could remember until after the impact. The helicopter came to rest on its left side with the main rotor blades separated from the main rotor hub and the tail rotor gearbox separated from the tailboom.

The pilot reported there were no preimpact mechanical malfunctions or failures with the helicopter that would have precluded normal operation.

The pilot's private heliport was near a lake where Canada geese are known to congregate. It is likely that, while in a hover and attempting to avoid the birds by performing an evasive maneuver, the pilot failed to maintain helicopter control and terrain clearance.

Probable Cause and Findings

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

The pilot's failure to maintain helicopter control and terrain clearance while in a hover after performing an evasive maneuver to avoid wildlife.

Findings

Personnel issues	Aircraft control - Pilot
Personnel issues	Monitoring environment - Pilot
Aircraft	Altitude - Not attained/maintained
Aircraft	Directional control - Not attained/maintained
Environmental issues	Animal(s)/bird(s) - Response/compensation

Factual Information

History of Flight

Takeoff	Miscellaneous/other
Takeoff	Collision during takeoff/land (Defining event)

On September 3, 2018, about 1500 eastern daylight time, a MD Helicopters 369E, N1601Y, sustained substantial damage when it was involved in an accident near Orchard Lake, Michigan. The private pilot sustained serious injuries. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported he was planning a short flight in the local area. The helicopter was stationed on a wheeled helicopter transportation dolly at his private heliport. The helicopter departed from the dolly and came to an in-ground effect hover. As the pilot was maneuvering the helicopter to the right of the dolly at a hover, a flock of Canada geese (*Branta canadensis*) "came flying in to the front and right" of the helicopter. The pilot reported he remembered "quickly moving" the helicopter back to the right to avoid the birds, and that it was the last action he could recollect until after the impact when the helicopter was laying on its side. The helicopter came to rest on its left side on a flat grass field in front of the heliport, with the main rotor blades separated from the main rotor hub and the tail rotor gearbox separated from the tailboom. The pilot reported there were no preimpact mechanical malfunctions or failures with the airframe and engine that would have precluded normal operation.

Emergency services personnel extracted the pilot from the wreckage. The pilot sustained serious injuries to his head and body. A review of the pilot's medical records by the NTSB found the left side of the pilot's face and the right side of the pilot's head sustained impact injuries from the accident sequence. The pilot was not wearing a flight helmet during the accident flight, nor was he required to do so. The NTSB investigator-in-charge proposed to the manufacturer's air safety department about producing and distributing educational guidance encouraging pilots to wear a flight helmet and the manufacturer agreed. MD Helicopters Operational Safety Notice OSN2019-002 Aviation Life Support Equipment – Flight Helmets was created and released to the public in April 2019.

The pilot's private heliport is located about 350 ft south of the Upper Straits Lake in a residential area. According to the U.S. Department of Agriculture (USDA) Wildlife Services, Canada Geese build nests on the ground near water and consume grass and aquatic plants. The USDA additionally states that, "Canada geese can collide with aircraft causing fatal results."

Pilot Information

Certificate:	Private	Age:	87, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	4-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	October 25, 2017
Occupational Pilot:	No	Last Flight Review or Equivalent:	October 1, 2017
Flight Time:	(Estimated) 3600 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Md Helicopters	Registration:	N1601Y
Model/Series:	MD-369 E	Aircraft Category:	Helicopter
Year of Manufacture:	1987	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	0216E
Landing Gear Type:	Skid	Seats:	4
Date/Type of Last Inspection:	August 17, 2018 Annual	Certified Max Gross Wt.:	2250 lbs
Time Since Last Inspection:		Engines:	1 Turbo shaft
Airframe Total Time:	2942 Hrs as of last inspection	Engine Manufacturer:	Rolls-Royce
ELT:		Engine Model/Series:	250-C20B
Registered Owner:	On file	Rated Power:	492 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:	KPTK,976 ft msl	Distance from Accident Site:	6 Nautical Miles
Observation Time:	20:38 Local	Direction from Accident Site:	350°
Lowest Cloud Condition:	Scattered / 6000 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	5 knots / None	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	290°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.19 inches Hg	Temperature/Dew Point:	30°C / 21°C
Precipitation and Obscuration:	In the vicinity - Thunderstorm -		
Departure Point:	Orchard Lake, MI (7MI1)	Type of Flight Plan Filed:	None
Destination:	Orchard Lake, MI (7MI1)	Type of Clearance:	None
Departure Time:	15:00 Local	Type of Airspace:	Class G

Airport Information

Airport:	McPhail Heliport 7MI1	Runway Surface Type:	Concrete;Grass/turf;Metal/wood
Airport Elevation:	970 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 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	42.572223,-83.394996(est)

Administrative Information

Investigator In Charge (IIC):	Hodges, Michael
Additional Participating Persons:	Glenn Shaw; FAA East Michigan FSDO; Belleville, MI John Hobby; Boeing ; Mesa, AZ Joan Gregoire ; MD Helicopters; Mesa, AZ
Original Publish Date:	September 14, 2020
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98215

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](#).