



Aviation Investigation Final Report

Location:	Charles City, Iowa	Accident Number:	CEN23LA326
Date & Time:	July 26, 2023, 11:00 Local	Registration:	N4174L
Aircraft:	ROBINSON HELICOPTER COMPANY R44 II	Aircraft Damage:	Substantial
Defining Event:	Aircraft loading event	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Aerial application		

Analysis

The pilot of the aerial application flight stated that when the flight returned to the load truck, it still had aerial application product aboard, which he was unaware of. He requested and received an additional 60 gallons of product that was loaded onto the helicopter for the accident flight. After loading the helicopter with the additional product, it now was about 172 lbs over the helicopter's gross weight. When the helicopter departed from the load truck on the accident flight, the helicopter experienced a decay in rotor rpm and settled into an adjacent corn field about 75 ft from the truck. The helicopter sustained substantial damage to the main and tail rotor blades and tail boom.

The pilot stated that he was not properly prepared to jettison the load in the event of an emergency and his power cross checks were not adequate. The pilot stated that there was no mechanical malfunction/failure of the helicopter. An excessive load would have reduced the climb performance capability of the helicopter and resulted in settling.

Probable Cause and Findings

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

The pilot's improper preflight of the helicopter to ensure that it was within the loading and performance limitations that resulted in settling and impact with terrain during initial climb.

Findings

Personnel issues	Weight/balance calculations - Pilot
Aircraft	Maximum weight - Capability exceeded

Factual Information

History of Flight

Prior to flight	Aircraft loading event (Defining event)
Initial climb	Loss of control in flight
Uncontrolled descent	Attempted remediation/recovery
Landing	Hard landing

Pilot Information

Certificate:	Commercial	Age:	39, Male
Airplane Rating(s):	None	Seat Occupied:	Front
Other Aircraft Rating(s):	Helicopter	Restraint Used:	4-point
Instrument Rating(s):	Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	January 5, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 11, 2022
Flight Time:	2057 hours (Total, all aircraft), 1204 hours (Total, this make and model), 2032 hours (Pilot In Command, all aircraft), 208 hours (Last 90 days, all aircraft), 189 hours (Last 30 days, all aircraft), 8 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	ROBINSON HELICOPTER COMPANY	Registration:	N4174L
Model/Series:	R44 II	Aircraft Category:	Helicopter
Year of Manufacture:	2008	Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	12495
Landing Gear Type:	Skid	Seats:	4
Date/Type of Last Inspection:	100 hour	Certified Max Gross Wt.:	2500 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	1913.7 Hrs	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	IO-540
Registered Owner:	CST & SONS LLC	Rated Power:	245 Horsepower
Operator:	Back Nine Aerial LLC	Operating Certificate(s) Held:	Agricultural aircraft (137)
Operator Does Business As:	Recon Helicopters	Operator Designator Code:	4B9L

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	CCY,1125 ft msl	Distance from Accident Site:	7 Nautical Miles
Observation Time:	10:55 Local	Direction from Accident Site:	225°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.82 inches Hg	Temperature/Dew Point:	24°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	West Union, IA	Type of Flight Plan Filed:	None
Destination:	Charles City, IA	Type of Clearance:	None
Departure Time:	07:00 Local	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	43.023485,-92.767075

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Jason Glass; Federal Aviation Administration, Des Moines FSDO; Ankeny, IA
Original Publish Date:	October 17, 2023
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=192720

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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](#).