Aviation Investigation Final Report

Location:	Assumption, Minnesota	**Accident Number:**	CEN25LA298
Date & Time:	July 31, 2025, 08:46 Local	**Registration:**	N102SH
Aircraft:	Bell 47G	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The aerial application helicopter had completed applying liquid chemical to a corn field and the hopper was empty. The pilot was flying the helicopter back to the loading truck at approximately 100 ft agl and 60 mph when a total loss of engine power occurred. The pilot performed an autorotation to a flat alfalfa field, the helicopter landed hard, the right side skid collapsed, and the helicopter came to rest upright. During the hard landing, the main rotor blades severed the tail boom. The pilot was able to egress from the helicopter without further incident.

After the accident, about 5 total gallons of Jet A fuel were found in the two saddle-type fuel tanks, that are located above the turboshaft engine. There was no fuel leak due to the accident sequence. The pilot reported the helicopter was last fueled about 1 hour and 35 minutes before the accident occurred and about 30 gallons of fuel was added. For the most recent takeoff prior to the accident, the pilot reported that the cockpit fuel gauge was indicating between 8 to 18 gallons of fuel onboard.

The helicopter sustained substantial damage to the main rotor system, the tail boom, and the tail rotor system. The pilot reported there were no preimpact mechanical malfunctions or failures with the airframe or the engine that would have precluded normal operation.

The make and model of helicopter has a fuel capacity of 61.6 gallons of which 57.5 gallons of fuel is useable, and 4.1 gallons of fuel are unusable. The fuel delivery port or tube on both saddle-type fuel tanks is located at the aft, lower end of each fuel tank, and both fuel tanks deliver fuel to the engine simultaneously. There is no pilot-controlled fuel selector valve located in the cockpit. A pitch attitude change such as a banking turn or a nose-down attitude,

would likely cause a disruption in fuel flow to the engine with the low fuel levels that were found in the fuel tanks, resulting in fuel starvation.

Probable Cause and Findings

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

A total loss of engine power due to fuel starvation, which resulted from attitude-inducing unporting of the fuel.

Findings

Aircraft	Fuel - Fluid level
Aircraft	Fuel distribution - Design
Aircraft	Fuel distribution - Capability exceeded

Factual Information

History of Flight

Maneuvering-low-alt flying	Fuel starvation (Defining event)
Maneuvering-low-alt flying	Loss of engine power (total)
Autorotation	Off-field or emergency landing
Landing-flare/touchdown	Hard landing
Post-impact	Evacuation

Pilot Information

Certificate:	Commercial	**Age:**	40,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
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 With waivers/limitations	**Last FAA Medical Exam:**	April 21, 2025
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 24, 2025
Flight Time:	(Estimated) 3308.7 hours (Total, all aircraft), 2203.3 hours (Total, this make and model), 3268.3 hours (Pilot In Command, all aircraft), 147.9 hours (Last 90 days, all aircraft), 107 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N102SH
Model/Series:	47G 4A	**Aircraft Category:**	Helicopter
Year of Manufacture:	1971	**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	7762
Landing Gear Type:	None; Skid	**Seats:**	3
Date/Type of Last Inspection:	April 25, 2025 Annual	**Certified Max Gross Wt.:**	2950 lbs
Time Since Last Inspection:	146.9 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	13284.9 Hrs at time of accident	**Engine Manufacturer:**	Allison
ELT:	Not installed	**Engine Model/Series:**	T63-A-700
Registered Owner:	Scott's Helicopter Services Inc.	**Rated Power:**	317 Horsepower
Operator:	Scott Churchill	**Operating Certificate(s) Held:**	Agricultural aircraft (137)
Operator Does Business As:	Scott Churchill	**Operator Designator Code:**	CUHG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KGYL,992 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	08:35 Local	**Direction from Accident Site:**	292°
Lowest Cloud Condition:	Clear	**Visibility**	7 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.35 inches Hg	**Temperature/Dew Point:**	18°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Assumption, MN (None)	**Type of Flight Plan Filed:**	None
Destination:	Assumption, MN (None)	**Type of Clearance:**	None
Departure Time:	07:11 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:**	44.687274,-93.835999(est)

Administrative Information

Investigator In Charge (IIC):	Hodges, Michael
Additional Participating Persons:	Elise Van De Putte; FAA Minneapolis FSDO; Minneapolis, MN
Original Publish Date:	September 18, 2025
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=200674