



National Transportation Safety Board Aviation Accident Final Report

Location:	Lawton, OK	Accident Number:	CEN16LA386
Date & Time:	09/29/2016, 0600 CDT	Registration:	N361SF
Aircraft:	BELL 407	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	1 Serious, 3 Minor
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled - Air Medical (Discretionary)		

Analysis

The commercial pilot of the helicopter was approaching to land on a helipad. It was his first landing to this helipad, though he had departed from the helipad the day before. Due to trees and transmission lines near the helipad, the pilot flew a slight right-turning, steep approach. When the helicopter was about 125 ft above the pad and 150 ft to the southwest of it, the pilot commanded left cyclic to stop the right turn. He estimated the helicopter to be 40 knots above effective transitional lift, and in a stable 500 ft per minute descent; there was a headwind. The helicopter did not respond to his control input, and the pilot announced to the crew his intention to go around. He increased left cyclic until the cyclic was against his left leg and the helicopter still did not respond. The pilot lost control of the helicopter and it landed hard, colliding with a wall.

Data extracted from the engine control unit (ECU) was consistent with the engine producing the required power and responding to collective control inputs; however, the data indicated that the main rotor speed and torque were exceeded. These exceedances suggested that a large demand for power was commanded by the pilot, likely during the go-around. Examination of the helicopter did not reveal any mechanical anomalies that would have precluded normal operation. The helicopter was in a right bank with 3 crewmembers seated on the right side of the helicopter, one crewmember seated on the left side, and was carrying a near-full fuel load. The distribution of crew members and a high torque setting may have contributed to the pilot's inability to maintain helicopter control; however, the extent to which these factors may have contributed could not be determined.

Probable Cause and Findings

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

The pilot's loss of helicopter control during landing, which resulted in a hard landing and collision with a wall.

Findings

Personnel issues

Aircraft control - Other/unknown (Cause)

Factual Information

On September 29, 2016, about 0600 central daylight time, N361SF, a Bell 407 helicopter, impacted terrain following a loss of control while attempting to land at the Comanche County Memorial Hospital Heliport (18OK), Lawton, Oklahoma. The pilot and 2 crew members had minor injuries. One crew member was seriously injured, and the helicopter was substantially damaged. The helicopter was owned and operated by Survival Flight under the provisions of 14 Code of Federal Regulations Part 135 as a positioning flight. Night visual meteorological conditions prevailed for the flight which operated on a company flight plan.

The pilot reported that he approached the helipad from the southwest. It was his first landing to this helipad but had departed from the helipad on the day prior. Due to trees and transmission lines within 40-50 ft of the elevated helipad, the pilot flew a slight right-turning, steep approach. When the helicopter was approximately 125 ft above the pad and 150 ft to the southwest, the pilot commanded left cyclic to stop the right turn. He estimated the helicopter was below 40 knots, but above effective translational lift, with wind off the nose of the helicopter or slightly left, and a stable 500-ft per minute descent. The helicopter did not respond to his control input and the pilot announced his intention to the crew to go-around. He increased left cyclic until it was against his left leg and the helicopter still did not respond. The pilot lost control of the helicopter and it landed hard colliding with a wall.

An inspector from the Federal Aviation Administration (FAA) examined the airframe with the assistance of a technical representative from Bell Helicopter. No preimpact anomalies were discovered with the wreckage.

The engine control unit (ECU) was removed from the helicopter and sent to Triumph in West Hartford, Connecticut. With oversight from an FAA inspector, data from the unit was downloaded. The data extracted was consistent with the engine producing the required power and responding to collective control inputs.

Exceedance information captured by the ECU recorded an exceedance of main rotor speed (Nr) and torque (Q). The unit recorded 10 lines of data with this exceedance which contained information consistent with the accident sequence. Prior to the accident there were 2 spikes in engine parameters. Without changes in collective inputs, demands of flight control inputs could impact a spike on engine demand.

On the NTSB Form 6120, the pilot stated that the helicopter was loaded with 3 crew members on the right side of the helicopter, and a near full fuel load. Up to the accident landing, the helicopter had flown for 6 hours including 6 approaches and night landings at other hospitals without incident.

History of Flight

Landing	Unknown or undetermined Loss of control in flight (Defining event)
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Pilot Information

Certificate:	Commercial	Age:	46, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):	Helicopter	Restraint Used:	3-point
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Helicopter; Instrument Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	05/25/2016
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	01/13/2016
Flight Time:	2838 hours (Total, all aircraft), 140 hours (Total, this make and model), 2191 hours (Pilot In Command, all aircraft), 37 hours (Last 90 days, all aircraft), 21 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	Registration:	N361SF
Model/Series:	407	Aircraft Category:	Helicopter
Year of Manufacture:	2001	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	53490
Landing Gear Type:	High Skid	Seats:	5
Date/Type of Last Inspection:	09/24/2016, AAIP	Certified Max Gross Wt.:	5280 lbs
Time Since Last Inspection:		Engines:	1 Turbo Shaft
Airframe Total Time:	2261.2 Hours at time of accident	Engine Manufacturer:	Allison
ELT:	C126 installed, not activated	Engine Model/Series:	250-C47B
Registered Owner:	Air ER LLC	Rated Power:	813 hp
Operator:	Viking Aviation LLC	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	Survival Flight Services LLC	Operator Designator Code:	7ALA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	KFSI, 1188 ft msl	Distance from Accident Site:	3 Nautical Miles
Observation Time:	0558 CDT	Direction from Accident Site:	36°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	360°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.28 inches Hg	Temperature/Dew Point:	12° C / 9° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	LAWTON, OK (LAW)	Type of Flight Plan Filed:	Company VFR
Destination:	Lawton, OK	Type of Clearance:	VFR
Departure Time:	0600 CDT	Type of Airspace:	Class E

Wreckage and Impact Information

Crew Injuries:	1 Serious, 3 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 3 Minor	Latitude, Longitude:	34.608889, -98.436667 (est)

Administrative Information

Investigator In Charge (IIC):	Jason T Aguilera	Report Date:	03/18/2019
Additional Participating Persons:	Julie Orrick; Federal Aviation Administration; Oklahoma City, OK John Britten; Transportation Safety Board of Canada; Gatineau, QC		
Publish Date:	03/18/2019		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=94106		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).