



Aviation Investigation Final Report

Location:	Champaign, Illinois	Accident Number:	CEN13LA436
Date & Time:	July 24, 2013, 11:30 Local	Registration:	N176MR
Aircraft:	TEXAS HELICOPTER CORP OH-13E/M74	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot of the helicopter reported that he was completing a turn to re-enter a field for an aerial application pass when he heard a loud "pop" and felt a vibration and noted with a decay in rotor speed. He applied aft cyclic and reduced the collective, initiating an autorotation. He stated that the helicopter rolled to the left and that he applied right cyclic with no response. He was able to raise the nose of the helicopter before impacting corn in a 15-degree left bank. The helicopter came to rest 120 degrees from the direction of flight with the engine running. A postaccident examination of the helicopter and a metallurgical examination of the fractured main rotor system components did not reveal any failure or malfunction that would have resulted in the loss of control as described by the pilot.

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 an aerial application maneuver.

Findings

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

Factual Information

History of Flight

Maneuvering-low-alt flying	Loss of control in flight (Defining event)
Autorotation	Collision with terr/obj (non-CFIT)

On July 24, 2013, about 1130 central daylight time, a Texas Helicopter OH-13E, N176MR, collided with the terrain following what the pilot described as a loss of main rotor effectiveness during an aerial application flight near Champaign, Illinois. The airline transport pilot was not injured. The helicopter received substantial damage to the airframe. The helicopter was registered to and operated by Reynolds Aerial Service LLC as a 14 Code of Federal Regulations Part 137 aerial application flight. Visual flight rules prevailed for the flight, which was not operated on a flight plan. The local flight originated about 1120.

The pilot reported he was completing a turn to re-enter a field for an aerial application pass when he heard a loud "pop" and experienced a "1 to 1" vibration along with decay in rotor speed. He applied aft cyclic and reduced the collective, initiating an autorotation. He stated the helicopter rolled to the left and he applied right cyclic with no response. He was able to raise the nose of the helicopter prior to impacting the corn in a 15 degree left bank. The helicopter came to rest 120 degrees from the direction of flight. The pilot reported the engine was running when the helicopter came to rest.

The helicopter was relocated to Scott's Helicopters in LeSueur, Minnesota, where it was examined by the National Transportation Safety Board (NTSB). The upper pitch change link, the equalizer beam rod end, the lower pitch change link, and the lateral cyclic torque tube assembly were fractured. These components were removed for further examination by the NTSB metallurgical laboratory. The examination revealed the fractures were a result of overstress with no evidence of any preexisting cracks. The examination of the helicopter did not reveal any failure/malfunction that would have resulted in the loss of control as described by the pilot.

Pilot Information

Certificate:	Airline transport; Flight instructor	Age:	58
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Center
Other Aircraft Rating(s):	Helicopter	Restraint Used:	4-point
Instrument Rating(s):	Powered-lift	Second Pilot Present:	No
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	August 28, 2012
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	May 29, 2013
Flight Time:	10902 hours (Total, all aircraft), 2202 hours (Total, this make and model), 10788 hours (Pilot In Command, all aircraft), 228 hours (Last 90 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	TEXAS HELICOPTER CORP	Registration:	N176MR
Model/Series:	OH-13E/M74	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	76001
Landing Gear Type:	Skid	Seats:	1
Date/Type of Last Inspection:	April 15, 2013 Annual	Certified Max Gross Wt.:	2850 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	2490 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Not installed	Engine Model/Series:	VO-435-A1F
Registered Owner:	REYNOLDS AERIAL SERVICE LLC	Rated Power:	260 Horsepower
Operator:	REYNOLDS AERIAL SERVICE LLC	Operating Certificate(s) Held:	Agricultural aircraft (137)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	CMI	Distance from Accident Site:	
Observation Time:	12:53 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	60°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.03 inches Hg	Temperature/Dew Point:	22°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Champaign, IL	Type of Flight Plan Filed:	None
Destination:	Champaign, IL	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	40.163055,-88.30722

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	David Tull; FAA-SPI-FSDO; Springfield, IL
Original Publish Date:	March 13, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=87575

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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](#).