



Aviation Investigation Final Report

Location:	De Queen, Arkansas	Accident Number:	GAA15CA202
Date & Time:	July 25, 2015, 07:35 Local	Registration:	N1420W
Aircraft:	Bell 47G	Aircraft Damage:	Substantial
Defining Event:	Collision during takeoff/land	Injuries:	1 Minor
Flight Conducted Under:	Part 137: Agricultural		

Analysis

According to the pilot of the skid-equipped helicopter, he had loaded the helicopter with the liquid to be used during the agricultural aerial application flight. The pilot and operator both stated during interviews, that performance planning calculations were not performed prior to the flight, regarding adjustments pertaining to weight and balance, density altitude, out of ground effect capability or in ground effect capability. According to the operator, an FAA approved weight and balance form was not provided to the pilot until after the accident.

The pilot stated that during the takeoff from the elevated platform, he increased collective, established a 2 inch hover, applied forward cyclic, and the helicopter, "about a foot or two from the platform, shook violently and started to descend." The pilot recounted that he turned the nose of the helicopter approximately 45 degrees to the left and the main rotor blades impacted the tank truck upon which the elevated platform was mounted.

When asked, the pilot stated that, "the temperature was hot, possibly in the lower 80 degrees Fahrenheit, and no wind." The nearest weather station was 7 miles east of the accident site and reported 100 percent humidity, a temperature of 73.4 degrees Fahrenheit, a dew point of 73.4 degrees Fahrenheit, no wind and a density altitude of 1,698.7 feet, at an airport elevation of 355 feet. The accident site elevation was 457 feet.

The helicopter sustained substantial damage to the fuselage and main rotor system.

The pilot reported that there were no mechanical malfunctions or failures with the helicopter prior to the flight 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 pilot's failure to conduct helicopter performance planning, which resulted in an uncontrolled descent and impact with a truck and terrain during takeoff from an elevated platform.

Findings

Personnel issues	Performance calculations - Pilot
Aircraft	Climb rate - Not attained/maintained
Organizational issues	Oversight of personnel - Operator
Environmental issues	High density altitude - Effect on operation

Factual Information

History of Flight

Takeoff	Collision during takeoff/land (Defining event)
Takeoff	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Commercial	Age:	52
Airplane Rating(s):	Single-engine land	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 2 With waivers/limitations	Last FAA Medical Exam:	February 25, 2015
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 12, 2014
Flight Time:	(Estimated) 5434 hours (Total, all aircraft), 625 hours (Total, this make and model), 5354 hours (Pilot In Command, all aircraft), 155 hours (Last 90 days, all aircraft), 76 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N1420W
Model/Series:	47G 4A	Aircraft Category:	Helicopter
Year of Manufacture:	1969	Amateur Built:	
Airworthiness Certificate:	Normal; Restricted (Special)	Serial Number:	7663
Landing Gear Type:	N/A; Skid	Seats:	2
Date/Type of Last Inspection:	July 9, 2015 100 hour	Certified Max Gross Wt.:	2950 lbs
Time Since Last Inspection:	51 Hrs	Engines:	1 Turbo shaft
Airframe Total Time:	8014.3 Hrs as of last inspection	Engine Manufacturer:	Rolls Royce
ELT:	Not installed	Engine Model/Series:	T63-A-720 C20
Registered Owner:	HAMMOCK FLYING SERVICE INC	Rated Power:	420 Horsepower
Operator:	HAMMOCK FLYING SERVICE INC	Operating Certificate(s) Held:	Rotorcraft external load (133), Agricultural aircraft (137)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	DEQ,355 ft msl	Distance from Accident Site:	15 Nautical Miles
Observation Time:	12:22 Local	Direction from Accident Site:	77°
Lowest Cloud Condition:	Clear	Visibility	4 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/ None
Wind Direction:		Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	29.96 inches Hg	Temperature/Dew Point:	23°C / 23°C
Precipitation and Obscuration:	Moderate - None - Mist		
Departure Point:	De Queen, AR (DEQ)	Type of Flight Plan Filed:	None
Destination:	De Queen, AR (DEQ)	Type of Clearance:	None
Departure Time:	05:50 Local	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	34.02639,-94.154167(est)

Administrative Information

Investigator In Charge (IIC):	Hicks, Michael
Additional Participating Persons:	Brian Love; Federal Aviation Administration; Little Rock, AR
Original Publish Date:	December 3, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=91648

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