



Aviation Investigation Final Report

Location:	Caddo, Texas	Accident Number:	CEN13FA205
Date & Time:	March 26, 2013, 12:45 Local	Registration:	N910WC
Aircraft:	Hughes OH-6A	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	1 Fatal, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The helicopter approached an open field, adjacent to a stock pond, where it had landed earlier in the day. The pilot stated that he looked for smoke or dust to establish the velocity and direction of the wind before landing, but that he did not observe any. As the pilot established a hover about 3 to 4 feet above the ground, he turned the helicopter east-southeast. Subsequently, the helicopter started to spin, and the pilot was unable to regain control. He stated that he did not get the left pedal in soon enough and/or hard enough. The pilot stated that the helicopter impacted the stock pond on the passenger side and immediately sank. An examination of the helicopter and its systems revealed no malfunctions or failures that would have precluded normal operations. The pilot was able to egress from the helicopter; however, the passenger was not. The passenger sustained a head injury during the impact sequence. It is possible that he was unconscious and, therefore, unable to get out of the helicopter.

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 control of the helicopter during landing.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	(general) - Not attained/maintained

Factual Information

History of Flight

Landing	Loss of control in flight (Defining event)
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HISTORY OF FLIGHT

On March 26, 2013, about 1245 central daylight time, a Hughes OH-6A helicopter, N910WC, was substantially damaged when it impacted a stock pond at the Walking Cane Ranch, near Caddo, Texas. The private pilot sustained minor injuries and the passenger was fatally injured. The helicopter was registered to SMR Venture, LLC., and was operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, which operated without a flight plan. The local flight originated from Walking Cane Ranch approximately 1215.

According to a witness located to the east of the accident location, the helicopter flew over him and continued west. The helicopter reversed course back to the east, and approached a stock pond as if preparing to land in the adjacent field. The witness stated that the helicopter began to slow down, at which time he felt a strong gust of wind from the north, northwest. The helicopter started to descend quickly, facing west, in a 45 degree or greater bank angle. The witness glanced away and when he looked back, the helicopter continued to descend and started to spin very quickly. It appeared that the main rotor was not moving or was standing still as the helicopter spun quickly. The bank angle increased to nearly 90 degrees. The witness lost sight of the helicopter and did not see it impact the water.

According to the pilot, he approached an open field, adjacent to the stock pond, where he had landed earlier in the day. The pilot stated that he looked for smoke or dust in order to establish the velocity and direction of the wind prior to landing but did not observe any. As he established a hover, approximately 3 to 4 feet above the ground, the pilot "sensed" a need to turn towards the east- southeast. Subsequently, the helicopter started to spin and control of the helicopter was lost despite flight control inputs. The pilot stated that the helicopter impacted the stock pond on the passenger side and immediately became submerged. The pilot was able to egress from the helicopter; however, the passenger was not.

PERSONNEL INFORMATION

The pilot, age 75, held a private pilot certificate with a helicopter and instrument rating. He was issued a third class airman medical certificate on April 9, 2012. The certificate contained the limitation must wear corrective lenses. The pilot reported that he had logged 571 hours total time; 210.3 hours were in the make and model of the accident helicopter. The pilot had successfully completed the requirements of a flight review on November 1, 2012, in the

accident helicopter.

AIRCRAFT INFORMATION

The accident helicopter, a Hughes OH-6A (serial number 67-16372), was registered with the Federal Aviation Administration on a standard airworthiness certificate for normal operations. An Allison 250-C20C engine rated at 375 horsepower powered the helicopter.

The helicopter was maintained under an annual inspection program. The pilot reported that an annual inspection had been completed on September 5, 2012. The helicopter had 4,756.2 hours at the time of the accident.

METEOROLOGICAL INFORMATION

The closest official weather observation station was Stephens County Airport (KBKD), Breckenridge, Texas, located 14 nautical miles (nm) west of the accident site. The elevation of the weather observation station was 1,284 feet mean sea level (msl). The routine aviation weather report (METAR) for KBKD, issued at 1335, reported, wind 200 degrees at 6 knots, visibility 10 miles, sky condition clear, temperature 15 degrees Celsius (C), dew point temperature minus 8 degrees C, altimeter 30.38 inches.

WRECKAGE AND IMPACT INFORMATION

The accident site was located in the middle of the stock pond at a GPS elevation of 1,348 feet. The helicopter came to rest on its left side and was later pulled to the shore of the pond by first responders. As it was recovered, to the shore, additional damage was incurred to the landing skids and the fuselage of the helicopter. There were no apparent ground scars associated with the accident sequence.

The main wreckage of the helicopter was on its right side, on the south shore of the stock pond when investigators arrived on scene. The wreckage included the fuselage, cabin, instrument panel, tail boom, engine, and main rotor assembly. The skin and structure of the fuselage was crushed and wrinkled in multiple locations. The left door was separated and found on top of the main wreckage. The forward bubble and windscreen were fragmented and had separated from the helicopter.

The cabin included both forward seats, the instrument panel and the flight controls. The left side of the fuselage structure was crushed and bent aft and to the right. The left side anti-torque pedals were separated from the mounting points. The upper frame of the left seat was bent and the left collective separated partially from the airframe. The flight controls for the cyclic, collective, and anti-torque pedals were continuous from the flight controls in the cabin aft to the main rotor, engine, and empennage. All separation points and damage were consistent with impact damage.

Both forward seatbelts remained attached at their design locations. The webbing was unremarkable. The inertia reel on the right side (pilots) functioned as designed. The inertia reel on the left side was impact damaged, preventing a functional test; however, further examination revealed no anomalies.

The tail boom remained partially attached to the helicopter, through the electrical wiring conduit, and was submerged in the water. The tail boom included the horizontal and vertical stabilizer, the tail rotor assembly, the tail rotor driveshaft, and the tail rotor gearbox. The upper and lower vertical stabilizer, and the horizontal stabilizer were unremarkable. Both tail rotor blades were covered in mud but were otherwise unremarkable. The soft stop on the tail rotor assembly separated and was not located. The tail rotor driveshaft was continuous from the point of separation aft to the tail rotor and rotated correctly without binding or issues when manually actuated.

Main rotor blades 1, 2, and 3 remained attached to the helicopter at the hub/mast. All three blades were bent and wrinkled. The number 3 blade was bowed up slightly. The number 4 blade separated from the main rotor assembly and was located on the east shore of the pond.

An examination of the engine and transmission assembly revealed that the driveshaft between the main rotor and transmission had separated, consistent with impact damage and overload at a design shear point. The compressor rotated freely when actuated by hand. Rotation was observed at the starter/generator and the first stage of the gas producer turbine. The power turbine was rotated by hand with rotation noted at the engine to transmission drive shaft and the tail rotor drive shaft. The chip detectors, engine oil screen, and engine fuel screen were free of contamination. The fuel control lever indicated 90 degrees corresponding to a "flight" throttle setting. Examination of the engine and transmission assembly revealed no anomalies that would have prevented the engine from developing designed power.

SURVIVAL ASPECTS

The autopsy on the passenger was performed by the Office of Chief Medical Examiner, Tarrant County Texas, on March 27, 2013, as authorized by the Justice of the Peace, Stephens County Texas. The autopsy concluded that the cause of death was drowning due to the helicopter accident. The report noted abrasion, bruising, and lacerations on his right forehead and right temple.

According to the pilot, the accident flight was the first time that the passenger had flown with the pilot in the helicopter. Prior to the flight, the pilot helped the passenger adjust the seatbelt and shoulder harnesses. In addition, the pilot showed the passenger how to buckle and unbuckle the seatbelt. Subsequently the passenger continued to operate the seatbelt and did not appear to have any issues or difficulties doing so.

Pilot Information

Certificate:	Private	Age:	75,Male
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	April 9, 2012
Occupational Pilot:	No	Last Flight Review or Equivalent:	November 1, 2012
Flight Time:	571 hours (Total, all aircraft), 210 hours (Total, this make and model), 456 hours (Pilot In Command, all aircraft), 7 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hughes	Registration:	N910WC
Model/Series:	OH-6A	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	67-16372
Landing Gear Type:	Skid	Seats:	4
Date/Type of Last Inspection:	September 5, 2012 Annual	Certified Max Gross Wt.:	2500 lbs
Time Since Last Inspection:		Engines:	1 Turbo shaft
Airframe Total Time:	4756.2 Hrs at time of accident	Engine Manufacturer:	Allison
ELT:		Engine Model/Series:	250-C200
Registered Owner:	On file	Rated Power:	420 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:	KBKD, 1284 ft msl	Distance from Accident Site:	14 Nautical Miles
Observation Time:	13:35 Local	Direction from Accident Site:	270°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	200°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.37 inches Hg	Temperature/Dew Point:	15°C / -8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Caddo, TX	Type of Flight Plan Filed:	None
Destination:	Caddo, TX	Type of Clearance:	None
Departure Time:	12:15 Local	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 1 Minor	Latitude, Longitude:	32.707221, -98.624168

Administrative Information

Investigator In Charge (IIC):	Rodi, Jennifer
Additional Participating Persons:	Gordon D Morris; FAA Flight Standards District Office; Lubbock, TX John Hobby; MD Helicopters, Inc.; Mesa, AZ Casey Lehman; Rolls-Royce Corporation; Indianapolis, IN
Original Publish Date:	December 11, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=86515

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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](#).